# NFPA 101® Life Safety Code® 1988


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National Fire Protection Association
Batterymarch Park, Quincy, MA 02269

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### Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

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### Statement on NFPA Procedures

This material has been developed under the published procedures of the National Fire Protection Association, which are designed to assure the appointment of technically competent Committees having balanced representation. While these procedures assure the highest degree of care, neither the National Fire Protection Association, its members, nor those participating in its activities accepts any liability resulting from compliance or noncompliance with the provisions given herein, for any restrictions imposed on materials or processes, or for the completeness of the text.

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**NFPA *101*®**

# Code for Safety to Life

# from Fire in Buildings and Structures

## 1988 Edition

This 1988 edition of the *Life Safety Code*® was adopted by the National Fire Protection Association, Inc. on November 11, 1987 at its 1987 fall meeting in Portland, Oregon and was issued by the Standards Council on January 13, 1988, with an effective date of February 2, 1988. This 1988 edition supersedes the 1985 edition and all other previous editions.

Two of the most significant changes from the 1985 Edition of the *Code* are revisions to the method of determining egress capacity and revisions to the methods of measuring travel distance. The concept of unit of exit width has been eliminated and a straight linear function for egress capacity has been established. Travel distance is now measured from the most remote point subject to occupancy without exception. Other major changes include: addition of a specific definition of common path of travel; recognition of stairs for small changes in levels of elevation; more recognition of other than side-hinged swinging doors and specific requirements for horizontal sliding doors; provisions for nonrated exterior walls of enclosed stairs; revised heights for handrails; establishment of a base minimum number of egress paths based on occupant load; moving the half-diagonal separation of exit paths from an appendix recommendation to a Code mandate; establishing some initial minimum provisions for arrows on exit signs; more stringent requirements when textile materials are put on walls or ceilings; new provisions for amusement buildings and for exhibits in exhibit halls; specific egress provisions for balconies or mezzanines in assembly occupancies; a total rewrite to the method of calculating seating and aisles in assembly occupancies; clarification of where and how to sprinkler assembly occupancies as well as a reduction in the number of exceptions for sprinklers in assembly occupancies; elimination of the category of residential-custodial care and supervisory care in Chapters 12 and 13 and the establishment of a new category of limited care in those chapters; reduction in the mandatory height before sprinklers are required in new nursing home and new limited care facilities; reorganization of the corridor provisions for health care; mandatory sprinkler requirements in new high rise educational, detention and correctional, hotels, dormitories and apartment buildings; revisions to Chapter 21 to bring it into similar format with the rest of the *Code* and eliminate reliance of references to other chapters such as Chapters 20 and 17; new controls on upholstered furniture in nonsprinklered health care occupancies; new requirements for emergency instructions for residents and guests of hotels and apartment buildings; and, lastly, the moving of Appendices C through G out of NFPA 101 and into NFPA 101M®. All significant changes and requirements have been identified by a vertical line in the margin. A cross-reference index between the 1985 and 1988 editions has been included to assist the user.

This 1988 edition has been approved by the American National Standards Institute.

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**Gary F. Tilson,** American Iron & Steel Institute
(Alternate to D. Boring)

*This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.*

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

## 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. For the first few years of its existence the Committee devoted its attention to a study of the notable fires involving loss of life and in analyzing the causes of this loss of life. This work led to the preparation of standards for the construction of stairways, fire escapes, etc., for fire drills in various occupancies, and for the construction and arrangement of exit facilities for factories, schools, etc., which form the basis of the present *Code*. 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). A pamphlet, "Exit Drills in Factories, Schools, Department Stores and Theatres," published in 1912 following its presentation by the late Committee member Mr. R.H. Newbern at the 1911 Annual Meeting of the Association, although antedating the organization of the Committee, is considered as having the status of a Committee publication and had been used with the other pamphlets as a groundwork for the present *Code*. These pamphlets were widely circulated and put into quite general use.

In 1921 the Committee was enlarged to include representation of certain interested groups not previously participating, and work was started on the further development and integration of 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.

The Cocoanut Grove Night Club fire in Boston in 1942 in which 492 lives were lost focused national attention upon the importance of adequate exits and related firesafety features. 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 legal regulatory purposes. However, the *Code* was not in suitable form for adoption into law, as it had been drafted as a reference document containing many advisory provisions useful to designers of buildings, but not appropriate 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 also involved adding to the *Code* provisions on many features in order to produce a complete document. Preliminary work 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 separate documents, NFPA 101B and NFPA 101C, were published on nursing homes and interior finish, respectively. NFPA 101C was revised in 1956. These publications have since been withdrawn.

In 1963 the Safety to Life Committee was reconstructed. The Committee was decreased in size to include only those having very broad knowledge in fire matters and representing all interested factions. 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 Safety to Life Committee 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 text was put into "code language" and all explanatory notes were placed in an appendix. The contents of the *Code* were arranged in the same general order as contents of model building codes because the *Code* is used primarily as a supplement to building codes.

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 eleven 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. New chapters on Detention and

Correctional Facilities were added as well as new requirements for Atriums, Apartments for the Elderly, and Ambulatory Health Care Centers. The 1985 edition contained major editorial and technical changes in Section 5-2 on Means of Egress Components, a new Chapter 21 on Residential Board and Care Occupancies with related Appendices F and G, deletion of special provisions for housing for the elderly and dormitories, a new Appendix D on Alternative Calculations for Stair Width, and Appendix E, an FSES for Detention and Correctional Facilities. The 1988 edition contains 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. Also, revisions to the method of measuring travel distance, the establishment of a base minimum number of means of egress, and specific requirements for remoteness of exits, as well as new provisions for amusement buildings and exhibit halls, have been made. Appendices C through G have been moved from NFPA 101 into a new document, NFPA 101M.

In all of the work in developing the various sections of the *Code*, the groups particularly concerned have been consulted. All public proposals have been reviewed, and these proposals along with Committee proposals and the Committee's response to all proposals have been published by the NFPA for review by all concerned, and any comments received have been discussed and many have been adopted by the Committee or at meetings of the NFPA. Records of the discussions and action taken by the NFPA will be found in the *Technical Committee Reports* and the *Technical Committee Documentation.*

The Committee welcomes comments and suggestions on the *Life Safety Code.* Any reader may file a request for consideration of changes. Such requests should be filed in writing, giving specific proposals and supporting data.

## 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* 4th edition, available from NFPA. Further information on these seminars is available through the Division of Continuing Education of NFPA.

The *Code* essentially consists of five major parts. The first part consists of Chapters 1 through 7; these are often referred to as the base chapters or fundamental chapters. The next part consists of Chapters 8 through 30, which are the occupancy chapters. The third part consists of Chapter 31, on operating features. The fourth part is Chapter 32, on mandatory referenced publications, and the fifth and last part consists of Appendices A and B, which contain useful additional information.

A thorough understanding of Chapters 1 through 7 is necessary before using the *Code* as these chapters provide the "building blocks" upon which the occupancy chapters have built their requirements. It should be noted that many of the provisions of Chapters 1 through 7 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 5, the term "where permitted by Chapters 8 through 30" appears. When this does appear, that provision can be used only where specifically allowed by an occupancy chapter. For example, the provisions of 5-2.1.6 on special locking arrangements are allowed only when permitted by Chapters 8 through 30. Permission to use this special locking arrangement is normally found in the "2.2" subsection of each occupancy chapter. For example, 8-2.2.2.4 specifically allows the use of these special locking arrangements in new assembly occupancies. If this permission is not found in an occupancy chapter, the special locking arrangements cannot be used. Similar types of restricted permission are found for such items as security grilles, double cylinder locks, special stairway reentry, revolving doors, atriums, etc. In other locations in the base chapters the term "unless prohibited by Chapters 8 through 30" 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,* values for measurements are followed by an equivalent in SI units. The first stated value shall be regarded as the requirement, because the given equivalent value may be approximate.

# Contents

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NFPA *101*®

# Code for Safety to Life from Fire in Buildings and Structures

1988 Edition

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

# CHAPTER 1 ADMINISTRATION

## SECTION 1-1 TITLE

**1-1.1** This *Code* shall be known as the *Life Safety Code*, may be cited as such, and is referred to herein as "this *Code*" or "the *Code*."

## SECTION 1-2 PURPOSE

**1-2.1** The purpose of this *Code* is to establish minimum requirements that will provide a reasonable degree of safety from fire in buildings and structures.

**1-2.2** The *Code* endeavors to avoid requirements that might involve unreasonable hardships or unnecessary inconvenience or interference with the normal use and occupancy of a building, but insists upon compliance with a minimum standard for fire-safety consistent with the public interest.

## SECTION 1-3 SCOPE

**1-3.1*** This *Code* addresses life safety from fire and similar emergencies.

**1-3.2** The *Code* addresses those construction, protection, and occupancy features necessary to minimize danger to life from fire, smoke, fumes, or panic.

**1-3.3** The *Code* identifies the minimum criteria for the design of egress facilities so as to permit prompt escape of occupants from buildings or, where desirable, into safe areas within the building.

**1-3.4** The *Code* recognizes that life safety is more than a matter of egress and, accordingly, deals with other considerations that are essential to life safety.

**1-3.5** When in fixed locations and occupied as buildings, vehicles, vessels, or other mobile structures shall be treated as buildings

**1-3.6** The *Code* does not attempt to address those general fire prevention or building construction features that are normally a function of fire prevention and building codes.

**1-3.7** The prevention of accidental personal injuries during the course of normal occupancy of buildings, personal injuries incurred by an individual's own negligence, and the preservation of property from loss by fire have not been considered as the basis for any of the provisions of this *Code*.

## SECTION 1-4 APPLICATION

**1-4.1** The *Code* applies to both new construction and existing buildings. In various chapters there are specific provisions for existing buildings that may differ from those for new construction.

**1-4.2** A limited but reasonable time shall be allowed for compliance with any part of this *Code* for existing buildings, commensurate with the magnitude of expenditure, disruption of services, and degree of hazard.

**1-4.3** The authority having jurisdiction shall determine the adequacy of means of egress and other measures for life safety from fire in accordance with the provisions of this *Code*.

**1-4.4*** The requirements for existing buildings may be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction, but only where it is clearly evident that a reasonable degree of safety is provided.

**1-4.5 Additions.** Additions shall conform to the provisions for new construction.

**1-4.6* Modernization or Renovation.** Any alteration, or any installations of new equipment, shall be accomplished as nearly as practical in conformance with the requirements for new construction. Alterations shall not diminish the level of life safety below that which exists prior to the alteration. In no case shall the resulting life safety be less than that required for existing buildings. Life safety features that do not meet the requirements for new buildings but exceed the requirements for existing buildings shall not be further diminished. Life safety features in excess of those required for new construction are not required to be maintained.

**1-4.7 Mixed Occupancies.** Where two or more classes of occupancy occur in the same building or structure, and are so intermingled that separate safeguards are impracticable, means of egress facilities, construction, protection, and other safeguards shall comply with the most restrictive life safety requirements of the occupancies involved.

**1-4.8** Where specific requirements contained in Chapters 8 through 30 differ from similar requirements contained in Chapters 1 through 7, the requirements of Chapters 8 through 30 shall govern.

**1-4.9 Provisions in Excess of Code Requirements.** Nothing in this *Code* shall be construed to prohibit a better type of building construction, more exits, or otherwise safer conditions than the minimum requirements specified in this *Code*.

## SECTION 1-5 EQUIVALENCY CONCEPTS

**1-5.1*** 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 to those prescribed by this *Code*, provided technical documentation is submitted to the authority having jurisdiction to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

**1-5.2** The specific requirements of this *Code* may be modified by the authority having jurisdiction to allow alternative arrangements that will secure as nearly equivalent safety to life from fire as practical, but in no case shall the modification afford less safety to life than, in the judgment of the authority having jurisdiction, that which would be provided by compliance with the corresponding provisions contained in this *Code*.

**1-5.3** Buildings with alternative fire protection features accepted by the authority having jurisdiction shall be considered as conforming with the *Code*.

## SECTION 1-6 OCCUPANCY (*See also Section 31-1.*)

**1-6.1** No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*.

**1-6.2** Existing buildings that are occupied at the time of adoption of the *Code* may remain in use provided:

(a) The occupancy classification remains the same.

(b) No serious life safety hazard exists that would constitute an imminent threat.

**1-6.3*** Buildings or portions of buildings may be occupied during construction, repair, alterations, or additions only if all means of egress and all fire protection features are in place and continuously maintained for the part occupied.

**1-6.4* Changes of Occupancy.** In any building or structure, whether necessitating a physical alteration or not, a change from one occupancy classification to another, or from one occupancy subclassification to another subclassification of the same occupancy may be made only if such building or structure conforms with the requirements of this *Code* applying to new construction for the proposed new use.

## SECTION 1-7 MAINTENANCE (*See also Section 31-1.*)

**1-7 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 permanently maintained unless the *Code* exempts such maintenance.

# CHAPTER 2 FUNDAMENTAL REQUIREMENTS

**2-1*** Every building or structure, new or old, designed for human occupancy shall be provided with exits sufficient to permit the prompt escape of occupants in case of fire or other emergency. The design of exits and other safeguards shall be such that reliance for safety to life in case of fire or other emergency will not depend solely on any single safeguard; additional safeguards shall be provided for life safety in case any single safeguard is ineffective due to some human or mechanical failure.

**2-2** Every building or structure shall be so constructed, arranged, equipped, maintained, and operated as to avoid undue danger to the lives and safety of its occupants from fire, smoke, fumes, or resulting panic during the period of time reasonably necessary for escape from the building or structure in case of fire or other emergency.

**2-3** Every building or structure shall be provided with exits of kinds, numbers, location, and capacity appropriate to the individual building or structure, with due regard to the character of the occupancy, the number of persons exposed, the fire protection available, and the height and type of construction of the building or structure, to afford all occupants convenient facilities for escape.

**2-4** In every building or structure, exits shall be so arranged and maintained as to provide free and unobstructed egress from all parts of the building or structure at all times when it is occupied. No lock or fastening shall be installed to prevent free escape from the inside of any building.

*Exception: Locks shall be permitted in mental health, detention, or correctional facilities where supervisory personnel are continually on duty and effective provisions are made to remove occupants in case of fire or other emergency.*

**2-5** Every exit shall be clearly visible, or the route to reach it shall be conspicuously indicated in such a manner that every occupant of every building or structure who is physically and mentally capable will readily know the direction of escape from any point. Each means of egress, in its entirety, shall be so arranged or marked that the way to a place of safety is indicated in a clear manner. Any doorway or passageway that is not an exit or a way to reach an exit, but is capable of being confused with an exit, shall be so arranged or marked to prevent occupant confusion with acceptable exits. Every effort shall be taken to avoid occupants mistakenly traveling into dead-end spaces in a fire emergency.

**2-6** Where artificial illumination is required in a building or structure, exit facilities shall be included in the lighting design in an adequate and reliable manner.

**2-7** In every building or structure of such size, arrangement, or occupancy that a fire itself may not provide adequate occupant warning, fire alarm facilities shall be provided where necessary to warn occupants of the existence of fire. Fire alarms will alert occupants to initiate escape. Fire alarms facilitate the orderly conduct of fire exit drills.

**2-8** Two means of egress, as a minimum, shall be provided in every building or structure, section, or area where the size, occupancy, and arrangement endangers 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 may be impassable by the same fire or emergency condition.

**2-9** Every vertical way of exit and other vertical opening between floors of a building shall be suitably enclosed or protected, as necessary, to afford reasonable safety to occupants while using exits, and to prevent spread of fire, smoke, or fumes through vertical openings from floor to floor before occupants have entered exits.

**2-10*** Compliance with this *Code* shall not be construed as eliminating or reducing the necessity for other provisions for safety of persons using a structure under normal occupancy conditions. Also, no provision of the *Code* shall be construed as requiring or permitting any condition that may be hazardous under normal occupancy conditions.

# CHAPTER 3 DEFINITIONS

## SECTION 3-1 GENERAL

**3-1.1** The following terms, for the purposes of this *Code*, shall have the meanings given in this chapter, if not otherwise modified for a specific occupancy.

**3-1.2** Words used in the present tense include the future; words used in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

**3-1.3** Where terms are not defined in this chapter, they shall have their ordinarily accepted meanings or such as the context may imply.

## SECTION 3-2 DEFINITIONS

**Addition.** An extension or increase in floor area or height of a building or structure.

**Apartment Building.** (*See Section 18-1 or 19-1.*)

**Approved.*** Means "acceptable to the authority having jurisdiction."

**Area.** See Floor Area.

**Arena Stage.** A stage or platform open on at least three sides to audience seating. It may be with or without overhead scene handling facilities.

**Assembly Occupancy.** (*See Section 4-1.*)

**Atrium.** 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; elevator hoistway; escalator opening; or utility shaft used for plumbing, electrical, air conditioning, or communication facilities.

**Authority Having Jurisdiction.*** The "authority having jurisdiction" is the organization, office, or individual responsible for "approving" equipment, an installation, or a procedure.

**Automatic.** Providing a function without the necessity of human intervention.

**Board and Care.** (*See Section 21-1.*)

**Building.** Any structure used or intended for supporting or sheltering any use or occupancy. The term building shall be construed as if followed by the words "or portions thereof." (*See Structure.*)

**Building, Existing.** Any structure erected prior to the adoption of this *Code* or for which a permit for construction has been issued.

**Business Occupancy.** (*See Section 4-1.*)

**Combustible.** Capable of undergoing combustion.

**Combustion.** A chemical process that involves oxidation sufficient to produce light or heat.

**Common Atmosphere (Educational Occupancies).** (*See Section 10-1 or 11-1.*)

**Common Path of Travel.** That portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available. Paths that merge are common paths of travel. Common path of travel is measured in the same manner as travel distance but terminates at that point where two separate and distinct routes become available.

**Complete Smoke Detection System.** (*See 7-6.2.7.*)

**Correctional Occupancies.** (*See Section 4-1.*)

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

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

**Critical Radiant Flux.** The level of incident radiant heat energy on a floor covering system at the most distant flameout point as determined by the test procedure of NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.* The unit of measurement of critical radiant flux is watts per square centimeter (watts/cm$^2$).

**Day-Care Centers.** (*See Section 10-7 or 11-7.*)

**Detention Occupancies.** (*See Section 4-1.*)

**Dormitories.** (*See Section 16-1 or 17-1.*)

**Draft Stop.** A continuous membrane to subdivide a concealed space to restrict the passage of smoke, heat, and flames.

**Educational Occupancies.** (*See Section 10-1 or 11-1.*)

**Existing.** That which is already in existence at the date when this *Code* goes into effect, as existing buildings, structures, or exit facilities.

**Exit.** That portion of a means of egress that is separated from all other spaces of the building or structure by construction or equipment as required in 5-1.3.1 to provide a protected way of travel to the exit discharge.

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

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

**Family Day-Care Home.** (*See Section 10-9 or 11-9.*)

**Fire Barrier.** A fire barrier is a continuous membrane, either vertical or horizontal, such as a wall or floor assembly, that is designed and constructed with a specified fire resistance

rating to limit the spread of fire, and that will also restrict the movement of smoke. Such barriers may have protected openings. (*See 6-2.3.*)

**Fire Compartment.*** A fire compartment is a space within a building that is enclosed by fire barriers on all sides, including the top and bottom. (*See 6-2.2.*)

**Fire Resistance Rating.** The time, in minutes or hours, that materials or assemblies have withstood a fire exposure as established in accordance with the test procedures of NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials.*

**Fire Window.** A window assembly, including frame, wired glass, and hardware that under NFPA 257, *Standard for Fire Tests of Window Assemblies*, meets the fire protective requirements for the location in which it is to be used.

**Flame Spread.** The propagation of flame over a surface. (*See Section 6-5.*)

**Flexible Plan Educational Buildings.** (*See Section 10-1 or 11-1.*)

**Floor Area, Gross.** Gross floor area shall be 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. Where the term area is used elsewhere in this *Code*, it shall be understood to be gross area unless otherwise specified.

**Floor Area, Net.** Net floor area shall be the actual occupied area, not including accessory unoccupied areas or thickness of walls.

**General Industrial Occupancies.** (*See Section 28-1.*)

**Group Day-Care Homes.** (*See Section 10-8 or 11-8.*)

**Guard.** A vertical protective barrier erected along exposed edges of stairways, balconies, etc.

**Handrail.** A bar, pipe, or similar member designed to furnish persons with a handhold. (A handrail, if of suitable design, may also serve as part of a guard.)

**Hazardous Areas.** Areas of structures, buildings, or parts thereof having a degree of hazard greater than that normal to the general occupancy of the building or structure, such as storage or use of combustibles or flammables, toxic, noxious, or corrosive materials, or use of heat-producing appliances.

**Health Care Occupancies.** (*See Section 4-1.*)

**High Hazard Areas.** Areas of structures, buildings, or parts thereof used for purposes that involve highly combustible, highly flammable, or explosive products or materials that are likely to burn with extreme rapidity, or that may produce poisonous fumes or gases, including highly toxic or noxious alkalies, acids, or other liquids or chemicals that involve flame, fume, explosive, poisonous, or irritant hazards; also uses that cause division of material into fine particles or dust subject to explosion or spontaneous combustion, and uses that constitute a high fire hazard because of the form, character, or volume of the material used.

**High Hazard Industrial Occupancy.** (*See Section 28-1.*)

**High Rise Building.*** A building more than 75 ft (23 m) in height. Building height shall be measured from the lowest level of fire department vehicle access to the floor of the highest occupiable story.

**Horizontal Exit.** (*See 5-1.2.5.*)

**Hospital.** (*See Section 12-1 or 13-1.*)

**Hotel.** (*See Section 16-1 or 17-1.*)

**Industrial Occupancy.** (*See Section 4-1.*)

**Interior Finish.** (*See Section 6-5.*)

**Interior Floor Finish.** (*See Section 6-5.*)

**Interior Room (Educational Occupancies).** (*See Section 10-1 or 11-1.*)

**Limited Care Facility.** (*See Section 12-1 or 13-1.*)

**Limited-Combustible.*** As applied to a building construction material, other than interior finish, means a material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu per lb ($8.14 \times 10^6$ J/Kg), and complies with one of the following paragraphs (a) or (b).

Materials subject to increase in combustibility or flame spread rating beyond the limits herein established through the effects of age, moisture, or other atmospheric condition shall be considered combustible.

(a) Materials having a structural base of noncombustible material with a surfacing not exceeding a thickness of ⅛ in. (0.3 cm) that has a flame spread rating not greater than 50.

(b) Materials, in the form and thickness used, other than as described in (a), having neither a flame spread rating 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 rating greater than 25 nor evidence of continued progressive combustion.

**Load, Live.** The weight superimposed by the use and occupancy of the building, not including the wind load, earthquake load, or dead load.

**Lodging Homes.** (*See Section 20-1.*)

**Means of Egress.** (*See Section 5-1.*)

**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.

**Mercantile Occupancies.** (*See Section 4-1.*)

**Mezzanine.** An intermediate level between the floor and the ceiling of any room or space and covering not more than one-third of the floor area of the room or space in which it is located.

**Noncombustible.** A material that, in the form in which it is used and under the conditions anticipated, will not aid combus-

tion or add appreciable heat to an ambient fire. Materials, where tested in accordance with ASTM E136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C*, and conforming to the criteria contained in Section 7 of the referenced standard shall be considered as noncombustible.

**Nursing Homes.** (*See Section 12-1 or 13-1.*)

**Occupancy.** The purpose for which a building or portion thereof is used or intended to be used.

**Occupant Load.** The total number of persons that may occupy a building or portion thereof at any one time.

**Occupiable Story.** A story occupied by people on a regular basis. Stories used exclusively for mechanical equipment rooms, elevator penthouses, and similar spaces are not occupiable stories.

**One- and Two- Family Dwellings.** (*See Section 22-1.*)

**Open Industrial Structures.** (*See Section 28-1.*)

**Open Plan Educational Buildings.** (*See Section 10-1 or 11-1.*)

**Outpatient (Ambulatory) Clinics.** (*See Section 12-1 or 13-1.*)

**Outside Stairs.** Outside stairs include stairs in which at least one side is open to the outer air. (*See 5-2.2.*)

**Partial Smoke Detection System.** (*See 7-6.2.8.*)

**Place of Assembly.** (*See Assembly Occupancy in Section 4-1.*)

**Platform.** (*See Section 8-1 or 9-1.*)

**Plenum.** An air compartment or chamber to which one or more ducts are connected and that forms part of an air distribution system.

**Proscenium Wall.** (*See Section 8-1 or 9-1.*)

**Public Way.** Any 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 (3 m).

**Ramp.** An inclined floor surface. (*See 5-1.2.7 and 5-2.5.*)

**Residential Occupancies.** (*See Section 4-1.*)

**Residential Board and Care.** (*See Section 21-1.*)

**Room (Educational Occupancies).** (*See Section 10-1 or 11-1.*)

**Rooming House.** (*See Section 20-1.*)

**Self-Closing.** Equipped with an approved device that will ensure closing after having been opened.

**Separate Atmosphere (Educational Occupancies).** (*See Section 10-1 or 11-1.*)

**Separate Means of Egress (Educational Occupancies).** (*See Section 10-1 or 11-1.*)

**Separated Exit Stair.** (*See 5-1.3.1.*)

**Separated Exit Ramp.** (*See 5-1.3.1.*)

**Smoke Barrier.** A smoke barrier is a continuous membrane, either vertical or horizontal, such as a wall, floor, or ceiling assembly, that is designed and constructed to restrict the movement of smoke. A smoke barrier may or may not have a fire resistance rating. Such barriers may have protected openings. (*See Section 6-3.*)

**Smoke Compartment.*** A smoke compartment is a space within a building enclosed by smoke barriers on all sides, including the top and bottom. (*See Section 6-3.*)

**Smoke Detector.** A device that senses visible or invisible particles of combustion.

**Special Purpose Industrial Occupancies.** (*See Section 28-1.*)

**Special Structures.** (*See Section 4-1.*)

**Stage.** (*See Section 8-1 or 9-1.*)

**Storage Occupancy.** (*See Section 4-1.*)

**Stores.** (*See Section 24-1 or 25-1.*)

**Story.** That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above.

**Street.** Any public thoroughfare (street, avenue, boulevard) 30 ft (9.1 m) or more in width that has been dedicated or deeded to the public for public use and is accessible for use by the fire department in fighting fire. Enclosed spaces and tunnels, even though used for vehicular and pedestrian traffic, are not considered as streets for the purposes of the *Code*.

**Street Floor.** Any story or floor level accessible from the street or from outside the building at ground level with floor level at main entrance not more than three risers above or below ground level at these points, and so arranged and utilized as to qualify as the main floor. Where, due to differences in street levels, there are two or more stories accessible from the street, each is a street floor for the purposes of the *Code*. Where there is no floor level within the specified limits for a street floor above or below ground level, the building shall be considered as having no street floor.

**Structure.** That which is built or constructed. The term structure shall be construed as if followed by the words "or portion thereof." (*See Building.*)

**Thrust Stage.** (*See Section 8-1 or 9-1.*)

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

**Yard.** An open, unoccupied space other than a court, unobstructed from the ground to the sky, except where specifically provided by the *Code*, on the lot on which a building is situated.

# CHAPTER 4 CLASSIFICATION OF OCCUPANCY AND HAZARD OF CONTENTS

## SECTION 4-1 CLASSIFICATION OF OCCUPANCY

**4-1.1** A building or structure shall be classified as follows, subject to the ruling of the authority having jurisdiction in case of question as to proper classification in any individual case.

**4-1.2* Assembly.** *(For requirements see Chapters 8 and 9.)* Assembly occupancies include, but are not limited to, all buildings or portions of buildings used for gathering together 50 or more persons for such purposes as deliberation, worship, entertainment, eating, drinking, amusement, or awaiting transportation. Assembly occupancies include:

| | |
|---|---|
| Armories | Gymnasiums |
| Assembly halls | Libraries |
| Auditoriums | Mortuary chapels |
| Bowling lanes | Motion picture theaters |
| Churches | Museums |
| Club rooms | Passenger stations and terminals of air, surface, underground, and marine public transportation facilities |
| College and university classrooms, 50 persons and over | Pool rooms |
| Conference rooms | Recreation piers |
| Courtrooms | Restaurants |
| Dance halls | Skating rinks |
| Drinking establishments | Theaters |
| Exhibition halls | |

Occupancy of any room or space for assembly purposes by less than 50 persons in a building of other occupancy and incidental to such other occupancy shall be classed as part of the other occupancy and subject to the provisions applicable thereto.

**4-1.3* Educational.** *(For requirements see Chapters 10 and 11.)* Educational occupancies include all buildings or portions of buildings used for educational purposes through the twelfth grade by six or more persons for four or more hours per day or more than 12 hours per week. Educational occupancies include:

| | |
|---|---|
| Academies | Nursery schools |
| Kindergartens | Schools |

Educational occupancies also include day-care facilities of any occupant load. *(See Sections 10-7, 10-8, 10-9; 11-7, 11-8, 11-9.)*

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

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

**4-1.4 Health Care.** *(For requirements see Chapters 12 and 13.)* Health care occupancies are those used for purposes such as medical or other treatment or care of persons suffering from physical or mental illness, disease or infirmity; and for the care of infants, convalescents, or infirm aged persons. Health care occupancies provide sleeping facilities for four or more occupants and are occupied by persons who are mostly incapable of self-preservation because of age, physical or mental disability, or because of security measures not under the occupants' control.

Health care occupancies include:

(a) Hospitals

(b) Nursing homes

(c) Limited care facilities

Health care occupancies also include ambulatory health care centers. *(See Sections 12-6 and 13-6.)*

**4-1.5 Detention and Correctional Occupancies.** *(For requirements see Chapters 14 and 15.)* Detention and correctional occupancies (also known as Residential-Restrained Care Institutions) are those used to house occupants under some degree of restraint or security. Detention and correctional occupancies are occupied by persons who are mostly incapable of self-preservation because of security measures not under the occupants' control.

Detention and correctional occupancies include:

| | |
|---|---|
| Correctional institutions | Penal institutions |
| Detention centers | Prerelease centers |
| Houses of correction | Reformatories |
| Jails | Residential-restrained care |

**4-1.6 Residential.** *(For requirements see Chapters 16 through 23.)* Residential occupancies are those occupancies in which sleeping accommodations are provided for normal residential purposes and include all buildings designed to provide sleeping accommodations.

*Exception: Those classified under Health Care or Detention and Correctional Occupancies.*

Residential occupancies are treated separately in this *Code* in the following groups:

(a) Hotels *(Chapters 16 and 17)*
Motels
Dormitories

(b) Apartments *(Chapters 18 and 19)*

(c) Lodging or rooming houses *(Chapter 20)*

(d) Board and care facilities *(Chapter 21)*

(e) One- and two-family dwellings *(Chapter 22)*

**4-1.7* Mercantile.** *(For requirements see Chapters 24 and 25.)* Mercantile occupancies include stores, markets, and other rooms, buildings, or structures for the display and sale of merchandise. Mercantile occupancies include:

| | |
|---|---|
| Auction rooms | Drugstores |
| Department stores | Shopping centers |
| Supermarkets | |

Minor merchandising operations in buildings predominantly of other occupancies, such as a newsstand in an office building, shall be subject to the exit requirements of the predominant occupancy.

**4-1.8* Business.** *(For requirements see Chapters 26 and 27.)* Business occupancies are those used for the transaction of business (other than that covered under Mercantile), for the keeping of accounts and records, and similar purposes. Business occupancies include:

| | |
|---|---|
| City halls | Doctors' offices |
| College and university- instructional buildings, classrooms under 50 persons, and instructional laboratories | General offices |
| | Laboratories for basic or applied research not including hazardous chemicals |
| Courthouses | Outpatient clinics, ambulatory |
| Dentists' offices | Town halls |

Minor office occupancy incidental to operations in another occupancy shall be considered as a part of the predominating occupancy and shall be subject to the provisions of this *Code* applying to the predominating occupancy.

**4-1.9 Industrial.** *(For requirements see Chapter 28.)* Industrial occupancies include factories making products of all kinds and properties devoted to operations such as processing, assembling, mixing, packaging, finishing or decorating, and repairing. Industrial occupancies include:

| | |
|---|---|
| Creameries | Laundries |
| Dry cleaning plants | Power plants |
| Factories of all kinds | Pumping stations |
| Gas plants | Refineries |
| Laboratories involving hazardous chemicals | Sawmills |
| | Smokehouses |

**4-1.10* Storage.** *(For requirements see Chapter 29.)* Storage occupancies include all buildings or structures utilized primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. Storage occupancies include:

| | |
|---|---|
| Barns | Hangars |
| Bulk oil storage | Parking garages |
| Cold storage | Stables |
| Freight terminals | Truck and marine terminals |
| Grain elevators | Warehouses |

Minor storage incidental to another occupancy shall be treated as part of the other occupancy.

**4-1.11 Special Structures.** Special structures that house occupancies include the occupancies from the preceding groups that are in special structures or buildings including, among others, the following:

| | |
|---|---|
| Open structures | Vehicles |
| Towers | Vessels |
| Underground structures | Water surrounded structures |
| | Windowless buildings |

Such special buildings and structures shall conform to the requirements of the specific occupancy Chapters 8 through 29 except as modified by Chapter 30.

**4-1.12 Mixed Occupancies** *(see 1-4.7)*.

## SECTION 4-2 HAZARD OF CONTENTS

**4-2.1 General.**

**4-2.1.1** The hazard of contents, for the purpose of this *Code*, 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.

**4-2.1.2** Hazard of contents shall be determined by the authority having jurisdiction on the basis of the character of the contents and the processes or operations conducted in the building or structure.

**4-2.1.3*** Where different degrees of hazard of contents exist in different parts of a building or structure, the most hazardous shall govern the classification for the purpose of this *Code*.

*Exception: Where hazardous areas are separated or protected, as specifed in Section 6-4 and the applicable sections of Chapters 8 through 30.*

**4-2.2 Classification of Hazard of Contents.**

**4-2.2.1*** The hazard of contents of any building or structure shall be classified as low, ordinary, or high in accordance with 4-2.2.2, 4-2.2.3, and 4-2.2.4.

**4-2.2.2* Low Hazard.** Low hazard contents shall be classified as those of such low combustibility that no self-propagating fire therein can occur.

**4-2.2.3* Ordinary Hazard.** 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.

**4-2.2.4* High Hazard.** High hazard contents shall be classified as those that are likely to burn with extreme rapidity or from which explosions are to be feared. (*For means of egress requirements see Section 5-11.*)

# CHAPTER 5 MEANS OF EGRESS

*(See also Chapter 31.)*

## SECTION 5-1 GENERAL

**5-1.1 Application.**

**5-1.1.1*** Means of egress for both new and existing buildings shall comply with this chapter. (*Also see Section 31-1.*)

**5-1.1.2** Any alteration or addition that would reduce means of egress below the requirements of this *Code* is prohibited.

**5-1.1.3** Any change of occupancy that would result in means of egress below the requirements of this *Code* is prohibited.

**5-1.2 Definitions.**

**5-1.2.1 Means of Egress.** A means of egress is a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consists of three separate and distinct parts: (a) the exit access, (b) the exit, and (c) the exit discharge. A means of egress comprises the vertical and horizontal travel and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, escalators, horizontal exits, courts, and yards.

**5-1.2.2 Exit Access.** Exit access is that portion of a means of egress that leads to an entrance to an exit.

**5-1.2.3* Exit.** Exit is that portion of a means of egress that is separated from all other spaces of the building or structure by construction or equipment as required in 5-1.3.1 to provide a protected way of travel to the exit discharge. Exits include exterior exit doors, exit passageways, horizontal exits, and separated exit stairs or ramps.

**5-1.2.4 Exit Discharge.** Exit discharge is that portion of a means of egress between the termination of an exit and a public way.

**5-1.2.5* Horizontal Exit.** A horizontal exit is 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 from the area of incidence and areas communicating therewith. (*See 5-2.4.*)

**5-1.2.6 Common Path of Travel.** That portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available. Paths that merge are common paths of travel. Common path of travel is measured the same as travel distance but terminates at that point where two separate and distinct routes become available.

**5-1.2.7 Ramp.** A ramp is a walking surface in an accessible space that has a running slope greater than 1 in 20.

**5-1.3 Separation of Means of Egress.** (*See also Section 6-2.*)

**5-1.3.1 Exits.** Where an exit is required by this *Code* to be protected by separation from other parts of the building, the separating construction shall meet the requirements of Section 6-2 and the following requirements:

(a) The separation shall have at least a 1-hour fire resistance rating where the exit connects three stories or less. This applies whether the stories connected are above or below the story at which exit discharge begins.

*Exception to (a): Existing apartment buildings in accordance with 19-2.2.1.2.*

(b) The separation shall have at least a 2-hour fire resistance rating where the exit connects four or more stories, whether above or below the level of exit discharge. It shall be constructed of an assembly of noncombustible or limited-combustible materials and shall be supported by construction having at least a 2-hour fire resistance rating.

*Exception to (b): Hotels in accordance with 16-2.2.1.2 and 17-2.2.1.2 and apartment buildings in accordance with 18-2.2.1.2 and 19-2.2.1.2.*

(c) Any opening therein shall be protected by a fire door assembly equipped with a door closer complying with 5-2.1.8.

(d) Openings in exit enclosures shall be limited to those necessary for access to the enclosure from normally occupied spaces, from corridors, and for egress from the enclosure.

(e) Penetrations into and openings through an exit enclosure assembly are prohibited except for required exit doors; duct work and equipment necessary for independent stair pressurization; sprinkler piping; standpipes; and electrical conduit serving the stairway.

There shall be no penetrations or communicating openings between adjacent exit enclosures.

**5-1.3.2** The enclosing walls of exits shall be so arranged as to provide a continuous protected path of travel, including landings and passageways, to an exit discharge.

**5-1.3.3** No exit enclosure shall be used for any purpose that would interfere with its use as an exit, such as for storage or similar purposes. (*Also see 5-2.2.3.5.*)

**5-1.3.4* Exit Access Corridors.** Corridors used as exit access and serving an area having an occupant load of more than 30 shall be separated from other parts of the building by construction having at least a 1-hour fire resistance rating. Openings in such separations shall be protected by an approved fire door assembly having a fire protection rating of at least 20 minutes when tested in accordance with NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, without the hose stream test. Such door shall be designed and installed to minimize smoke leakage.

*Exception No. 1: Existing buildings.*

*Exception No. 2: Where requirements differ in Chapters 8 through 30.*

**5-1.4 Interior Finish in Exits.** The flame spread of interior finish on walls and ceilings shall be limited to Class A or Class B in exit enclosures. Chapters 8 through 30 governing individual occupancies may impose further limitations.

**5-1.5 Headroom.** Means of egress shall be so designed and maintained as to provide adequate headroom as provided in other sections of this *Code* (*see 5-2.2.2.1*), but in no case shall the ceiling height be less than 7 ft 6 in. (229 cm) nor shall any projection from the ceiling be less than 6 ft 8 in. (203 cm) nominal height from the floor. Headroom on stairs is the verti-

cal distance above a plane parallel to and tangent with the most forward projection of the stair tread.

*Exception: In existing buildings, the ceiling height shall not be less than 7 ft (213 cm) from the floor with no projection below a 6 ft 8 in. (203 cm) nominal height from the floor.*

**5-1.6 Changes in Level in Means of Egress.**

**5-1.6.1** Changes in level in means of egress shall be by a ramp or a stair where the elevation difference is more than 21 in. (53.3 cm).

**5-1.6.2*** Changes in level in means of egress not more than 21 in. (53.3 cm) shall be either by a ramp or by a stair complying with the requirements of 5-2.2. The minimum tread depth of such stair shall be 13 in. (33.0 cm) and the location of each step shall be readily apparent.

**5-1.7 Workmanship, Impediments to Egress.**

**5-1.7.1** Doors, stairs, ramps, passageways, signs, and all other components of means of egress shall be of substantial, reliable construction and shall be built or installed in a workmanlike manner.

**5-1.7.2** Any device or alarm installed to restrict the improper use of a means of egress shall be so designed and installed that it cannot, even in case of failure, impede or prevent emergency use of such means of egress. (*Also see 5-2.1.6.*)

*Exception: In detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-1.7.3*** Means of egress shall be free of obstructions that would prevent its use.

## SECTION 5-2 MEANS OF EGRESS COMPONENTS

**5-2.1 Doors.**

**5-2.1.1 General.**

**5-2.1.1.1** A door assembly, including the doorway, frame, door, and necessary hardware, may be used as a component in a means of egress where it conforms to the general requirements of Section 5-1 and to the special requirements of this subsection. As such, the assembly is designated as a door.

**5-2.1.1.2** Every door and every principal entrance that is required to serve as an exit shall be so designed and constructed that the way of exit travel is obvious and direct. Windows that, because of their physical configuration or design and the materials used in their construction, could be mistaken for doors shall be made inaccessible to the occupants by barriers or railings conforming to the requirements of 5-2.2.6.

**5-2.1.1.3** For the purpose of Section 5-2, unless otherwise provided by Chapters 8 through 30, a building is occupied at any time it is open to or accessible to the public or at any other time it is occupied by more than 10 persons.

**5-2.1.2 Egress Width.**

**5-2.1.2.1*** In determining the egress width for a doorway, only the clear width of the doorway when the door is in the full open position shall be measured. Clear width shall be the net, unobstructed width of the door opening without projections into such width.

*Exception: In existing buildings, projections into the door opening by stops or by the hinge stile shall be permitted.*

**5-2.1.3 Width and Floor Level.**

**5-2.1.3.1** No door opening in the means of egress shall be less than 32 in. (81 cm) in clear width. Where a pair of doors is provided, at least one of the doors shall provide a minimum 32 in. (81 cm) clear width opening.

*Exception No. 1: Exit access doors serving a room not greater than 70 sq ft (6.5 sq m) and not required to be accessible to the handicapped shall be not less than 24 in. (61 cm) wide.*

*Exception No. 2: In existing buildings the minimum door width shall be not less than 28 in. (71 cm).*

*Exception No. 3: In detention and correctional occupancies as provided in Chapters 14 and 15.*

*Exception No. 4: Interior doors within dwelling units as provided in Chapter 22.*

**5-2.1.3.2** No single door in a doorway shall exceed 48 in. (122 cm) in width.

**5-2.1.3.3** The floor on both sides of a doorway shall be substantially level and shall have the same elevation on both sides of the doorway, for a distance at least equal to the width of the widest leaf.

*Exception: In one- and two-family dwellings and in existing buildings where the door discharges to the outside or to an exterior balcony, exterior exit, or exterior exit access, the floor level outside the door may be one step lower than the inside, but not more than 8 in. (20.3 cm) lower.*

**5-2.1.4 Swing and Force to Open.**

**5-2.1.4.1*** Any door in a means of egress shall be of the side-hinged or pivoted swinging type. The door shall be so designed and installed that it shall be capable of swinging from any position to the full use of the opening in which it is installed. Doors shall swing in the direction of exit travel:

(a) Where used in an exit enclosure, or

(b) Where serving a high hazard area, or

(c) Where serving a room or area with an occupant load of 50 or more.

*Exception No. 1: Sliding doors in detention and correctional occupancies as provided in Chapters 14 and 15, and doors for dwelling units as provided in Chapter 22.*

*Exception No. 2: Smoke barrier door swing in existing health care occupancies as provided in Chapter 13.*

*Exception No. 3: Where permitted by Chapters 8 through 30, horizontal sliding or vertical rolling security grilles or doors that are a part of the required means of egress shall conform to the following:*

*(a) They must remain secured in the full open position during the period of occupancy by the general public.*

*(b) On or adjacent to the door, there shall be a readily visible, durable sign stating THIS DOOR TO REMAIN OPEN WHEN THE BUILDING IS OCCUPIED. The sign shall be in letters not less than 1 in. (2.5 cm) high on a contrasting background.*

*(c) Doors or grilles shall not be brought to the closed position when the space is occupied.*

*(d) Doors or grilles shall be openable from within the space without the use of any special knowledge or effort.*

*(e) Where two or more means of egress are required, not more than half of the means of egress may be equipped with horizontal sliding or vertical rolling grilles or doors.*

*Exception No. 4: An elevator lobby that is not a part of the exit access system for the remainder of the story may be provided with an approved self-closing or automatic-closing horizontal sliding door. (See 5-2.1.12.)*

*Exception No. 5: An elevator lobby may be provided with a horizontal sliding door that conforms with the requirements of 5-2.1.14.*

*Exception No. 6: Where permitted by Chapters 8 through 30, any door in a means of egress serving an occupant load of less than 50 may be a horizontal sliding door that conforms to the requirements of 5-2.1.14.*

*Exception No. 7: Where permitted by Chapters 8 through 30, horizontal exits or smoke barriers may be provided with horizontal sliding doors that conform to the requirements of 5-2.1.14.*

*Exception No. 8: Doors to private garages and industrial and storage areas with an occupant load of not more than 10 need not be side-hinged swinging doors where such garages, industrial and storage areas contain low or ordinary hazard contents.*

*Exception No. 9: Revolving doors complying with 5-2.1.10.*

**5-2.1.4.2*** During its swing, any door in a means of egress shall leave unobstructed at least one-half of the required width of an aisle, corridor, passageway, or landing. When fully open, the door shall not project more than 7 in. (17.8 cm) into the required width of an aisle, corridor, passageway, or landing.

*Exception: In existing buildings, a door giving access to a stair shall neither reduce the unobstructed width of a stair or landing to less than 22 in. (55.9 cm), nor, when open, project more than 7 in. (17.8 cm) into the required width of a stair or landing.*

**5-2.1.4.3** The forces required to fully open any door manually in a means of egress shall not exceed a 15 lbf (67 N) to release the latch, a 30 lbf (133 N) to set the door in motion and a 15 lbf (67 N) to open the door to the minimum required width. These forces shall be applied at the latch stile.

*Exception No. 1: The opening force for doors in existing buildings shall not exceed 50 lbf (222 N) applied to the latch stile.*

*Exception No. 2: In detention and correctional occupancies as provided in Chapters 14 and 15.*

*Exception No. 3: As otherwise provided in 5-2.1.9.*

**5-2.1.4.4 Screen and Storm Doors.** No screen door or storm door used in an exit shall swing against the direction of exit travel where doors are required to swing in the direction of exit travel. (*See 5-2.1.4.1.*)

**5-2.1.5 Locks, Latches, Alarm Devices.**

**5-2.1.5.1** Doors shall be arranged to be readily opened from the egress side whenever the building is occupied. Locks, if provided, shall not require the use of a key, tool, special knowledge or effort for operation from the inside of the building.

*Exception No. 1: In health care occupancies as provided in Chapters 12 and 13, and in detention and correctional occupancies as provided in Chapters 14 and 15.*

*Exception No. 2: Exterior doors may have key operated locks from the egress side provided:*

*(a) That on the egress side, on or adjacent to the door, there is a readily visible, durable sign stating THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED. The sign shall be in letters not less than 1 in. (2.5 cm) high on a contrasting background, and*

*(b) The locking device is of a type that is readily distinguishable as locked, and*

*(c) This Exception is specifically permitted by Chapters 8 through 30 for the specific occupancy.*

*(d) A key shall be immediately available to any occupant inside the building when it is locked.*

*(e) This Exception may be revoked by the authority having jurisdiction for cause.*

*Exception No. 3: Where permitted by Chapters 8 through 30, key operation is allowed provided the key cannot be removed when the door is locked from the side from which egress is to be made.*

**5-2.1.5.2*** Every stairwell door shall allow reentry from the stairwell to the interior of the building, or an automatic release shall be provided to unlock all stairwell doors to allow reentry. Such automatic release shall be actuated with the initiation of the building fire alarm system.

*Exception No. 1: Selected doors on stairwells may be equipped with hardware that prevents reentry into the interior of the building provided that:*

*(a) Such arrangement is specifically permitted by Chapters 8 through 30, and*

*(b) There are at least two levels where it is possible to leave the stairwell, and*

*(c) There shall be not more than four floors intervening between floors where it is possible to leave the stairwell, and*

*(d) Reentry is possible on the top or next to top floor permitting access to another exit, and*

*(e) Doors permitting reentry are identified as such on the stairwell side of the door.*

*Exception No. 2: In new health care occupancies as provided in Chapter 12, and in new detention and correctional occupancies as provided in Chapter 14.*

*Exception No. 3: Existing installations as permitted by Chapters 8 through 30.*

**5-2.1.5.3*** A latch or other fastening device on a door shall be provided with a knob, handle, panic bar, or other simple type of releasing device having an obvious method of operation under all lighting conditions. Doors shall be openable with no more than one releasing operation.

*Exception: Egress doors from individual living units and guest rooms of residential occupancies may be provided with devices that require not more than one additional releasing operation, such as a night latch, dead bolt, or security chain, provided such device is operable from the inside without the use of a key or tool and is mounted at a height not to exceed 48 in. (122 cm) above the finished floor. Existing security devices shall not exceed 60 in. (152 cm) in height above the finished floor and shall be permitted to have two additional releasing operations.*

**5-2.1.5.4** Where pairs of doors are required in a means of egress, each leaf of the pair shall be provided with its own releasing device. Devices that depend upon the releasing of one door before the other shall not be used.

*Exception: Where exit doors are used in pairs and approved automatic flush bolts are used, the door leaf having the automatic flush bolts shall have no doorknob or surface-mounted hardware. The unlatching of any leaf shall not require more than one operation.*

**5-2.1.5.5** No lock, padlock, hasp, bar, chain, or other device, or combination thereof, shall be installed or maintained at any time on or in connection with any door on which panic hardware or fire exit hardware is required by this *Code* if such device prevents or is intended to prevent the free use of the door for purposes of egress.

*Exception: As otherwise provided in 5-2.1.6.*

**5-2.1.6 Special Locking Arrangements.**

**5-2.1.6.1** In buildings protected throughout by an approved supervised automatic fire detection system or approved supervised automatic sprinkler system and where permitted by Chapters 8 through 30, doors in low and ordinary hazard areas, as defined by 4-2.2, may be equipped with approved, listed, locking devices that shall:

(a) Unlock upon actuation of an approved supervised automatic sprinkler system installed in accordance with Section 7-7, or upon the actuation of any heat detector or not more than two smoke detectors of an approved supervised automatic fire detection system in accordance with Section 7-6, and

(b) Unlock upon loss of power controlling the lock or locking mechanism, and

(c) Initiate an irreversible process that will release the lock within 15 seconds whenever a force of not more than 15 lbf (67 N) is continuously applied to the release device required in 5-2.1.5.3 for a period of not more than three seconds. Relocking of such doors shall be by manual means only. Operation of the release device shall activate a signal in the vicinity of the door to assure those attempting to exit that the system is functional.

*Exception to (c): The authority having jurisdiction may approve a delay not to exceed 30 seconds provided that reasonable life safety is assured.*

**5-2.1.6.2*** On the door adjacent to the release device, a sign shall be provided that reads:

PUSH UNTIL ALARM SOUNDS.
DOOR CAN BE OPENED IN 15 SECONDS.

Sign letters shall be at least 1 in. (2.5 cm) high and ⅛ in. (0.3 cm) wide stroke.

**5-2.1.6.3** Emergency lighting in accordance with Section 5-9 shall be provided at the door.

**5-2.1.7 Panic Hardware and Fire Exit Hardware.**

**5-2.1.7.1** Panic hardware and fire exit hardware consist of a door latching assembly incorporating a device that releases the latch upon the application of a force in the direction of exit travel. Fire exit hardware additionally provides fire protection where used as part of a fire door assembly.

**5-2.1.7.2** Where a door is required to be equipped with panic hardware or fire exit hardware by some other provision of this *Code*, such releasing device shall:

(a) Consist of bars or panels, the actuating portion of which shall extend across not less than one-half of the width of the door leaf, not less than 30 in. (76 cm) nor more than 44 in. (112 cm) above the floor, and

(b) Cause the door latch to release when a force not to exceed 15 lbf (67 N) is applied.

**5-2.1.7.3** Only approved panic hardware shall be used on doors that are not fire doors. Only approved fire exit hardware shall be used on fire doors.

**5-2.1.7.4** Required panic hardware and fire exit hardware shall not be equipped with any locking device, set screw, or other arrangement that can be used to prevent the release of the latch when pressure is applied to the bar. Devices that hold the latch in the retracted position are prohibited on fire exit hardware unless listed and approved for such use.

*Exception: In detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.1.8 Self-Closing Devices.** A door designed to normally be kept closed in a means of egress, such as a door to a stair enclosure or horizontal exit, shall be a self-closing door and shall not at any time be secured in the open position.

*Exception: In any building of low or ordinary hazard contents, as defined in 4-2.2.2 and 4-2.2.3, or where permitted by the authority having jurisdiction, doors may be automatic-closing where:*

*(a) Upon release of the hold-open mechanism, the door becomes self-closing; and*

*(b) The release device is so designed that the door may be instantly released manually and upon release become self-closing, or the door may be closed by some simple or readily obvious operation; and*

*(c) The automatic releasing mechanism or medium is activated by (1) the operation of an approved automatic smoke detection system installed to protect the entire building, so designed and installed as to provide for actuation of the system so promptly as to preclude the generation of heat or smoke sufficient to interfere with egress before the system operates, or (2) the operation of approved smoke detectors installed in such a way as to detect smoke on either side of the door opening, as detailed in NFPA 72E, Standard on Automatic Fire Detectors, Chapter 9. The above systems may be zoned as approved by the authority having jurisdiction; and*

*(d) Any fire detection system or smoke detector is provided with such supervision and safeguards as are necessary to assure complete reliability of operation in case of fire (see also Section 7-6); and*

*(e) Upon loss of power to the hold-open device, the hold-open mechanism is released and the door becomes self-closing; and*

*(f) The release by smoke detection of one door in a stair enclosure results in closing all doors serving that stair.*

**5-2.1.9 Power-Operated Doors.** Where required doors are operated by power, such as doors with a photoelectric-actuated mechanism to open the door upon the approach of a person or doors with power-assisted manual operation, the design shall be such that in event of power failure the door may be opened manually to permit exit travel or closed where necessary to safeguard means of egress. The forces required to open these doors manually shall not exceed those specified in 5-2.1.4.3 except that the force to set the door in motion shall not exceed 50 lbf (222 N). The door shall be so designed and installed that when a force is applied to the door on the side from which egress is made, it shall be capable of swinging from any position to the full use of the required width of the opening in which it is installed. (*See 5-2.1.4.*)

*Exception No. 1: Doors complying with 5-2.1.14.*

*Exception No. 2: In detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.1.10 Revolving Doors.**

**5-2.1.10.1** All revolving doors shall comply with the following:

(a) Revolving doors shall be capable of being collapsed into a book-fold position.

*Exception to (a): Existing revolving doors where approved by the authority having jurisdiction.*

(b) When in the book-fold position, the parallel egress paths formed shall provide an aggregate width of 36 in. (91 cm).

*Exception to (b): Existing revolving doors where approved by the authority having jurisdiction.*

(c) Revolving doors shall not be used within 10 ft (3 m) of the foot of or top of stairs or escalators. Under all conditions there shall be a dispersal area acceptable to the authority having jurisdiction between the stairs or escalators and the revolving door.

(d) The revolutions per minute (RPM) of revolving doors shall not exceed the following:

| Inside Diameter | Power Driven-type Speed Control (RPM) | Manual-type Speed Control (RPM) |
|---|---|---|
| 6 ft 6 in. (198 cm) | 11 | 12 |
| 7 ft 0 in. (213 cm) | 10 | 11 |
| 7 ft 6 in. (229 cm) | 9 | 11 |
| 8 ft 0 in. (244 cm) | 9 | 10 |
| 8 ft 6 in. (259 cm) | 8 | 9 |
| 9 ft 0 in. (274 cm) | 8 | 9 |
| 9 ft 6 in. (290 cm) | 7 | 8 |
| 10 ft 0 in. (305 cm) | 7 | 8 |

(e) Each revolving door shall have a conforming side-hinged swinging door in the same wall as the revolving door and within 10 ft (3 m).

*Exception No. 1 to (e): Revolving doors may be used without adjacent swinging doors for street floor elevator lobbies if no stairways or doors from other parts of the building discharge through the lobby and the lobby has no occupancy other than as a means of travel between elevators and street.*

*Exception No. 2 to (e): Existing revolving doors where the number of revolving doors does not exceed the number of swing doors within 20 ft (6.1 m).*

**5-2.1.10.2** Where permitted by Chapters 8 through 30, revolving doors may be used as a component in a means of egress under the following conditions:

(a) Revolving doors shall not be given credit for more than 50 percent of the required exit capacity.

(b) Each revolving door shall be credited with no more than 50 persons capacity.

(c) Revolving doors shall be capable of being collapsed into a book-fold position when a force of not more than 130 lbf (578 N) is applied to wings within 3 in. (7.6 cm) of the outer edge.

**5-2.1.10.3** Revolving doors not used as a component of a means of egress shall have a collapsing force of not more than 180 lbf (800 N).

*Exception: Revolving doors may have a collapsing force set in excess of 180 lbf (800 N) if the collapsing force is reduced to not more than 130 lbf (578 N) when:*

*(a) There is a power failure or power is removed to the device holding the wings in position.*

*(b) There is an actuation of the automatic sprinkler system where such system is provided.*

*(c) There is actuation of a smoke detection system that is installed to provide coverage in all areas within the building that are within 75 ft (23 m) of the revolving doors.*

*(d) There is the actuation of a manual control switch that reduces the holding force to below the 130 lbf (578 N) level. Such switch shall be in an approved location and shall be clearly identified.*

**5-2.1.11 Turnstiles.**

**5-2.1.11.1** No turnstile or similar device to restrict travel to one direction or to collect fares or admission charges shall be so placed as to obstruct any required means of egress.

*Exception No. 1: Approved turnstiles not over 39 in. (99 cm) high that turn freely in the direction of exit travel may be used in any occupancy where revolving doors are permitted by Chapters 8 through 30.*

*Exception No. 2: Where permitted by the authority having jurisdiction and Chapters 8 through 30, turnstiles may be used for exiting and each turnstile credited for 50 persons capacity provided such turnstiles:*

*(a) Freewheel in the exit direction when primary power is lost, and freewheel in the direction of exit travel upon the manual release by an employee assigned in the area, and*

*(b) Shall not be given credit for more than 50 percent of the required exit width, and*

*(c) Shall not be over 39 in. (99 cm) high nor have a clear width less than 16½ in. (41.9 cm).*

**5-2.1.11.2** Turnstiles over 39 in. (99 cm) high shall be subject to the requirements for revolving doors.

**5-2.1.11.3** Turnstiles in or furnishing access to required exits shall be of such design as to provide at least 16½ in. (41.9 cm) clear width at and below a height of 39 in. (99 cm) and at least 22 in. (55.9 cm) clear width at heights above 39 in. (99 cm).

**5-2.1.12 Doors in Folding Partitions.** Where permanently mounted folding or movable partitions are used to divide a room into smaller spaces, a swinging door or open doorway shall be provided as an exit access from each such space.

*Exception No. 1: Under the following conditions the swinging door may be omitted and the partition may be used to enclose the space completely:*

*(a) The subdivided space shall not be used by more than 20 persons at any time.*

*(b) The use of the space shall be under adult supervision.*

*(c) The partitions shall be so arranged that they do not extend across any aisle or corridor used as an exit access to the required exits from the floor.*

*(d) The partitions shall conform to the interior finish and other applicable requirements of this Code.*

*(e) The partitions shall be an approved type, shall have a simple method of release, and shall be capable of being opened quickly and easily by inexperienced persons in case of emergency.*

*Exception No. 2: Where a subdivided space is provided with at least two means of egress, the swinging door in the folding partition may be omitted, and one such means of egress may be equipped with a horizontal sliding door complying with 5-2.1.14.*

**5-2.1.13 Balanced Doors.** If balanced doors are used and panic hardware is required, the panic hardware shall be of the pushpad type, and the pad shall not extend more than approximately one-half the width of the door measured from the latch side.

**5-2.1.14 Horizontal Sliding Doors.**

**5-2.1.14.1** Horizontal sliding doors shall comply with the following:

(a) The door shall be operable by a simple method from either side without special knowledge or effort, and

(b) The force required to operate the door shall not exceed 30 lbf (133 N) to set the door in motion, and a 15 lbf (67 N) to close the door or open it to the minimum required width, and

(c) The door shall be operable with a force not to exceed 50 lbf (222 N) when a force of 250 lbf (1,110 N) is applied perpendicularly to the door adjacent to the operating device, and

(d) The door assembly shall comply with the applicable fire protection rating and, when rated, shall be self-closing or automatic-closing by smoke detection in accordance with 5-2.1.8 and shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Windows.*

**5-2.2 Stairs.**

**5-2.2.1 General.** A stairway, either interior or outside, may be used as a component in a means of egress where it conforms to the general requirements of Section 5-1 and to the special requirements of this subsection.

*Exception No. 1: Aisle steps in assembly occupancies as provided in Chapters 8 and 9.*

*Exception No. 2: Existing noncomplying stairs may be continued in use subject to the approval of the authority having jurisdiction.*

**5-2.2.2 Types of Stairs.**

**5-2.2.2.1* Dimensional Criteria.** Stairs shall be in accordance with the following table:

**New Stairs**

| | |
|---|---|
| Minimum width clear of all obstructions, except projections not exceeding 3½ in. (8.9 cm) at and below handrail height on each side | 44 in. (112 cm)<br>36 in. (91 cm), where total occupant load of all floors served by stairways is less than 50. |
| Maximum height of risers | 7 in. (17.8 cm) |
| Minimum height of risers | 4 in. (10.2 cm) |
| Minimum tread depth | 11 in. (27.9 cm) |
| Minimum headroom | 6 ft 8 in. (203 cm) |
| Maximum height between landings | 12 ft (3.7 m) |
| Doors opening immediately on stairs, without landing at least width of door | No |

*Exception: Existing stairs in existing buildings may remain in use or be rebuilt if they meet the requirements shown in the table for existing stairs.*

**Existing Stairs**

| | Class A | Class B |
|---|---|---|
| Minimum width clear of all obstructions, except projections not exceeding 3½ in. (8.9 cm) at and below handrail height on each side | 44 in. (112 cm) | 44 in. (112 cm)<br>36 in. (91 cm), where total occupant load of all floors served by stairways is less than 50. |
| Maximum height of risers | 7½ in. (19.1 cm) | 8 in. (20.3 cm) |
| Minimum tread depth | 10 in. (24.4 cm) | 9 in. (22.9 cm) |
| Minimum headroom | 6 ft 8 in. (203 cm) | 6 ft 8 in. (203 cm) |
| Maximum height between landings | 12 ft (3.7 m) | 12 ft (3.7 m) |
| Doors opening immediately on stairs without landing at least width of door | No | No |

**5-2.2.2.2* Tread Slope.** Treads may slope a maximum of ¼ in. per ft (2.1 cm per meter) (1 in 48).

**5-2.2.2.3* Riser Height and Tread Depth.** Riser height shall be measured as the vertical distance between tread nosings. Tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge but shall not include bevelled or rounded tread surfaces that slope more than 20 degrees (a slope of 1 in 2.75). At tread nosings such bevelling or rounding shall not exceed ½ in. (1.3 cm) in horizontal dimension.

**5-2.2.2.4** There shall be no variation exceeding 3/16 in. (.5 cm) in the depth of adjacent treads or in the height of adjacent risers, and the tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed ⅜ in. (1.0 cm) in any flight.

*Exception: Where the bottom riser adjoins a sloping public way, walk, or driveway having an established grade and serving as a landing, a variation in height of the bottom riser of not more than 3 in. (7.6 cm) in every 3 ft (91 cm) of stairway width is permitted.*

**5-2.2.2.5 Monumental Stairs.** Monumental stairs, either inside or outside, may be used as a component in a means of egress if in compliance with all the requirements for stairs.

**5-2.2.2.6 Curved Stairs.** Curved stairs may be used as a component in a means of egress provided the minimum depth of tread is 11 in. (27.9 cm) measured 12 in. (30.5 cm) from the narrower end of the tread, and the smallest radius is not less than twice the stair width.

*Exception: Existing curved stairs may be continued in use provided the minimum depth of tread is 10 in. (25.4 cm) and the smallest radius is not less than twice the stair width.*

**5-2.2.2.7 Spiral Stairs.** Where permitted for individual occupancies by Chapters 8 through 30, spiral stairs may be used as a component in a means of egress provided:

(a) The clear width of the stairs is not less than 26 in. (66 cm).

(b) The height of risers shall not exceed 9½ in. (24.1 cm).

(c) Headroom shall be not less than 6 ft 6 in. (198 cm).

(d) Treads shall have a minimum depth of 7½ in. (19.1 cm) at a point 12 in. (30.5 cm) from the narrower edge.

(e) All treads shall be identical.

(f) The occupant load served is not more than 5.

**5-2.2.2.8 Winders.** Where permitted for individual occupancies by Chapters 8 through 30, winders are allowed in stairs. Such winders shall have a minimum depth of tread of 6 in. (15.2 cm), and a minimum depth of tread of 9 in. (22.9 cm) at a point 12 in. (30.5 cm) from the narrowest edge.

**5-2.2.3 Enclosures and Protection.**

**5-2.2.3.1 Enclosures.** All interior stairs serving as an exit or exit component shall be enclosed in accordance with 5-1.3.1. All other interior stairs shall be protected in accordance with 6-2.4.

**5-2.2.3.2*** Where nonrated walls or unprotected openings are used to enclose the exterior of a stairway, and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees, the building enclosure walls within 10 ft (3 m) horizontally of the nonrated wall or unprotected opening shall be constructed as required for stairway enclosures including opening protectives, but need not exceed 1-hour fire resistance rating with 45-minute fire protection rated opening protectives. This construction shall extend vertically from the ground to a point 10 ft (3 m) above the topmost landing of the stairway or to the roof line, whichever is lower.

**5-2.2.3.3 Separation and Protection of Outside Stairs.** Outside stairs shall be separated from the interior of the building by walls with the fire resistance rating with fixed or self-closing opening protectives, as required for enclosed stairs. This construction shall extend vertically from the ground to a point 10 ft (3 m) above the topmost landing of the stairway or to the roofline, whichever is lower, and at least 10 ft (3 m) horizontally.

*Exception No. 1: Outside stairways may be unprotected where serving an exterior exit access balcony that has two remote outside stairways or ramps.*

*Exception No. 2: Outside stairways may be unprotected where serving a two-story building where there is a remote second exit.*

*Exception No. 3: The fire resistance rating of the portion of the separation extending 10 ft (3 m) from the stairs need not exceed 1 hour with openings protected by ¾-hour fire protection rated assemblies.*

**5-2.2.3.4** All openings below an outside stair shall be protected:

(a) Where located in a court, the least dimension of which is less than one-third its height, or

(b) Where located in an alcove having a width less than one-third its height and a depth greater than one-fourth its height.

**5-2.2.3.5** There shall be no enclosed usable space within an exit enclosure, including under stairs, nor shall any open space within the enclosure, including stairs and landings, be used for any purpose such as storage or similar use that could interfere with egress. Where there is enclosed usable space under stairs, the walls and soffits of the enclosed space shall be protected the same as the stair enclosure. (*Also see 5-1.3.3.*)

**5-2.2.3.6 Signs.** In buildings four or more stories in height, a sign shall be provided at each floor level landing. The sign shall indicate the floor level, the terminus of the top and bottom of the stair enclosure, and the identification of the stair. The sign shall also state the floor level of, and the direction to, exit discharge. The sign shall be located approximately 5 ft (152 cm) above the floor landing in a position that is readily visible when the door is in the open or closed position.

**5-2.2.4 Stair Details.**

**5-2.2.4.1** All stairs serving as required means of egress shall be of permanent fixed construction.

**5-2.2.4.2** Each new stair and platform, landing, etc., used in conjunction therewith in buildings more than three stories in height and in new buildings required by this *Code* to be of fire-resistive construction, shall be of noncombustible material throughout.

*Exception: Handrails are exempted from this requirement.*

**5-2.2.4.3** Stairways and intermediate landings shall continue with no decrease in width along the direction of exit travel. In new buildings every landing shall have a dimension, measured in direction of travel, equal to the width of the stair. Such dimension need not exceed 4 ft (122 cm) where the stair has a straight run.

**5-2.2.4.4*** Stair treads shall be uniformly slip resistant and shall be free of projections or lips that could trip stair users.

**5-2.2.4.5** Treads of stairs and landing floors shall be solid.

**5-2.2.4.6** Stairs and other exits shall be so arranged as to make clear the direction of egress to the street. Exit stairs that continue beyond the floor of discharge shall be interrupted at the floor of discharge by partitions, doors, or other effective means.

*Exception: Exit stairs that continue one-half story beyond the level of exit discharge need not be interrupted by physical barriers where the exit discharge is clearly obvious.*

**5-2.2.5 Special Provisions for Outside Stairs.**

**5-2.2.5.1 Balconies.** Balconies to which access doors lead shall be approximately level with the floor of the building.

*Exception: In existing buildings in climates where balconies may be subject to accumulation of snow or ice, one step, not to exceed 8 in. (20.3 cm), may be permitted below the level of the inside floor.*

**5-2.2.5.2* Visual Protection.** Outside stairs shall be so arranged as to avoid any handicap to the use of the stairs by persons having a fear of high places. For stairs more than three stories in height, any arrangement intended to meet this requirement shall be at least 4 ft (122 cm) in height.

**5-2.2.5.3** Subject to the approval of the authority having jurisdiction, outside stairs may be accepted where leading to roofs of other sections of the building or adjoining building, where the construction is fire resistive, where there is a continuous and safe means of exit from the roof, and where all other reasonable requirements for life safety are maintained. (*Also see 5-7.5.*)

**5-2.2.6 Guards and Handrails.**

**5-2.2.6.1 Guards.** Means of egress such as landings, balconies, corridors, passageways, floor or roof openings, ramps, aisles, porches, or mezzanines that are more than 30 in. (76 cm) above the floor or grade below shall be provided with guards to prevent falls over the open side. Stairs that are provided with handrails as specified in 5-2.2.6.5 need not be provided with guards.

**5-2.2.6.2* Handrails.** Each new stair and each new ramp with a slope exceeding 1 in 15 shall have handrails on both sides. In addition, handrails shall be provided within 30 in. (76 cm) of all portions of the required egress width of stairs. The required egress width shall be along the natural path of travel. Existing stairs and stairs within dwelling units and within guest rooms shall have a handrail on at least one side. (*See also 5-2.2.6.5.*)

*Exception: On existing stairs, handrails shall be provided within 44 in. (112 cm) of all portions of the required egress width of stairs.*

**5-2.2.6.3** Required guards and handrails shall continue for the full length of each flight of stairs. At turns of stairs, inside handrails shall be continuous between flights at landings.

*Exception: On existing stairs, the handrails are not required to be continuous between flights of stairs at landings.*

**5-2.2.6.4** The design of guards and handrails and the hardware for attaching handrails to guards, balusters, or masonry walls shall be such that there are no projecting lugs on attachment devices or nonprojecting corners or members of grilles or panels that may engage loose clothing. Openings in guards shall be designed to prevent loose clothing from becoming wedged in such openings.

**5-2.2.6.5* Handrail Details.**

(a) Handrails on stairs shall be not less than 34 in. (86 cm) nor more than 38 in. (97 cm) above the surface of the tread, measured vertically to the top of the rail from the tread at the leading edge.

*Exception No. 1 to (a): Existing handrails shall not be less than 30 in. (76 cm) nor more than 38 in. (97 cm) above the upper surface of the tread, measured vertically to the top of the leading edge.*

*Exception No. 2 to (a)*: Additional handrails may be provided lower or higher than the main handrail.*

(b)* New handrails shall provide a clearance of at least 1½ in. (3.8 cm) between handrail and wall to which fastened.

(c)* Handrails shall have a circular cross section with an outside diameter of at least 1.25 in. (3.2 cm) and not greater than 2.0 in. (5 cm). New handrails shall be continuously graspable along the entire length.

*Exception to (c): * Any other shape with a perimeter dimension of at least 4 in. (10.2 cm), but not greater than 6.25 in. (15.9 cm), and with the largest cross-sectional dimension not exceeding 2.25 in. (5.7 cm).*

(d) New handrail ends shall be returned to the wall or floor or shall terminate at newel posts.

(e)* New handrails that are not continuous between flights shall be extended horizontally a minimum of 12 in. (30.5 cm) at the required height at landings where a guard or wall exists.

(f) New handrails on open sides of stairs shall have intermediate rails or an ornamental pattern such that a sphere 6 in. (15.2 cm) in diameter cannot pass through any openings in such handrail.

*Exception to (f): In detention and correctional occupancies as provided in Chapters 14 and 15, in industrial occupancies as provided in Chapter 28, and in storage occupancies as provided in Chapter 29.*

**5-2.2.6.6 Guard Details.**

(a) The height of guards required by 5-2.2.6.1 shall be measured vertically to the top of the guard from the surface adjacent thereto.

(b) Guards shall be not less than 42 in. (107 cm) high.

*Exception No. 1 to (b): Guards within dwelling units may be 36 in. (91 cm) high.*

*Exception No. 2 to (b): In assembly occupancies as provided in Chapters 8 and 9.*

(c) Open guards shall have intermediate rails or an ornamental pattern such that a sphere 6 in. (15.2 cm) in diameter cannot pass through any opening.

*Exception No. 1 to (c): In detention and correctional occupancies, in industrial occupancies, and in storage occupancies, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21 in. (53.3 cm).*

*Exception No. 2 to (c): Approved existing open guards.*

**5-2.3 Smokeproof Enclosures.**

**5-2.3.1** Where smokeproof enclosures are required by other sections of this *Code*, they shall comply with 5-2.3.

*Exception: Existing smokeproof enclosures subject to the approval of the authority having jurisdiction.*

**5-2.3.2*** A smokeproof enclosure shall be a stair enclosure so designed that the movement into the smokeproof enclosure of products of combustion produced by a fire occurring in any part of the building shall be limited.

**5-2.3.3** The appropriate design method shall be any system that meets the performance level stipulated in 5-2.3.2 above. The smokeproof enclosure may be accomplished by using natural ventilation, by using mechanical ventilation incorporating a vestibule, or by pressurizing the stair enclosure.

**5-2.3.4 Enclosure.** A smokeproof enclosure shall consist of a continuous stair enclosed from the highest point to the lowest point by fire barriers having a 2-hour fire resistance rating.

Where a vestibule is used, it shall be within the 2-hour enclosure and is part of the smokeproof enclosure.

**5-2.3.5 Discharge.** Every smokeproof enclosure shall discharge into a public way, into a yard or court having direct access to a public way, or into an exit passageway. Such exit passageways shall be without other openings and shall be separated from the remainder of the building by fire barriers having a 2-hour fire resistance rating.

**5-2.3.6 Access.** Access to the stair shall be by way of a vestibule or by way of an exterior balcony.

*Exception: Smokeproof enclosures consisting of a pressurized stair enclosure complying with 5-2.3.9.*

**5-2.3.7 Natural Ventilation.** Smokeproof enclosures by natural ventilation shall comply with all the following:

(a) Where a vestibule is provided, the doorway into the vestibule shall be protected with an approved fire door assembly having a 1½-hour fire protection rating, and the fire door assembly from the vestibule to the stair shall have not less than a 20-minute fire protection rating. Doors shall be designed to minimize air leakage and shall be self-closing or shall be automatic-closing by actuation of a smoke detector within 10 ft (3 m) of the vestibule door. Where access to the stair is by means of an open exterior balcony, the door assembly to the stair shall have a 1½-hour fire protection rating and shall be self-closing or shall be automatic-closing by actuation of a smoke detector. Openings adjacent to such exterior balconies shall be protected as required in 5-2.2.3.3.

(b) Every vestibule shall have a minimum net area of 16 sq ft (1.5 sq m) of opening in an exterior wall facing an exterior court, yard, or public space at least 20 ft (6.1 m) in width.

(c) Every vestibule shall have a minimum dimension not less than the required width of the corridor leading to it and a minimum dimension of 72 in. (183 cm) in the direction of travel.

**5-2.3.8 Mechanical Ventilation.** Smokeproof enclosures by mechanical ventilation shall comply with all of the following:

(a) The door assembly from the building into the vestibule shall have a 1½-hour fire protection rating, and the door assembly from the vestibule to the stairway shall have not less than a 20-minute fire protection rating. The door to the stairway shall be designed and installed to minimize air leakage. The doors shall be self-closing or shall be automatic-closing by actuation of a smoke detector located within 10 ft (3 m) of the vestibule door.

(b) Vestibules shall have a minimum dimension of 44 in. (112 cm) in width and 72 in. (183 cm) in direction of exit travel.

(c) The vestibule shall be provided with not less than one air change per minute, and the exhaust shall be 150 percent of the supply. Supply air shall enter and exhaust air shall discharge from the vestibule through separate tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 in. (15.2 cm) of the floor level. The top of the exhaust register shall be located not more than 6 in. (15.2 cm) down from the top of the trap and shall be entirely within the smoke trap area. Doors, when in the open position, shall not obstruct duct openings. Duct openings may be provided with controlling dampers if needed to meet the design requirements but are not otherwise required.

(d) To serve as a smoke and heat trap and to provide an upward moving air column, the vestibule ceiling shall be at least 20 in. (50.8 cm) higher than the door opening into the vestibule. The height may be decreased where justified by engineering design and field testing.

(e) The stair shall be provided with a dampered relief opening at the top and supplied mechanically with sufficient air to discharge a minimum of 2500 cu ft/min (70.8 cu m/min) through the relief opening while maintaining a minimum positive pressure of .10 in. of water column (25 Pa) in the stair relative to the vestibule with all doors closed.

**5-2.3.9 Stair Pressurization.**

**5-2.3.9.1** Smokeproof enclosures by stair pressurization shall comply with all of the following:

(a) The building shall be protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

(b) There shall be an engineered system to pressurize the stair enclosure capable of developing 0.05 in. water column (12.5 Pa) in addition to the maximum anticipated stack pressure relative to other parts of the building measured with all the enclosure doors closed. The combined positive pressure shall not exceed 0.35 in. water column (87.5 Pa).

**5-2.3.9.2** Equipment and ductwork for stair pressurization shall be located:

(a) Exterior to the building and be directly connected to the stairway by ductwork enclosed in noncombustible construction, or

(b) Within the stair enclosure with intake and exhaust air directly to the outside or through ductwork enclosed in 2-hour construction, or

(c) Within the building if separated from the remainder of the building, including other mechanical equipment, with 2-hour construction.

In each case, openings into the required 2-hour construction shall be limited to those needed for maintenance and operation and shall be protected by self-closing 1½-hour fire protection rated devices.

*Exception to (c): Where the building, including the stairway enclosure, is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7, fire rated construction may be reduced to 1-hour construction.*

**5-2.3.10 Activation of Mechanical Ventilation Systems.**

**5-2.3.10.1** For both mechanical ventilation and pressurized stair enclosure systems, the activation of the systems shall be initiated by a smoke detector installed in an approved location within 10 ft (3 m) of the entrance to the smokeproof enclosure.

**5-2.3.10.2** The required mechanical systems shall operate at the activation of the smoke detectors in 5-2.3.10.1 and by manual controls accessible to the fire department. The required system shall also be initiated by the following, if provided:

(a) Waterflow signal from a complete automatic sprinkler system.

(b) General evacuation alarm signal. (*See 7-6.3.5.*)

**5-2.3.11 Door Closers.** The activation of an automatic closing device on any door in the smokeproof enclosure shall activate all other automatic closing devices on doors in the smokeproof enclosure.

**5-2.3.12 Standby Power.** Standby power for mechanical ventilation equipment shall be provided by an approved self-con-

tained generator set to operate whenever there is a loss of power in the normal house current. The generator shall be in a separate room having a minimum 1-hour fire-resistive occupancy separation and shall have a minimum fuel supply adequate to operate the equipment for 2 hours.

**5-2.3.13 Testing.** Before the mechanical equipment is accepted by the authority having jurisdiction, it shall be tested to confirm that the mechanical equipment is operating in compliance with these requirements.

**5-2.3.14 Emergency Lighting.** The stair shaft and vestibule shall be provided with emergency lighting. A standby generator that is installed for the smokeproof enclosure mechanical ventilation equipment may be used for such stair shaft and vestibule power supply.

**5-2.4 Horizontal Exits.**

**5-2.4.1* Application.** Horizontal exits may be substituted for other exits to an extent that the total exit capacity of the other exits (stairs, ramps, doors leading outside the building) will not be reduced below half that required for the entire area of the building or connected buildings if there were no horizontal exits.

*Exception: In health care occupancies as provided in Chapters 12 and 13, and in detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.4.2 Area of Refuge.**

**5-2.4.2.1** Every fire compartment for which credit is allowed in connection with a horizontal exit shall have, in addition to the horizontal exit or exits, at least one stairway or doorway leading outside or other exit that is not a horizontal exit. Any fire compartment not having a stairway or doorway leading outside shall be considered as part of an adjoining compartment with stairway.

*Exception: In detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.4.2.2** Every horizontal exit for which credit is given shall be so arranged that there are continuously available paths of travel leading from each side of the exit to stairways or other means of egress leading to outside the building.

**5-2.4.2.3** Whenever either side of the horizontal exit is occupied, the doors used in connection with the horizontal exit shall be unlocked from the egress side.

*Exception: In health care occupancies as provided in Chapters 12 and 13, and in detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.4.2.4** The floor area on either side of a horizontal exit shall be sufficient to hold the occupants of both floor areas, allowing not less than 3-sq ft (.28-sq m) clear floor area per person.

*Exception: Special floor area requirements in health care occupancies as provided in Chapters 12 and 13, and in detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-2.4.3 Walls for Horizontal Exits.**

**5-2.4.3.1** Fire barriers separating buildings or areas between which there are horizontal exits shall be an assembly of noncombustible or limited-combustible material having a 2-hour fire resistance rating. They shall provide a separation continuous to ground. (*See also 6-2.3.*)

*Exception: Where a fire barrier is used to provide a horizontal exit in any story of a building, such fire barrier may be omitted on other stories under the following conditions:*

*(a) The stories on which the fire barrier is omitted shall be separated from the story with the horizontal exit by 2-hour construction.*

*(b) Vertical openings between the story with the horizontal exit and the open fire area story shall be enclosed with 2-hour construction.*

*(c) All required exits, other than horizontal exits, shall discharge directly outside.*

**5-2.4.3.2** Any opening in such fire barriers, whether or not such opening serves as an exit, shall be protected as provided in 6-2.3.2.

**5-2.4.3.3*** Doors in horizontal exits shall comply with 5-2.1.4.

*Exception: Sliding doors in industrial occupancies as provided in Chapter 28, and in storage occupancies as provided in Chapter 29.*

**5-2.4.3.4** Where swinging fire doors are used in horizontal exits, they shall comply with the following:

(a) They shall swing in the direction of exit travel, and

(b) Where a horizontal exit serves areas on both sides of a fire barrier, there shall be adjacent openings with swinging doors at each, opening in opposite directions, with signs on each side of the fire barrier indicating the door that swings with the travel from that side, or

*Exception to (b): Sleeping room areas in detention and correctional occupancies are exempt from the sign requirement.*

(c) They shall be of other approved arrangement provided that doors always swing with any possible exit travel.

*Exception: Door swing in existing health care occupancies as provided in Chapter 13.*

**5-2.4.3.5*** Doors in horizontal exits shall be designed and installed to minimize air leakage.

**5-2.4.3.6** All fire doors in horizontal exits shall be self-closing or automatic-closing in accordance with 5-2.1.8. All opening protectives in horizontal exits are to be consistent with the fire resistance rating of the wall. Horizontal exit doors located across a corridor shall be automatic-closing in accordance with 5-2.1.8.

*Exception: Where approved by the authority having jurisdiction, existing doors in horizontal exits may be self-closing.*

**5-2.4.4 Bridges and Balconies.**

**5-2.4.4.1** Each bridge or balcony utilized in conjunction with horizontal exits shall comply with the structural requirements for outside stairs and shall have guards and handrails in general conformity with the requirements of 5-2.2 for stairs and 5-2.3 for smokeproof enclosures.

**5-2.4.4.2** Every bridge or balcony shall be at least as wide as the door leading to it and not less than 44 in. (112 cm) for new construction.

**5-2.4.4.3** Every door leading to a bridge or balcony serving as a horizontal exit shall swing in the direction of exit travel.

*Exception: In existing health care occupancies as provided in Chapter 13.*

**5-2.4.4.4** Where the bridge or balcony serves as a horizontal exit in one direction, only the door leading from the bridge or balcony into the area of refuge shall swing in.

**5-2.4.4.5** Where the bridge or balcony serves as a horizontal exit in both directions, doors shall be provided in pairs, swinging in opposite directions. Only the door swinging with the exit travel shall be counted in determination of exit width.

*Exception No. 1: If the bridge or balcony has sufficient floor area to accommodate the occupant load of either connected building or fire area on the basis of 3 sq ft (.28 sq m) per person.*

*Exception No. 2: In existing buildings, doors on both ends of the bridge or balcony may swing out from the building subject to the approval of the authority having jurisdiction.*

**5-2.4.4.6** The bridge or balcony floor shall be approximately level with the building floor and, in climates subject to the accumulation of snow and ice, shall be protected to prevent the accumulation of snow and ice.

*Exception: In existing buildings in climates where balconies may be subject to the accumulation of snow or ice, one step, not to exceed 8 in. (20.3 cm), may be permitted below the level of the inside floor.*

**5-2.4.4.7** All wall openings, in both of the connected buildings or fire areas, any part of which is within 10 ft (3 m) of any bridge or balcony as measured horizontally or below, shall be protected with fire doors or fixed fire window assemblies.

*Exception: Where bridges have solid sides not less than 6 ft (183 cm) in height, such protection of wall openings may be omitted.*

**5-2.5 Ramps.**

**5-2.5.1 General.** A ramp, either interior or outside, may be used as a component in a means of egress where it conforms to the general requirements of Section 5-1 and to the special requirements of this subsection.

**5-2.5.2 Classification.** A ramp shall be designated as Class A or Class B in accordance with the following table:

| | Class A | Class B |
|---|---|---|
| Minimum width | 44 in. (112 cm) | 30 in. (76 cm) |
| Maximum slope | 1 in 10 | 1 in 8 |
| Maximum height between landings | 12 ft (3.7 m) | 12 ft (3.7 m) |

*Exception No. 1: Existing Class B ramps with slopes of 1 3/16 to 2 in 12 (10 to 17 cm in 1 m) are permitted subject to the approval of the authority having jurisdiction.*

*Exception No. 2: All existing Class A ramps and new ramps not exceeding a slope of 1 in 15 need not be provided with landings.*

**5-2.5.3 Enclosure and Protection.**

**5-2.5.3.1** Where a ramp inside a building is used as an exit or exit component, it shall be protected by separation from other parts of the building, as specified in 5-1.3.

**5-2.5.3.2** Fixed fire window assemblies may be installed in such a separation in a fully sprinklered building.

**5-2.5.3.3 Separation and Protection of Outside Ramps.** Outside ramps shall be separated from the interior of the building by walls with the fire resistance rating with fixed or self-closing opening protectives, as required for enclosed stairs. This protection shall extend at least 10 ft (3 m) upward or to the roofline, whichever is lower, and at least 10 ft (3 m) horizontally and downward to ground level.

*Exception No. 1: Outside ramps may be unprotected where serving an exterior exit access balcony that has two remote outside stairways or ramps.*

*Exception No. 2: Outside ramps may be unprotected where serving a two-story building where there is a remote second exit.*

*Exception No. 3: The fire resistance rating of the portion of the separation extending 10 ft (3 m) from the ramp need not exceed 1 hour.*

*Exception No. 4: All openings below an outside ramp shall be protected:*

*(a) Where in a court, the least dimension of which is less than one-third of its height, or*

*(b) Where in an alcove having a width less than one-third of its height and a depth greater than one-fourth of its height.*

**5-2.5.3.4*** There shall be no enclosed usable space under ramps within an exit enclosure nor shall the open space under such ramps be used for any purpose. Where there is enclosed usable space under ramps, the walls and soffits of the enclosed space shall be protected the same as the ramp enclosure.

**5-2.5.3.5* Visual Protection.** Outside ramps shall be so arranged as to avoid any handicap to their use by persons having a fear of high places. For ramps more than three stories in height, any arrangement intended to meet this requirement shall be at least 4 ft (122 cm) in height.

**5-2.5.4 Ramp Details.**

**5-2.5.4.1** All ramps serving as required means of egress shall be of permanent fixed construction.

**5-2.5.4.2** A ramp used as a means of egress in a building more than three stories in height or in a building of any height of noncombustible or fire-resistive construction shall be constructed of an assembly of noncombustible or limited-combustible material. The ramp floor and landings shall be solid and without perforations.

**5-2.5.4.3** A ramp shall have a slip-resistant surface.

**5-2.5.4.4** The slope of a ramp shall not vary between landings. Landings shall be level, and changes in direction of travel, if any, shall be made only at landings.

**5-2.5.4.5** Guards complying with 5-2.2.6 shall be provided for ramps. Handrails complying with 5-2.2.6 shall be provided for ramps with a slope exceeding 1 in 15.

**5-2.5.4.6** Ramps and intermediate landings shall continue with no decrease in width along the direction of exit travel. Every landing shall have a dimension measured in the direction of travel equal to the width of the ramp. Such dimension need not exceed 4 ft (122 cm) where the ramp has a straight run.

**5-2.5.5 Special Provision for Outside Ramps.**

**5-2.5.5.1** Balconies or landings to which doors lead shall be approximately level with the floor of the building.

*Exception: In existing buildings in climates where balconies or landings may be subject to accumulation of snow or ice, one step, not to exceed 8 in. (20.3 cm), may be permitted below the level of the inside floor.*

**5-2.6* Exit Passageways.**

**5-2.6.1 General.** Any hallway, corridor, passage, tunnel, underfloor passageway, or overhead passageway shall be permitted as an exit passageway and as an exit or exit component where conforming to all other requirements of Section 5-1 as modified by the provisions of this section.

**5-2.6.2 Enclosure.** An exit passageway shall be protected by separation from other parts of the building as specified in 5-1.3.1.

*Exception: Fixed wired glass panels in steel sash may be installed in such a separation in a fully sprinklered building.*

**5-2.6.3 Width.** The width of an exit passageway shall be adequate to accommodate the aggregate capacity of all exits discharging through it.

**5-2.6.4 Floor.** The floor shall be solid and without perforations.

**5-2.7 Escalators and Moving Walks.**

**5-2.7.1** Escalators and moving walks shall not constitute a part of the required means of egress.

*Exception: Previously approved escalators and moving walks in existing buildings.*

**5-2.8 Fire Escape Stairs.**

**5-2.8.1 General.**

**5-2.8.1.1** Fire escape stairs shall comply with the provisions of 5-2.8.

*Exception: Existing noncomplying fire escape stairs may be continued in use subject to the approval of the authority having jurisdiction.*

**5-2.8.1.2** Fire escape stairs shall not constitute any of the required means of egress in new buildings.

**5-2.8.1.3** New fire escape stairs for existing buildings may be erected only where it has been determined that outside stairs (*see 5-2.2*) are not practical. New fire escape stairs shall not incorporate ladders or access windows regardless of occupancy classification or load.

**5-2.8.1.4** Fire escape stairs may be used in existing buildings as permitted in the applicable existing occupancy chapters but shall not constitute more than 50 percent of the required exit capacity.

**5-2.8.1.5** Fire escape stairs shall provide a continuous, unobstructed, safe path of travel to the exit discharge or a safe area of refuge.

**5-2.8.1.6** Fire escape stairs of the return platform type with superimposed runs or the straight run type with platform and continuing in the same direction may be used.

**5-2.8.1.7** Either type may be parallel to or at right angles to buildings. Either type may be attached to buildings or erected independently of buildings and connected by walkways.

**5-2.8.2 Protection of Openings.** Fire escape stairs shall be exposed to the smallest possible number of window and door openings. Each opening shall be protected with approved fire door or window assemblies where the opening or any portion of the opening is located as follows:

(a) *Horizontally.* If within 15 ft (4.5 m) of any balcony, platform, or stairway constituting a component of the fire escape stair.

(b) *Below.* If within three stories or 35 ft (10.7 m) of any balcony, platform, walkway, or stairway constituting a component of the fire escape stair or within two stories or 20 ft (6.1 m) of a platform or walkway leading from any story to the fire escape stair.

(c) *Above.* If within 10 ft (3 m) of any balcony, platform, or walkway as measured vertically or of any stair tread surface as measured vertically.

(d) *Top Story.* Protection for wall openings shall not be required where stairs do not lead to the roof.

(e) *Court.* Any wall facing a court served by a fire escape stair where the least dimension of the court is less than one-third of the height to the uppermost platform of the fire escape stair measured from the ground.

(f) *Alcove.* Any wall facing an alcove served by a fire escape stair where the width of the alcove is less than one-third or the depth greater than one-fourth of the height to the uppermost platform of the fire escape stair measured from the ground.

*Exception: The provisions of 5-2.8.2 may be modified by the authority having jurisdiction in consideration of automatic sprinkler protection, low hazard occupancy, or other special conditions.*

**5-2.8.3 Access.**

**5-2.8.3.1** Access to fire escape stairs shall be in accordance with 5-2.8.4 and 5-5.1.2.

*Exception: Where permitted by the existing occupancy chapters of this Code, access to fire escape stairs may be by way of windows. No screening or storm windows may be used if they impair free access to the fire escape stair. Windows shall be arranged and so maintained as to be easily opened with a minimum of physical effort.*

**5-2.8.3.2** Fire escape stairs shall extend to the roof in all cases where the roof is subject to occupancy or provides an area of safe refuge. In other cases, if the roof has a pitch of 1 to 6 or less, fire escape ladders in accordance with 5-2.9 shall be provided for access to the roof.

**5-2.8.3.3** Access to a fire escape stair shall be directly to a balcony, landing, or platform. These shall be no higher than the floor or windowsill level and no lower than 8 in. (20.3 cm) below the floor level or 18 in. (45.7 cm) below the windowsill.

**5-2.8.4 Stair Details.** Fire escape stairs shall comply with the requirements of Table 5-2.8.4A and subsequent sections. Replacement of fire escape stairs shall comply with the requirements of Table 5-2.8.4B.

**Table 5–2.8.4 A**

| | **Fire Escape Stairs** Serving more than 10 occupants | **Fire Escape Stairs** Serving 10 or fewer occupants |
|---|---|---|
| Minimum widths | 22 in. (55.9 cm) clear between rails | 18 in. (45.7 cm) clear between rails |
| Minimum horizontal dimension any landing or platform | 22 in. (55.9 cm) clear | 18 in. (45.7 cm) clear |
| Maximum riser height | 9 in. (22.9 cm) | 12 in. (30.5 cm) |
| Minimum tread, exclusive of nosing | 9 in. (22.9 cm) | 6 in. (15.3 cm) |
| Minimum nosing or projection | 1 in. (2.5 cm) | No requirement |
| Tread construction | Solid, ½-in. (1.3-cm) dia. perforations permitted | Flat metal bars on edge or sq. bars secured against turning, spaced 1¼ in. (3.2 cm) max. on centers |
| Winders | None | Permitted subject to capacity penalty |
| Risers | None | No requirement |
| Spiral | None | Permitted subject to capacity penalty |
| Maximum height between landings | 12 ft. (3.7 m) | No requirement |
| Headroom, minimum | 6 ft. 8 in. (203 cm) | Same |
| Handrail height | 42 in. (107 cm) | Same |
| Access to escape | Door or casement windows 24 in. × 6 ft. 6 in. (61 cm × 198 cm) or double hung windows 30 in. × 36 in. (76 cm × 91 cm) clear opening | Windows |
| Level of access opening | Not over 12 in. (30.5 cm) above floor; steps if higher | Same |
| Discharge to ground | Swinging stair section permitted if approved by authority having jurisdiction | Swinging stair, or ladder if approved by authority having jurisdiction |
| Capacity, number of persons | 45 per unit, if access by door; 20 if access by climbing over windowsill | 10; if winders or ladder from bottom balcony, 5; if both, 1 |

**Table 5-2.8.4 B**

| | **Replacement Fire Escape Stairs** Serving more than 10 occupants | **Replacement Fire Escape Stairs** Serving 10 or fewer occupants |
|---|---|---|
| Minimum widths | 22 in. (55.9 cm) clear between rails | Same |
| Minimum horizontal dimension any landing or platform | 22 in. (55.9 cm) | Same |
| Maximum riser height | 9 in. (22.9 cm) | Same |
| Minimum tread, exclusive of nosing | 10 in. (25.4 cm) | Same |
| Tread construction | Solid, ½-in. (1.3-cm) dia. perforations permitted | Same |
| Winders | None | Permitted subject to 5-2.2.2.8 |
| Spiral | None | Permitted subject to 5-2.2.2.7 |
| Risers | None | None |
| Maximum height between landings | 12 ft. (3.7 m) | Same |
| Headroom, minimum | 6 ft. 8 in. (203 cm) | Same |
| Access to escape | Door or casement windows 24 in. × 6 ft. 6 in. (61 cm × 198 cm) or double hung windows 30 in. × 36 in. (76 cm × 91 cm) clear opening | Windows |
| Level of access opening | Not over 12 in. (30.5 cm) above floor; steps if higher | Same |
| Discharge to ground | Swinging stair section permitted if approved by authority having jurisdiction | Same |
| Capacity, number of persons | 45 per unit, if access by door; 20 if access by climbing over windowsill | 10 per unit |

**5-2.8.5 Guards, Handrails, and Visual Enclosures.**

**5-2.8.5.1** All fire escape stairs shall have walls or guards and handrails on both sides in accordance with 5-2.2.6.

*Exception: Existing handrails on existing fire escape stairs may continue to be used if the height does not exceed 42 in. (107 cm).*

**5-2.8.5.2** Replacement fire escape stairs in occupancies serving more than 10 occupants shall have visual enclosures to avoid any handicap to stair use by persons having a fear of high places. For stairs more than three stories in height, any arrangement intended to meet this requirement shall be at least 42 in. (107 cm) in height.

**5-2.8.6 Materials and Strength.**

**5-2.8.6.1** Noncombustible materials shall be used for the construction of all components of fire escape stairs.

**5-2.8.6.2** The authority having jurisdiction may approve any existing fire escape stair that has been shown by load test or other satisfactory evidence to have adequate strength.

**5-2.8.7* Swinging Stairs.**

**5-2.8.7.1** A single swinging stair section shall be permitted to terminate fire escape stairs over sidewalks, alleys, or driveways where it is impractical to make the termination with fire escape stairs.

**5-2.8.7.2** Swinging stair sections shall not be located over doors, over the path of travel from any other exit, or in any locations where there are likely to be obstructions.

**5-2.8.7.3** Width of swinging stair sections shall be no less than that of the fire escape stairs above.

**5-2.8.7.4** Pitch of swinging stair sections shall be no steeper than that of the fire escape stairs above.

**5-2.8.7.5** Guards and handrails, in accordance with 5-2.2.6, shall be provided and shall be similar in height and construction to those used with the fire escape stairs above. Guards and handrails shall be designed to prevent any possibility of injury to persons where stairs swing downward. Minimum clearance between moving sections and any other portion of the stair system where hands might be caught shall be 4 in. (10.2 cm).

**5-2.8.7.6** If the distance from the lowest platform to ground exceeds 12 ft (3.7 m), an intermediate balcony not more than 12 ft (3.7 m) from the ground or less than 7 ft (213 cm) in the clear underneath shall be provided with width not less than that of the stairs and length not less than 4 ft (122 cm).

**5-2.8.7.7** Swinging stairs shall be counterbalanced about a pivot, and cables shall not be used. A weight of 150 lb (68 kg) one step from the pivot shall not start the swinging stairs downward, and a weight of 150 lb (68 kg) one-quarter of the length of the swinging stairs from the pivot will positively cause the stairs to swing down.

**5-2.8.7.8** The pivot for swinging stairs shall be of a corrosion-resistant assembly or have clearances to prevent sticking due to corrosion.

**5-2.8.7.9*** No device to lock a swinging stair section in the up position shall be installed.

**5-2.8.8 Intervening Spaces.**

**5-2.8.8.1** Where approved by the authority having jurisdiction, fire escape stairs may lead to an adjoining roof that must be crossed before continuing downward travel. The direction of travel shall be clearly marked, and walkways with guards and handrails complying with 5-2.2.6 shall be provided.

**5-2.8.8.2** Where approved by the authority having jurisdiction, fire escape stairs may be used in combination with interior or outside stairs complying with 5-2.2, provided a continuous safe path of travel is maintained.

**5-2.9 Fire Escape Ladders.**

**5-2.9.1 General.** Fire escape ladders shall be permitted to be used only under the following conditions:

(a) To provide access to unoccupied roof spaces as permitted by 5-2.8.3.2;

(b) To provide a second means of escape from storage elevators as permitted by Chapter 29;

(c) To provide a means of egress from towers and elevated platforms around machinery or similar spaces subject to occupancy only by able-bodied adults, not more than 3 in number; or

(d) To provide a secondary means of egress from boiler rooms or similar spaces subject to occupancy only by able-bodied adults, not more than 3 in number; or

(e) To provide access to the ground from the lowest balcony or landing of a fire escape stair for very small buildings as permitted by 5-2.8.4 where approved by the authority having jurisdiction.

**5-2.9.2 Construction and Installation.** Fire escape ladders shall comply with the requirements of ANSI A14.3, *Safety Code for Fixed Ladders.*

*Exception No. 1: Existing ladders complying with this code in effect when the ladders were installed may continue to be used subject to the approval of the authority having jurisdiction.*

*Exception No. 2: Ladders installed with pitch less than 75 degrees shall not be permitted.*

*Exception No. 3: Combustible ladders shall not be permitted.*

**5-2.10 Slide Escapes.**

**5-2.10.1 General.**

**5-2.10.1.1** A slide escape may be used as a component in a means of egress where specifically authorized by Chapters 8 through 30.

**5-2.10.1.2** Each slide escape shall be of an approved type.

**5-2.10.1.3** Slide escapes used as exits shall comply with the applicable requirements of Chapter 5 for other types of exits subject to the approval of the authority having jurisdiction.

**5-2.10.2 Capacity.**

**5-2.10.2.1** Slide escapes, where permitted as required exits, shall be rated at a capacity of 60 persons.

**5-2.10.2.2** Slide escapes shall not constitute more than 25 percent of the required exit capacity from any building or structure or any individual story or floor thereof.

*Exception: As permitted for high hazard manufacturing buildings or structures.*

**5-2.11* Alternating Tread Devices.**

**5-2.11.1** Alternating tread devices complying with 5-2.11.2 may be used only as follows:

(a) To provide access to unoccupied roof spaces as permitted by 5-2.8.3.2;

(b) To provide a second means of egress from storage elevators as permitted by Chapter 29;

(c) To provide a means of egress from towers and elevated platforms around machinery or similar spaces subject to occupancy only by able-bodied adults, not more than three in number; or

(d) To provide a secondary means of egress from boiler rooms or similar spaces subject to occupancy only by able-bodied adults, not more than three in number.

**5-2.11.2** Alternating tread devices shall comply with the following:

(a) Handrails, in accordance with 5-2.2.6.5, shall be provided on both sides of alternating tread devices; and

(b) The clear width between handrails shall be a minimum of 17 in. (43.2 cm) and shall not exceed 24 in. (61 cm); and

(c) Head room shall not be less than 6 ft 8 in. (203 cm); and

(d) The height of the riser shall not exceed 8 in. (20.3 cm); and

(e) Treads shall have a minimum projected tread depth of 9 in. (22.9 cm) measured in accordance with 5-2.2 with each tread providing 10½ in. (26.7 cm) of depth including tread overlap; and

(f) A minimum distance of 6 in. (15.2 cm) shall be provided between the stair handrail and any other object; and

(g) The initial tread of the stair shall begin at the same elevation as the platform, landing, or floor surface; and

(h) The alternating treads shall not be laterally separated by more than 2 in (5.0 cm); and

(i) The occupant load served shall not be more than three.

## SECTION 5-3 CAPACITY OF MEANS OF EGRESS

**5-3.1 Occupant Load.**

**5-3.1.1*** The capacity of means of egress for any floor, balcony, tier, or other occupied space shall be sufficient for the occupant load thereof.

**5-3.1.2*** The occupant load permitted in any building or portion thereof shall not be assumed to be less than the number determined by dividing the floor area assigned to that use by the occupant load factor as specified in Chapters 8 through 30 for individual occupancies. Where both gross and net area figures are given for the same occupancy, calculations shall be made applying the gross area figure to the building as a whole and the net area figure to the net area of the specific use.

**5-3.1.3** The occupant load permitted in any building or portion thereof may be increased from that number established for the given use as specified in 5-3.1.2 where all other requirements of this *Code* are also met, based on such modified number. The authority having jurisdiction may require an approved aisle, seating, or fixed equipment diagram to substantiate any increase in occupant load and may require that such diagram be posted in an approved location.

**5-3.1.4** Where exits serve more than one floor, only the occupant load of each floor considered individually need be used in computing the capacity of the exits at that floor, provided that exit capacity shall not be decreased in the direction of exit travel.

**5-3.1.5** Where means of egress from floors above and below converge at an intermediate floor, the capacity of the means of egress from the point of convergence shall be not less than the sum of the two.

**5-3.2* Measurement of Means of Egress.** Width of means of egress shall be measured in the clear at the narrowest point of the exit component under consideration.

*Exception: Projections not to exceed 3½ in. (8.9 cm) on each side are permitted at and below handrail height.*

**5-3.3 Egress Capacity.**

**5-3.3.1** Egress capacity for approved components of means of egress shall be based on the following:

| Use | Stairways (inch per person) [cm per person] | Level Components and Class A Ramps (inch per person) [cm per person] |
|---|---|---|
| Board and Care | 0.4 [1.0] | 0.2 [0.5] |
| Detention and Correctional | 0.3 [0.8] | 0.2 [0.5] |
| Health Care Sprinklered | 0.6 [1.5] | 0.5 [1.3] |
| Health Care Nonsprinklered | 1.0 [2.5] | 0.7 [1.8] |
| High Hazard | 0.7 [1.8] | 0.4 [1.0] |
| All Others | 0.3 [0.8] | 0.2 [0.5] |

For Class B ramps used for ascent, the width per person shall be increased by 10 percent beyond what is required for Class A ramps. Widths for Class B ramps used for descent shall be calculated the same as for Class A ramps.

**5-3.3.2** The required capacity of a corridor is the occupant load utilizing the corridor for exit access divided by the required number of exits to which the corridor connects but shall not be less than the required capacity of the exit to which the corridor leads.

**5-3.4 Minimum Width.**

**5-3.4.1** The minimum width of any exit access shall be as specified for individual occupancies by Chapters 8 through 30, but in no case shall such width be less than 36 in. (91 cm).

*Exception No. 1: Doors as provided for in 5-2.1.3.*

*Exception No. 2: In existing buildings the minimum width shall not be less than 28 in. (71 cm).*

*Exception No. 3: Aisles in assembly occupancies as provided in Chapters 8 and 9.*

**5-3.4.2** Where a single exit access leads to an exit, its capacity in terms of width shall be at least equal to the required capacity of the exit to which it leads. Where more than one exit access leads to an exit, each shall have a width adequate for the number of persons it must accommodate.

## SECTION 5-4 NUMBER OF MEANS OF EGRESS

**5-4.1 General.**

**5-4.1.1** The minimum number of means of egress from any story or portion thereof shall be two.

*Exception: Where a single means of egress is permitted by Chapters 8 through 30.*

**5-4.1.2** The minimum number of separate and remote means of egress from all floors or portions thereof shall be as follows:

Occupant load more than 500 but not more than 1,000: 3

Occupant load more than 1,000: 4

*Exception: Existing buildings as permitted by Chapters 8 through 30.*

**5-4.1.3** Where exits serve more than one story, only the occupant load of each story considered individually need be used in computing the number of exits at that story, provided that the required number of exits shall not be decreased in the direction of exit travel.

## SECTION 5-5 ARRANGEMENT OF MEANS OF EGRESS

**5-5.1 General.**

**5-5.1.1** Exits shall be so located and exit access shall be so arranged that exits are readily accessible at all times.

**5-5.1.2*** Where exits are not immediately accessible from an open floor area, safe and continuous passageways, aisles, or corridors shall be maintained leading directly to every exit and shall be so arranged as to provide access for each occupant to at least two exits by separate ways of travel.

*Exception No. 1: Where a single exit is permitted by Chapters 8 through 30.*

*Exception No. 2: Where common paths of travel are permitted for an occupancy by Chapters 8 through 30, such common path of travel shall be permitted but shall not exceed the limit specified.*

**5-5.1.3** Where more than one exit is required from a building or portion thereof, such exits shall be remote from each other and so arranged and constructed as to minimize any possibility that more than one may be blocked off by any one fire or other emergency condition.

**5-5.1.4*** In new construction, if two exits or exit access doors are required, they shall be placed a distance apart equal to not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between exits. Where exit enclosures are provided as the required exits and are interconnected by a corridor conforming to the requirements of 5-1.3.4, exit separation shall be permitted to be measured along the line of travel within the corridor.

In new construction where more than two exits or exit access doors are required, at least two of the required exits or exit access doors shall be so arranged to comply with the above. The other exits or exit access doors shall be so located that if one becomes blocked, the others will be available.

*Exception: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, the minimum separation distance between two exits or exit access doors shall be not less than one-third the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between exits.*

**5-5.1.5*** Interlocking or scissor stairs may be considered separate exits if enclosed in accordance with 5-1.3.1 and separated from each other by 2-hour fire resistance rated noncombustible construction. There shall be no penetrations or communicating openings, whether protected or not, between the stair enclosures.

**5-5.1.6*** Exit access shall be so arranged that there are no dead-end pockets, hallways, corridors, passageways, or courts.

*Exception: Where dead ends are permitted for an occupancy by Chapters 8 through 30, such dead ends shall be permitted but shall not exceed the limit specified.*

**5-5.1.7** Egress from rooms or spaces may open into adjoining or intervening rooms or areas, provided such adjoining rooms are accessory to the area served and provide a direct means of egress to an exit. Foyers, lobbies, and reception rooms constructed as required for corridors shall not be construed as intervening rooms. Exit access shall be so arranged that it will not be necessary to pass through any area identified under Protection from Hazards in Chapters 8 through 30.

**5-5.2 Impediments to Egress.** (*See also 5-1.7 and 5-2.1.5.*)

**5-5.2.1** In no case shall access to an exit be through kitchens, storerooms, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms subject to locking.

*Exception No. 1: Where the exit is required to serve only the bedroom or other room subject to locking, or adjoining rooms constituting part of the same dwelling or apartment used for single-family occupancy.*

*Exception No. 2: Exit access in detention and correctional occupancies may pass through rooms or spaces subject to locking as provided in Chapters 14 and 15.*

*Exception No. 3: Exit access in mercantile occupancies may pass through storerooms as provided in Chapters 24 and 25.*

**5-5.2.2*** Exit access and the doors to exits to which they lead shall be so designed and arranged as to be clearly recognizable. Hangings or draperies shall not be placed over exit doors or otherwise located so as to conceal or obscure any exit. 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 exit.

**5-5.3 Exterior Ways of Exit Access.**

**5-5.3.1** Exit access may be by means of any exterior balcony, porch, gallery, or roof that conforms to the requirements of this chapter.

**5-5.3.2** Exterior exit access balconies shall be separated from the interior of the building by walls and opening protectives as required for corridors.

*Exception: Where the exterior exit access balcony is served by at least two stairs and has no dead ends, or where dead ends occur, travel past an unprotected opening is not necessary to reach a stair.*

**5-5.3.3** A permanent, reasonably straight path of travel shall be maintained over the required exterior exit access.

**5-5.3.4** There shall be no obstruction by railings, barriers, or gates that divide the open space into sections appurtenant to individual rooms, apartments, or other subdivisions.

**5-5.3.5** An exterior exit access shall be so arranged that there are no dead ends in excess of 20 ft (6.1 m).

**5-5.3.6** Any gallery, balcony, bridge, porch, or other exterior exit access that projects beyond the outside wall of the building shall comply with the requirements of this chapter as to width and arrangement.

**5-5.3.7** Exterior exit access shall have smooth, solid, substantially level floors and shall have guards on the unenclosed sides at least equivalent to those specified in 5-2.2.6.

**5-5.3.8** Where accumulation of snow or ice is likely because of the climate, the exterior exit access shall be protected by a roof.

**5-5.3.9** The materials of construction shall be as permitted for the building served.

## SECTION 5-6 MEASUREMENT OF TRAVEL DISTANCE TO EXITS

**5-6.1*** The maximum travel distance in any occupied space to at least one exit, measured in accordance with the following requirements, shall not exceed the limits specified in 5-6.5.

**5-6.2*** The travel distance to an exit shall be measured on the floor or other walking surface along the center line of the natural path of travel starting 1 ft (30.5 cm) from the most remote point, curving around any corners or obstructions with a 1-ft (30.5-cm) clearance therefrom, and ending at the center of the doorway or other point at which the exit begins. Where measurement includes stairs, the measurement shall be taken in the plane of the tread nosing.

*Exception: Travel distance measurement may terminate at a smoke barrier in existing detention and correctional occupancies as provided in Chapter 15.*

**5-6.3** Distance to exits shall be measured from the most remote point subject to occupancy.

**5-6.4** Where open stairways or ramps are permitted as a path of travel to required exits, such as between mezzanines or balconies and the floor below, the distance shall include the travel on the stairway or ramp and the travel from the end of the stairway or ramp to reach an outside door or other exit in addition to the distance to reach the stairway or ramp.

**5-6.5 Travel Distance Limitations.** Travel distance to at least one exit shall not exceed 200 ft (60 m) in buildings not sprinklered or exceed 250 ft (76 m) in buildings protected throughout by an approved supervised sprinkler system in accordance with Section 7-7.

*Exception No. 1: Where other travel distance limitations are specified in Chapters 8 through 30.*

*Exception No. 2: Travel distance for areas having high hazard contents as specified in Section 5-11.*

**5-6.6** Where any part of an exterior exit is within 10 ft (3 m) horizontal distance of any unprotected building opening, as permitted by 5-2.2.3.3 for outside stairs, the distance to the exit shall include the length of travel to ground level.

## SECTION 5-7 DISCHARGE FROM EXITS

**5-7.1*** All exits shall terminate directly at a public way or at an exit discharge. Yards, courts, open spaces, or other portions of the exit discharge shall be of required width and size to provide all occupants with a safe access to a public way.

*Exception No. 1: As permitted by 5-7.2 and 5-7.5.*

*Exception No. 2: Means of egress may terminate in an exterior area of refuge in detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-7.2** A maximum of 50 percent of the required number of exits and 50 percent of the required exit capacity shall be permitted to discharge through areas on the level of discharge provided all of the following are met:

(a) Such exits discharge to a free and unobstructed way to the exterior of the building, which way is readily visible and identifiable from the point of discharge from the exit.

(b) The entire area on the level of discharge is separated from areas below by construction having a fire resistance rating not less than that for the exit enclosure.

(c) The level of discharge is protected throughout by an approved automatic sprinkler system, and any other portion of the level of discharge with access to the discharge area is protected throughout by an approved automatic sprinkler system or separated from it in accordance with the requirements for the enclosure of exits. (*See 5-1.3.1.*)

*Exception to (c): The requirements of 5-7.2(c) may be waived if the discharge area is a vestibule or foyer meeting all of the following:*

*1. The depth from the exterior of the building is not greater than 10 ft (3 m) and the length is not greater than 30 ft (9.1 m).*

*2. The foyer is separated from the remainder of the level of discharge by construction providing protection at least the equivalent of wired glass in steel frames.*

*3. The foyer serves only for means of egress including exits directly to the outside.*

*Exception: One hundred percent of the exits may discharge through areas on the level of exit discharge in detention and correctional occupancies as provided in Chapters 14 and 15.*

**5-7.3** The exit discharge shall be so arranged and marked as to make clear the direction of egress to a public way. Exit stairs that continue beyond the level of discharge shall be interrupted at the level of discharge by partitions, doors, or other physical barriers.

*Exception: Exit stairs that continue one-half story beyond the level of exit discharge need not be interrupted by physical barriers where the exit discharge is clearly obvious.*

**5-7.4** Stairs, ramps, bridges, balconies, escalators, moving walks, and other components of an exit discharge shall comply with the detailed requirements of this chapter for such components.

**5-7.5** Subject to the approval of the authority having jurisdiction, exits may be accepted where:

(a) They discharge to the roof or other sections of the building or adjoining buildings, and

(b) The roof has a fire resistance rating at least the equivalent of that required for the exit enclosure, and

(c) There is a continuous and safe means of egress from the roof, and

(d) All other reasonable requirements for life safety are maintained.

## SECTION 5-8 ILLUMINATION OF MEANS OF EGRESS

**5-8.1 General.**

**5-8.1.1** Illumination of means of egress shall be provided in accordance with this section for every building and structure where required in Chapters 8 through 30. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit.

**5-8.1.2** Illumination of means of egress shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use. Artificial lighting shall be employed at such places and for such periods of time as required to maintain the illumination to the minimum footcandle [Lux (lx)] values herein specified.

**5-8.1.3*** The floors of means of egress shall be illuminated at all points including angles and intersections of corridors and passageways, stairways, landings of stairs, and exit doors to values of not less than 1 footcandle (10 lx) measured at the floor.

*Exception: In assembly occupancies, the illumination of the floors of exit access may be reduced to values not less than ½ footcandle (2 lx) during periods of performances or projections involving directed light.*

**5-8.1.4** Any required illumination shall be so arranged that the failure of any single lighting unit, such as the burning out of an electric bulb, will not leave any area in darkness.

**5-8.1.5** The equipment or units installed to meet the requirements of Section 5-10 shall be permitted also to serve the function of illumination of means of egress, provided that all applicable requirements of this section for such illumination are also met.

**5-8.2 Sources of Illumination.**

**5-8.2.1** Illumination of means of egress shall be from a source of reasonably assured reliability, such as public utility electric service.

**5-8.2.2** No battery-operated electric light nor any type of portable lamp or lantern shall be used for primary illumination of means of egress. Battery-operated electric lights shall be permitted to be used as an emergency source to the extent permitted under Section 5-9, Emergency Lighting.

## SECTION 5-9 EMERGENCY LIGHTING

**5-9.1 General.**

**5-9.1.1** Emergency lighting facilities for means of egress shall be provided in accordance with this section for every building or structure where required in Chapters 8 through 30.

**5-9.1.2** Where maintenance of illumination depends upon changing from one energy source to another, there shall be no appreciable interruption of illumination during the changeover. Where emergency lighting is provided by a prime mover-operated electric generator, a delay of not more than 10 seconds shall be permitted.

**5-9.2 Performance of System.**

**5-9.2.1** Emergency lighting facilities shall be arranged to maintain the specified degree of illumination throughout the means of egress, but not less than 1 footcandle (10 lx), for a period of 1½ hours in the event of failure of the normal lighting. The illumination may decline to 0.6 footcandle (6 lx) at the end of the emergency lighting time duration. (*See also 5-8.1.3.*)

**5-9.2.2*** Battery-operated emergency lights shall use only reliable types of rechargeable batteries provided with suitable facilities for maintaining them in properly charged condition. Batteries used in such lights or units shall be approved for their intended use and shall comply with NFPA 70, *National Electrical Code®*.

**5-9.2.3*** The emergency lighting system shall be so arranged as to provide the required illumination automatically in the event of any interruption of normal lighting, such as any failure of public utility or other outside electrical power supply, opening of a circuit breaker or fuse, or any manual act(s), including accidental opening of a switch controlling normal lighting facilities.

**5-9.2.4** The emergency lighting system shall be either continuously in operation or capable of repeated automatic operation without manual intervention.

**5-9.3 Testing and Maintenance.** (*See Section 31-1.*)

## SECTION 5-10 MARKING OF MEANS OF EGRESS

**5-10.1 General.**

**5-10.1.1** Means of egress shall be marked in accordance with this section where required in Chapters 8 through 30.

**5-10.1.2*** Exits shall be marked by an approved sign readily visible from any direction of exit access.

*Exception: Main exterior exit doors that obviously and clearly are identifiable as exits.*

**5-10.1.3** Access to exits shall be marked by approved readily visible signs in all cases where the exit or way to reach it is not immediately visible to the occupants. Sign placement

shall be such that no point in the exit access is more than 100 ft (30 m) from the nearest visible sign.

*Exception: Signs in existing buildings need not meet the 100-ft (30-m) distance requirement.*

**5-10.1.4*** Where low level exit signs are specifically required by Chapters 8 through 30, an approved luminescent, self-luminous, or self-illuminated sign shall be placed near the floor level below signs required for doors or in corridors by 5-10.1.2 and 5-10.1.3. This sign shall have appropriate wording in plainly legible letters not less than 4½ in. (11.4 cm) nor more than 6 in. (15.2 cm) high with the principal strokes of letters not less than ¾ in. (1.9 cm) wide. The bottom of the sign shall be not less than 6 in. (15.2 cm) nor more than 8 in. (20.3 cm) above the floor. For exit doors, the sign shall be on the door or adjacent to the door with the closest edge of the sign within 4 in. (10.2 cm) of the door frame.

**5-10.1.5*** Every sign required by Section 5-10 shall be so located and of such size, distinctive color, and design as to be readily visible and shall provide contrast with decorations, interior finish, or other signs. No decorations, furnishings, or equipment that impair visibility of an exit sign shall be permitted, nor shall there be any brightly illuminated sign (for other than exit purposes), display, or object in or near the line of vision to the required exit sign of such a character as to so detract attention from the exit sign.

**5-10.2* Size of Signs.** Every sign required by Section 5-10 shall have the word EXIT or other appropriate wording in plainly legible letters not less than 6 in. (15.2 cm) high with the principal strokes of letters not less than ¾ in. (1.9 cm) wide. The word "EXIT" shall have letters having a width not less than 2 in. (5 cm) except the letter "I," and the minimum spacing between letters shall be not less than ⅜ in. (1 cm). Signs larger than the minimum established in this paragraph shall have letter widths, strokes, and spacing in proportion to their height.

*Exception No. 1: Existing approved signs.*

*Exception No. 2: Existing signs having the required wording in plainly legible letters not less than 4 in. (10.2 cm) high.*

*Exception No. 3: Signs required by 5-10.1.4.*

**5-10.3 Illumination of Signs.**

**5-10.3.1*** Every sign required by 5-10.1.2 or 5-10.1.3 shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be visible in both the normal and emergency lighting mode.

**5-10.3.2*** Externally illuminated signs shall be illuminated by not less than 5 footcandles (54 lx) and shall employ a contrast ratio of not less than 0.5.

**5-10.3.3*** The visibility of an internally illuminated sign shall be the equivalent of an externally illuminated sign that complies with 5-10.3.2.

*Exception No. 1: Approved existing signs.*

*Exception No. 2*: Approved self-luminous or electroluminescent signs that operate in the 5,000 to 6,000 angstrom range that provide evenly illuminated letters may have a minimum luminance of 0.06 footlamberts (0.21 cd/sq m).*

**5-10.3.4** Every sign required by 5-10.1.4 shall provide evenly illuminated letters having a minimum luminance of 0.06 footlamberts (0.21 cd/sq m).

*Exception: Signs complying with the requirements of 5-10.3.3 are acceptable.*

**5-10.3.5** Every sign required to be illuminated by 5-10.3 shall be continuously illuminated as required under the provisions of Section 5-8.

*Exception*: Illumination for signs shall be permitted to flash on and off upon activation of the fire alarm system.*

**5-10.3.6** Where emergency lighting facilities are required by the applicable provisions of Chapters 8 through 30 for individual occupancies, the exit signs, except approved self-luminous signs, shall be illuminated by the emergency lighting facilities. The level of illumination of the exit sign shall be at the levels provided in accordance with 5-10.3.2 or 5-10.3.3 for the required emergency lighting time duration as specified in 5-9.2.1 but shall be permitted to decline to 60 percent of the illumination level at the end of the emergency lighting time duration.

**5-10.4 Specific Requirements.**

**5-10.4.1 Directional Signs.**

**5-10.4.1.1*** A sign complying with 5-10.2 reading EXIT or a similar designation with an arrow indicating the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not immediately apparent.

**5-10.4.1.2 Arrow Designator.** The arrow shall be located outside of the EXIT legend, not less than ⅜ in. (1 cm) from any letter, and may be integral to or separate from the sign body. The arrow shall be of such size, character and location that it is plainly visible and identifiable as a directional arrow.

*Exception: Existing approved signs.*

**5-10.4.2* Special Signs.** Any door, passage, or stairway that is neither an exit nor a way of exit access and that is so located or arranged that it is likely to be mistaken for an exit shall be identified by a sign reading NO EXIT. Such sign shall have "NO" letters 2 in. (5 cm) high with stroke width of ⅜ in. (1 cm) and "EXIT" letters 1 in. (2.5 cm) high, with the word "EXIT" below "NO."

*Exception: Approved existing signs.*

## SECTION 5-11 SPECIAL PROVISIONS FOR OCCUPANCIES WITH HIGH HAZARD CONTENTS *(See Section 4-2.)*

**5-11.1*** In all cases where the contents are classified as high hazard, exits shall be provided of such types and numbers and so arranged as to permit all occupants to escape from the building or structure or from the hazardous area thereof to the outside or to a place of safety with a travel distance of not over 75 ft (23 m), measured as specified in 5-6.2.

**5-11.2** Capacity of means of egress provided in accordance with 5-11.1 shall be as specified in the applicable section of Chapters 8 through 30 but not less than such as to provide 0.7 in. per person (1.8 cm/person) where exit is by inside or outside stairs or 0.4 in. per person (1.0 cm/person) where exit is by doors at grade level, by horizontal exits, or by Class A ramps.

**5-11.3** At least two exits shall be provided from each building or hazardous area thereof.

*Exception: Rooms or spaces not greater than 200 sq ft (18.6 sq m) and having an occupant load of not greater than three persons and having a maximum travel distance to the room door of 25 ft (7.6 m).*

**5-11.4** Means of egress shall be so arranged that there are no dead-end pockets, hallways, corridors, passageways, or courts.

# CHAPTER 6 FEATURES OF FIRE PROTECTION

## SECTION 6-1 GENERAL

**6-1.1 Application.**

**6-1.1.1** The features of fire protection set forth in this chapter apply to both new construction and existing buildings.

## SECTION 6-2 CONSTRUCTION AND COMPARTMENTATION

**6-2.1* Construction.** Buildings or structures occupied or used according to the individual occupancy chapters (Chapters 8 through 30) shall meet the minimum construction requirements of those chapters. NFPA 220, *Standard on Types of Building Construction*, shall be used to determine the requirements for the construction classification.

**6-2.2 Compartmentation.**

**6-2.2.1** Where required by Chapters 8 through 30, every building shall be divided into compartments to limit the spread of fire and restrict the movement of smoke.

**6-2.2.2*** Fire compartments shall be formed with fire barriers that are continuous from outside wall to outside wall, from one fire barrier to another, or a combination thereof; including continuity through all concealed spaces, such as those found above a ceiling, including interstitial spaces.

*Exception: A fire barrier required for an occupied space below an interstitial space is not required to extend through the interstitial space provided the construction assembly forming the bottom of the interstitial space has a fire resistance rating equal to that of the fire barrier.*

**6-2.3 Fire Barriers.**

**6-2.3.1** Fire barriers used to provide enclosure of floor openings or used for subdivision of stories shall be classified in accordance with their fire resistance rating as follows:

(a) 2-hour fire resistance rating.

(b) 1-hour fire resistance rating.

(c) ¾-hour fire resistance rating.

(d) ½-hour fire resistance rating.

(e) 20-minute fire resistance rating.

**6-2.3.2*** Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other. The fire protection rating for opening protectives shall be as follows:

(a) 2-hour fire barrier — 1½-hour fire protection rating.

(b) 1-hour fire barrier — 1-hour fire protection rating where used for vertical openings or ¾-hour fire protection rating where used for other than vertical openings.

*Exception No. 1 to (b): Where a lesser fire protection rating is specified by Chapter 5 or Chapters 8 through 30.*

*Exception No. 2 to (b): Where the fire barrier is provided as a result of a requirement that corridor walls be of 1-hour fire resistance rated construction, the opening protectives shall have a fire protection rating of not less than 20 minutes when tested in accordance with NFPA 252, Standard Methods of Fire Tests of Door Assemblies, without the hose stream test.*

*Exception No. 3 to (b): Where special requirements for doors in 1-hour fire resistance rated corridor walls and 1-hour fire resistance rated smoke barriers are specified in Chapters 12 and 13.*

(c) ¾-hour fire barrier — 20-minute fire protection rating.

(d) ½-hour fire barrier — 20-minute fire protection rating.

(e) 20-minute fire barrier — 20-minute fire protection rating.

**6-2.3.3** Fire door assemblies in fire barriers shall comply with the provisions of 5-2.1.

**6-2.3.4 Penetrations and Miscellaneous Openings in Fire Barriers.**

**6-2.3.4.1*** Openings in fire barriers for air-handling ductwork or air movement shall be protected in accordance with 7-2.1.

**6-2.3.4.2** Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be protected as follows:

(a) The space between the penetrating item and the fire barrier shall:

1. Be filled with a material capable of maintaining the fire resistance of the fire barrier, or

2. Be protected by an approved device designed for the specific purpose.

(b) Where the penetrating item uses a sleeve to penetrate the fire barrier, the sleeve shall be solidly set in the fire barrier, and the space between the item and the sleeve shall:

1. Be filled with a material capable of maintaining the fire resistance of the fire barrier, or

2. Be protected by an approved device designed for the specific purpose.

(c)* Insulation and coverings for pipes and ducts shall not pass through the fire barrier unless:

1. The material is capable of maintaining the fire resistance of the fire barrier, or

2. Protected by an approved device designed for the specific purpose.

(d) Where designs take transmission of vibration into consideration, any vibration isolation shall:

1. Be made on either side of the fire barrier, or

2. Be made by an approved device designed for the specific purpose.

**6-2.3.5** Floor-ceiling assemblies; bearing and nonbearing wall or partition assemblies used as fire barriers to form fire compartments; and columns, beams, girders, or trusses supporting such assemblies shall be of a design that has been tested to meet the conditions of acceptance of NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials.*

**6-2.3.6** Door or window assemblies in fire barriers shall be of an approved type with appropriate rating for the location in which installed. Fire doors and windows shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Windows.* Fire doors shall be of a design that has been tested to meet the conditions of acceptance of NFPA 252, *Standard Methods of Fire Tests of Door Assemblies.* Fire windows shall be of a design that has been tested to meet the conditions of

acceptance of NFPA 257, *Standard for Fire Tests of Window Assemblies.*

**6-2.4 Vertical Openings.**

**6-2.4.1** Every floor that separates stories in a building shall be constructed as a smoke barrier to provide a basic degree of compartmentation. (*See Section 3-2 for definition of smoke barrier.*)

*Exception No. 1: As permitted by 6-2.4.4.*

*Exception No. 2: As permitted by 6-2.4.5.*

*Exception No. 3: As permitted by Chapters 8 through 30.*

**6-2.4.2*** Openings through floors, such as stairways, hoistways for elevators, dumbwaiters, inclined and vertical conveyors; shaftways used for light, ventilation, or building services; or expansion joints and seismic joints used to allow structural movements shall be enclosed with fire barriers (vertical), such as wall or partition assemblies. Such enclosures shall be continuous from floor to floor. Openings shall be protected as appropriate for the fire resistance rating of the barrier.

*Exception No. 1: As permitted by 6-2.4.4.*

*Exception No. 2: As permitted by 6-2.4.5.*

*Exception No. 3: As permitted by Chapters 8 through 30.*

*Exception No. 4: Escalators and moving walks protected in accordance with 6-2.4.7.*

*Exception No. 5: Expansion or seismic joints designed to prevent the penetration of fire for a time period not less than the required fire resistance rating of the floor.*

**6-2.4.3*** The minimum fire resistance rating for the enclosure of floor openings shall be as follows (*see 5-1.3.1 for enclosure of exits*):

(a) Enclosures connecting four stories or more in new construction — 2-hour fire barriers.

(b) Other enclosures in new construction — 1-hour fire barriers.

(c) Enclosures in existing buildings — ½-hour fire barriers.

(d) As specified in Chapter 16 for new hotels, Chapter 18 for new apartment buildings, and in Chapter 20 for lodging and rooming houses.

**6-2.4.4** Where permitted by Chapters 8 through 30, unenclosed floor openings forming a communicating space between floor levels are permitted, provided that the following conditions are met:

(a) The communicating space does not connect more than three contiguous stories.

(b) The lowest or next to lowest story within the communicating space is a street floor.

(c) The entire floor area of the communicating space is open and unobstructed such that a fire in any part of the space will be readily obvious to the occupants of the space prior to the time it becomes a hazard to them.

(d) The communicating space is separated from the remainder of the building by fire barriers with at least a 1-hour fire resistance rating.

*Exception to (d): In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, a smoke barrier in accordance with Section 6-3 may serve as the required separation.*

(e) The communicating space has ordinary hazard contents protected throughout by an approved automatic sprinkler system in accordance with Section 7-6 or has only low hazard contents. (*See 4-2.2.*)

(f) Exit capacity is sufficient to provide for all the occupants of all levels within the communicating space to simultaneously egress the communicating space by considering it as a single floor area in determining the required exit capacity.

(g)* Each story within the communicating space, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that story without occupants having to traverse another story within the communicating space.

**6-2.4.5* Atriums.** Where permitted by Chapters 8 through 30, an atrium may be utilized provided the following conditions are met:

(a)* No horizontal dimension between opposite edges of the floor opening is less than 20 ft (6.1 m), and the opening is a minimum of 1,000 sq ft (93 sq m).

(b) The exits are separately enclosed from the atrium in accordance with 6-2.4.3. Access to exits may be within the atrium. Exit discharge in accordance with 5-7.2 may be within the atrium.

(c) The occupancy within the space meets the specifications for classification as low or ordinary hazard contents. (*See 4-2.2.*)

(d) The entire building is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

*Exception to (d): *Where the ceiling of the atrium is more than 55 ft (17 m) above the floor, the authority having jurisdiction may permit the omission of sprinklers at the top of the atrium.*

(e) In new construction, an engineered smoke control system acceptable to the authority having jurisdiction shall be provided. Factors such as means of egress and smoke control of adjacent spaces shall be considered.

*Exception to (e):* In lieu of an engineered smoke control system, a smoke removal system acceptable to the authority having jurisdiction may be considered.*

(f)* In new construction, the required engineered smoke control system or smoke removal system shall be independently activated by each of the following:

1. Approved smoke detectors located to detect smoke above the highest floor level of the atrium and at return air intakes from the atrium, and

2. The required automatic sprinkler system, and

3. Manual controls that are readily accessible to the fire department.

(g) In new construction, atriums shall be separated from the adjacent spaces by fire barriers with at least a 1-hour fire resistance rating with opening protectives as for corridor walls. (*See 6-2.3.2(b) Exception No. 2.*)

*Exception No. 1 to (g): Any three levels of the building may open directly to the atrium without enclosure.*

*Exception No. 2 to (g):* Glass walls may be used in lieu of the fire barriers where automatic sprinklers are spaced 6 ft (183 cm) apart or less along both sides of the glass wall, not more than 1 ft (30.5 cm) from the glass, and with the automatic sprinklers located so that the entire surface of the glass is wet upon operation of the sprinklers. The glass shall be tempered,*

*wired, or laminated glass held in place by a gasket system that permits the glass framing system to deflect without breaking (loading) the glass before the sprinklers operate. Automatic sprinklers are not required on the atrium side of the glass wall where there is no walkway or other floor area on the atrium side above the main floor level. Doors in such walls may be glass or other material that will resist the passage of smoke. Doors shall be self-closing or automatic-closing upon detection of smoke.*

**6-2.4.6** Any escalators or moving walks serving as a required exit in existing buildings shall be enclosed in the same manner as exit stairways. (*Also see 5-2.7.*)

**6-2.4.7** Escalators or moving walks not constituting an exit shall have their floor openings enclosed or protected as required for other vertical openings.

*Exception No. 1:* In lieu of such protection, in buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, escalator or moving walk openings may be protected in accordance with the method detailed in NFPA 13, Standard for the Installation of Sprinkler Systems, or in accordance with a method as approved by the authority having jurisdiction.*

*Exception No. 2: Escalators in large open areas such as atriums and enclosed shopping malls.*

*Exception No. 3: In lieu of such protection, in buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, escalators or moving walk openings may be protected by rolling steel shutters appropriate for the fire resistance rating of the vertical opening protected. The shutters shall close automatically by smoke detection and sprinkler operation, independently of each other. There shall be a manual means of operating and testing the operation of the shutter. The shutters shall be operated at least once a week to assure that they remain in proper operating condition. The shutters shall operate at a speed of not more than 30 ft per minute (.15 m/s) and shall be equipped with a sensitive leading edge. The leading edge shall arrest the progress of a moving shutter and cause it to retract a distance of approximately 6 in. (15.2 cm) upon the application of a force not in excess of 20 lbf (90 N) applied to the surface of the leading edge. The shutter, following this retraction, shall continue to close. The operating mechanism for the rolling shutter shall be provided with standby power complying with the provisions of NFPA 70, National Electrical Code.*

**6-2.5 Concealed Spaces.**

**6-2.5.1*** In new Type III, Type IV, or Type V construction, any concealed space in which materials having a flame-spread rating greater than Class A (as defined in Section 6-5) are exposed shall be effectively firestopped or draftstopped as provided below:

(a) Every exterior and interior wall and partition shall be firestopped at each floor level, at the top-story ceiling level, and at the level of support for roofs.

(b) Every unoccupied attic space shall be subdivided by draftstops into areas not to exceed 3,000 sq ft (280 sq m).

(c) Any concealed space between the ceiling and the floor or roof above shall be draftstopped for the full depth of the space along the line of support for the floor or roof structural members and, if necessary, at other locations to form areas not to exceed 1,000 sq ft (93 sq m) for any space between the ceiling and floor and 3,000 sq ft (280 sq m) for any space between the ceiling and roof.

*Exception No. 1: If the space is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Concealed spaces serving as plenums. (See NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.)*

**6-2.5.2** In every existing building, firestopping and draftstopping shall be provided as required by the provisions of Chapters 8 through 30.

## SECTION 6-3 SMOKE BARRIERS

**6-3.1*** Where required by Chapters 8 through 30, smoke barriers shall be provided to subdivide building spaces for the purpose of restricting the movement of smoke.

**6-3.2*** Smoke barriers required by this *Code* shall be continuous from outside wall to outside wall, from a floor to a floor, from a smoke barrier to a smoke barrier, or a combination thereof; including continuity through all concealed spaces such as those found above a ceiling, including interstitial spaces.

*Exception: A smoke barrier required for an occupied space below an interstitial space is not required to extend through the interstitial space, provided the construction assembly forming the bottom of the interstitial space provides resistance to the passage of smoke equal to that provided by the smoke barrier.*

**6-3.3** A fire barrier may also be used as a smoke barrier if it meets the requirements of 6-3.4 through 6-3.6.

**6-3.4 Doors.**

**6-3.4.1*** Doors in smoke barriers shall close the opening with only a minimum clearance necessary for proper operation and shall be without undercuts, louvers, or grilles.

**6-3.4.2*** Where a fire resistance rating for smoke barriers is specified elsewhere in the *Code*, the doors in the smoke barriers shall have a fire protection rating of at least 20 minutes. Vision panels in such doors shall be approved transparent wired glass.

*Exception No. 1: If a different fire protection rating for smoke barrier doors is specified by Chapters 8 through 30.*

*Exception No. 2: Latching hardware is not required on doors in smoke barriers where so indicated by Chapters 8 through 30.*

**6-3.4.3*** Doors in smoke barriers shall be self-closing or automatic-closing and shall comply with the provisions of 5-2.1.

**6-3.5 Smoke Dampers.**

**6-3.5.1** An approved damper designed to resist the passage of smoke shall be provided at each air-transfer opening or duct penetration of a required smoke barrier.

*Exception No. 1: Smoke dampers may be omitted in ducts or air-transfer openings that are part of an engineered smoke control system in accordance with Section 7-3.*

*Exception No. 2: Smoke dampers may be omitted in ducts where the air continues to move and the air-handling system installed is arranged to prevent recirculation of exhaust or return air under fire emergency conditions.*

*Exception No. 3: Smoke dampers may be omitted where the air inlet or outlet openings in ducts are limited to a single smoke compartment.*

*Exception No. 4: Smoke dampers may be omitted where ducts penetrate floors that serve as smoke barriers.*

*Exception No. 5: Smoke dampers may be omitted where specifically permitted by Chapters 8 through 30.*

**6-3.5.2** Required smoke dampers in ducts penetrating smoke barriers shall close upon detection of smoke by:

(a) Approved smoke detectors installed in accordance with Chapter 9 of NFPA 72E, *Standard on Automatic Fire Detectors*, or

(b) Approved local smoke detectors on either side of the smoke barrier door opening where ducts penetrate smoke barriers above the smoke barrier doors, or

(c) Approved smoke detectors located within the ducts in existing installations.

**6-3.5.3** Required smoke dampers in air transfer openings shall close upon detection of smoke by approved smoke detectors installed in accordance with Chapter 9 of NFPA 72E, *Standard on Automatic Fire Detectors.*

*Exception: Where a duct is provided on one side of the smoke barrier, the smoke detectors on the duct side shall be in accordance with 6-3.5.2.*

**6-3.6 Penetrations and Miscellaneous Openings in Floors and Smoke Barriers.**

**6-3.6.1** Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through floors and smoke barriers shall be protected as follows:

(a) The space between the penetrating item and the smoke barrier shall:

1. Be filled with a material capable of maintaining the smoke resistance of the smoke barrier, or

2. Be protected by an approved device designed for the specific purpose.

(b) Where the penetrating item uses a sleeve to penetrate the smoke barrier, the sleeve shall be solidly set in the smoke barrier, and the space between the item and the sleeve shall:

1. Be filled with a material capable of maintaining the smoke resistance of the smoke barrier, or

2. Be protected by an approved device designed for the specific purpose.

(c) Where designs take transmission of vibration into consideration, any vibration isolation shall:

1. Be made on either side of the smoke barrier, or

2. Be made by an approved device designed for the specific purpose.

**6-3.6.2** Openings occurring at points where floors or smoke barriers meet the outside walls, other smoke barriers, or fire barriers of a building shall:

(a) Be filled with a material capable of maintaining the smoke resistance of the floor or smoke barrier, or

(b) Be protected by an approved device designed for the specific purpose.

## SECTION 6-4 SPECIAL HAZARD PROTECTION

**6-4.1 General** Protection shall be provided from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure, such as those areas used for storage of combustibles or flammables, areas housing heat-producing appliances, or areas used for maintenance purposes, as follows:

(a) Enclosure with construction in accordance with Section 6-2 with a fire resistance rating as specified by Chapters 8 through 30, but not less than 1 hour without windows and with doors of ¾-hour fire protection rating, or

(b) Protection with automatic extinguishing systems in accordance with Section 7-7 as required by Chapters 8 through 30, or

(c) Both (a) and (b) above where specified by Chapters 8 through 30.

**6-4.2* Explosion Protection.** Where hazardous processes or storage are of such a character as to introduce an explosion potential, explosion venting or an explosion suppression system specifically designed for the hazard involved shall be provided.

**6-4.3 Flammable Liquids.** Flammable liquids shall be protected in accordance with NFPA 30, *Flammable and Combustible Liquids Code.*

**6-4.4 Laboratories.** Laboratories that use chemicals shall comply with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, unless otherwise modified by other provisions of this *Code.*

*Exception: Laboratories in health care occupancies and medical and dental offices shall comply with NFPA 99, Standard for Health Care Facilities.*

## SECTION 6-5 INTERIOR FINISH

**6-5.1 General.**

**6-5.1.1*** Interior finish includes interior wall and ceiling finish and interior floor finish.

**6-5.1.2** Interior wall and ceiling finish means the exposed interior surfaces of buildings including, but not limited to, fixed or movable walls and partitions, columns, and ceilings.

**6-5.1.3** Interior floor finish means the exposed floor surfaces of buildings including coverings that may be applied over a normal finished floor or stair, including risers.

**6-5.1.4** Classification of interior finish materials shall be in accordance with tests made under conditions simulating actual installations, provided that the authority having jurisdiction may by rule establish the classification of any material on which a rating by standard test is not available.

**6-5.2* Use of Interior Finishes.**

**6-5.2.1** Requirements for interior wall and ceiling finish shall apply as specified elsewhere in this *Code* for specific occupancies. (*See Chapter 5 and the specific occupancy requirements of Chapters 8 through 30.*)

**6-5.2.2*** Requirements for interior floor finish shall apply only where (1) there is a floor finish of unusual hazard; or (2) where floor finish requirements are specified elsewhere in this *Code* for specific occupancies. (*See Chapters 8 through 30 for specific occupancy requirements.*)

**6-5.2.3*** Textile materials having a napped, tufted, looped, woven, nonwoven, or similar surface shall not be applied to walls or ceilings.

*Exception No. 1: Such materials may be permitted on the basis of room/corner fire tests acceptable to the authority having jurisdiction that demonstrate that the product, using a product mounting system, including adhesive, representative of actual use, will not spread fire to the edges of the test sample or cause flashover in the test room.*

*Exception No. 2: Such materials having a Class A rating may be used in rooms or areas protected by an approved automatic sprinkler system.*

*Exception No. 3: Previously approved, existing, Class A installations.*

**6-5.2.4*** Cellular or foamed plastic materials shall not be used as interior wall and ceiling finish.

*Exception No. 1: Cellular or foamed plastic materials may be permitted on the basis of fire tests that substantiate on a reasonable basis their combustibility characteristics, for the use intended, in actual fire conditions.*

*Exception No. 2: Cellular or foamed plastic may be used for trim, not in excess of 10 percent of the wall or ceiling area, provided it is not less than 20 lb/cu ft (320 kg/m³) in density, is limited to ½ in. (1.3 cm) in thickness and 4 in. (10.2 cm) in width, and complies with the requirements for Class A or B interior wall and ceiling finish as described in 6-5.3; however, the smoke rating is not limited.*

**6-5.2.5** For requirements on decorations and furnishings not meeting the definition of interior finish, see 31-1.2 and 31-1.4.

**6-5.3 Interior Wall and Ceiling Finish Classification.**

**6-5.3.1*** Interior wall and ceiling finish shall be classified in accordance with 6-5.3.2 based on test results from NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials.*

**6-5.3.2*** Interior wall and ceiling finishes shall be grouped in the following classes in accordance with their flame spread and smoke development:

*Class A Interior Wall and Ceiling Finish.* Flame spread 0-25, smoke developed 0-450. Includes any material classified at 25 or less on the flame spread test scale and 450 or less on the smoke test scale described in 6-5.3.1. Any element thereof when so tested shall not continue to propagate fire.

*Class B Interior Wall and Ceiling Finish.* Flame spread 26-75, smoke developed 0-450. Includes any material classified at more than 25 but not more than 75 on the flame spread test scale and 450 or less on the smoke test scale described in 6-5.3.1.

*Class C Interior Wall and Ceiling Finish.* Flame spread 76-200, smoke developed 0-450. Includes any material classified at more than 75 but not more than 200 on the flame spread test scale and 450 or less on the smoke test scale described in 6-5.3.1.

*Exception: Existing interior finishes complying with the above flame spread ratings only may be continued in use.*

**6-5.3.3** Wherever the use of Class C interior wall and ceiling finish is required, Class A or B shall be permitted. Where Class B interior wall and ceiling finish is required, Class A shall be permitted.

**6-5.3.4** The classification of interior finish specified in 6-5.3.2 shall be that of the basic material used by itself or in combination with other materials.

*Exception No. 1: Subsequently applied paint or wall covering not exceeding 1/28 in. (.09 cm) in thickness unless of such character or thickness or so applied as to affect materially the flame spread or smoke development characteristics.*

*Exception No. 2: Exposed portions of structural members complying with the requirements for Type IV (2HH) construction per NFPA 220, Standard on Types of Building Construction.*

**6-5.4 Interior Floor Finish Classification.**

**6-5.4.1*** Interior floor finish shall be classified in accordance with 6-5.4.2 based on test results from NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.*

**6-5.4.2** Interior floor finishes shall be grouped in the following classes in accordance with the critical radiant flux ratings:

*Class I Interior Floor Finish.* Critical radiant flux, minimum of 0.45 watts per square centimeter as determined by the test described in 6-5.4.1.

*Class II Interior Floor Finish.* Critical radiant flux, minimum of 0.22 watts per square centimeter as determined by the test described in 6-5.4.1.

**6-5.4.3** Wherever the use of Class II interior floor finish is required, Class I interior floor finish shall be permitted.

**6-5.5 Trim and Incidental Finish.** Interior wall and ceiling finish not in excess of 10 percent of the aggregate wall and ceiling areas of any room or space may be Class C materials in occupancies where interior wall and ceiling finish of Class A or Class B is required.

**6-5.6 Fire Retardant Coatings.**

**6-5.6.1** The required flame spread or smoke developed classification of surfaces of walls, partitions, columns, and ceilings may be secured by applying approved fire retardant coatings to surfaces having higher flame spread ratings than permitted. Such treatments shall comply with the requirements of Chapter 3, NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials.*

**6-5.6.2** Fire retardant coatings shall possess the desired degree of permanency and shall be maintained so as to retain the effectiveness of the treatment under the service conditions encountered in actual use.

**6-5.7 Automatic Sprinklers.**

**6-5.7.1** Where an approved automatic sprinkler system is installed in accordance with Section 7-7, Class C interior wall and ceiling finish may be used in any location where Class B is required, and Class B interior wall and ceiling finish materials may be used in any location where Class A is required.

*Exception: Unless specifically prohibited elsewhere in this Code.*

**6-5.7.2** Where an approved automatic sprinkler system is installed in accordance with Section 7-7, Class II interior floor finish may be used in any location where Class I interior floor finish is required, and where Class II is required, no critical radiant flux rating is required.

# CHAPTER 7 BUILDING SERVICE AND FIRE PROTECTION EQUIPMENT

## SECTION 7-1 UTILITIES

**7-1.1** Equipment utilizing gas and related gas piping shall be installed in accordance with NFPA 54, *National Fuel Gas Code*, or NFPA 58, *Standard for Storage and Handling of Liquefied Petroleum Gases.*

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

**7-1.2** Electrical wiring and equipment installed shall be in accordance with NFPA 70, *National Electrical Code.*

*Exception: Existing installations may be continued in service subject to approval by the authority having jurisdiction.*

## SECTION 7-2 HEATING, VENTILATING, AND AIR CONDITIONING

**7-2.1** Air conditioning, heating, ventilating ductwork, and related equipment shall be installed in accordance with NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*, or NFPA 90B, *Standard for the Installation of Warm Air Heating and Air Conditioning Systems*, as applicable.

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

**7-2.2** Ventilating or heat-producing equipment shall be installed in accordance with: NFPA 91, *Standard for the Installation of Blower and Exhaust Systems*; NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances*; NFPA 31, *Standard for the Installation of Oil Burning Equipment*; NFPA 54, *National Fuel Gas Code*; NFPA 70, *National Electrical Code*, as applicable.

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

**7-2.3** Commercial cooking equipment for use in occupancies shall be installed in accordance with NFPA 96, *Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment.*

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

## SECTION 7-3 SMOKE CONTROL

**7-3.1*** Smoke control systems may be installed in lieu of other specific requirements in accordance with the provisions of Chapters 8 through 30. The design, installation, and testing shall be approved by the authority having jurisdiction.

## SECTION 7-4 ELEVATORS, DUMBWAITERS, AND VERTICAL CONVEYORS

**7-4.1*** An elevator shall not be considered a component in a required means of egress.

**7-4.2** Except as modified herein, new elevators, escalators, dumbwaiters, and moving walks shall be installed in accordance with the requirements of ANSI/ASME A17.1, *Safety Code for Elevators and Escalators.*

**7-4.3** Except as modified herein, existing elevators, escalators, dumbwaiters, and moving walks shall conform to the requirements of ANSI/ASME A17.3, *Safety Code for Existing Elevators and Escalators.*

**7-4.4** All elevators having a travel of 25 ft (7.6 m) or more above or below the level that best serves the needs of emergency personnel for fire fighting or rescue purposes shall conform to the requirements of ANSI/ASME A17.1, *Safety Code for Elevators and Escalators*, Rule 211.3, "Operation of Elevators Under Fire or Other Emergency Conditions."

**7-4.5** Vertical conveyors, including dumbwaiters and pneumatic conveyors serving various stories in a building, shall be separately enclosed by walls or partitions in accordance with the provisions of Section 6-2. Service openings shall not open to an exit. Service openings, where required to be open on several stories at the same time for purposes of operation of the conveyor, shall be provided with closing devices that will close all service doors upon activation of smoke detectors that are located inside and outside the shaft enclosure in locations acceptable to the authority having jurisdiction.

*Exception: Enclosure is not required for pneumatic tube conveyors protected in accordance with 6-2.3.4.2.*

## SECTION 7-5 RUBBISH CHUTES, INCINERATORS, AND LAUNDRY CHUTES

**7-5.1** Each rubbish chute shall be separately enclosed by walls or partitions in accordance with the provisions of Section 6-2. Inlet openings serving chutes shall be protected in accordance with Section 6-2. Doors for such chutes shall open only to a separate room that is designed exclusively for that purpose. The room shall be separated from other spaces in accordance with Section 6-4.

*Exception: Existing installations with properly enclosed service chutes and with properly installed and maintained service openings may open to a corridor or normally occupied room, subject to approval by the authority having jurisdiction.*

**7-5.2** Rubbish chutes, laundry chutes, and incinerators shall be installed and maintained in accordance with NFPA 82, *Standard on Incinerators, Waste, and Linen Handling Systems and Equipment.*

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

**7-5.3** Laundry chutes shall be enclosed and any opening shall be protected as specified for rubbish chutes in 7-5.1.

*Exception: Existing installations may be continued in service, subject to approval by the authority having jurisdiction.*

## SECTION 7-6 FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS

**7-6.1 General.**

**7-6.1.1** The provisions of Section 7-6 shall apply only where specifically required by another section of this *Code.*

**7-6.1.2*** The provisions of this section cover the basic functions of a complete protective signaling and control system including fire detection, alarm, and communication. These systems are primarily intended to provide the indication and warn-

ing of abnormal conditions, the summoning of appropriate aid, and the control of occupancy facilities to enhance protection of life.

**7-6.1.3*** A fire alarm system required for life safety shall be installed, tested, and maintained in accordance with applicable requirements of the following:

NFPA 70, *National Electrical Code*;

NFPA 71, *Standard for the Installation, Maintenance, and Use of Signaling Systems for Central Station Service*;

NFPA 72A, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service*;

NFPA 72B, *Standard for the Installation, Maintenance, and Use of Auxiliary Protective Signaling Systems for Fire Alarm Service*;

NFPA 72C, *Standard for the Installation, Maintenance, and Use of Remote Station Protective Signaling Systems*;

NFPA 72D, *Standard for the Installation, Maintenance, and Use of Proprietary Protective Signaling Systems*;

NFPA 72E, *Standard on Automatic Fire Detectors*;

NFPA 72F, *Standard for the Installation, Maintenance, and Use of Emergency Voice/Alarm Communications Systems*;

NFPA 74, *Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment*; and

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Public Fire Service Communication System.*

*Exception: Existing installations may be continued in use, subject to the approval of the authority having jurisdiction.*

**7-6.1.4** All systems and components shall be approved for the purpose for which installed.

**7-6.1.5** Fire alarm system installation wiring or other transmission paths shall be monitored for integrity in accordance with 7-6.1.3.

**7-6.1.6* Maintenance and Testing.** To assure operational integrity, the fire alarm system shall have an approved maintenance and testing program complying with the requirements of the applicable documents specified in 7-6.1.3.

**7-6.1.7** For the purposes of this *Code*, a protective signaling and control system is used for initiation, notification, and control.

(a) *Initiation.* The initiation function provides the input signal to the system.

(b) *Notification.* The notification function is the means by which the system advises that human action is required in response to a particular condition.

(c) *Control.* The control function provides outputs to control building equipment to enhance protection of life.

**7-6.2 Signal Initiation.**

**7-6.2.1** Where required by another section of this *Code*, actuation of the protective signaling and control system shall occur by any or all of the following means of initiation, but not limited thereto:

(a) Manual fire alarm initiation

(b) Automatic detection

(c) Extinguishing system operation.

**7-6.2.2** Manual fire alarm stations shall be approved for the particular application and shall be used only for fire protective signaling purposes. Combination fire alarm and guard's tour stations are acceptable.

**7-6.2.3** A manual fire alarm station shall be provided in the natural path of escape near each required exit from an area, unless modified by another section of this *Code*.

**7-6.2.4** Additional manual fire alarm stations shall be so located that, from any part of the building, not more than 200 ft (60 m) horizontal distance on the same floor shall be traversed in order to reach a manual fire alarm station.

**7-6.2.5** Each manual fire alarm station on a system shall be accessible, unobstructed, visible, and of the same general type.

**7-6.2.6** Where a sprinkler system provides automatic detection and alarm system initiation, it shall be provided with an approved alarm initiation device that will operate when the flow of water is equal to or greater than that from a single automatic sprinkler.

**7-6.2.7** Where a "complete smoke detection system" is required by another section of this *Code*, automatic detection of smoke in accordance with NFPA 72E, *Standard on Automatic Fire Detectors*, shall be provided in all occupiable areas, common areas, and work spaces in those environments suitable for proper smoke detector operation.

**7-6.2.8** Where a "partial smoke detection system" is required by another section of this *Code*, automatic detection of smoke in accordance with NFPA 72E, *Standard on Automatic Fire Detectors*, shall be provided in all common areas and work spaces, such as corridors, lobbies, equipment rooms, and other tenantless spaces in those environments suitable for proper smoke detector operation. Selective smoke detection unique to other sections of this *Code* shall be provided as required by those sections.

**7-6.2.9*** Where required by another section of this *Code*, single station smoke detectors shall be installed in accordance with NFPA 74, *Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment*. In new construction, where two or more smoke detectors are required within a living unit, they shall be arranged so that the activation of any detector causes the operation of an alarm that shall be clearly audible throughout the living unit over background noise levels with all intervening doors closed. The detectors shall sound an alarm only within an individual living unit or similar area and shall not actuate the building protective signaling and control system. Remote annunciation shall be permitted.

*Exception: Multiple station or system smoke detectors arranged to function in the same manner shall be permitted.*

**7-6.3 Occupant Notification.**

**7-6.3.1** Occupant notification shall provide signal notification to alert occupants of fire or other emergency as required by another section of this *Code*.

**7-6.3.2*** Notification shall be a general audible alarm-type complying with 7-6.3.3 through 7-6.3.10.

*Exception No. 1: Except where prohibited by an occupancy chapter, a presignal system shall be permitted when the initial fire alarm signal is automatically transmitted without delay to*

*a municipal fire department, a fire brigade, or a staff person trained to respond to a fire emergency. (See 7-6.1.3.)*

*Exception No. 2:* Elevator lobby and associated machine room detectors used for elevator recall are not required to sound the building evacuation alarm if the power supply and installation wiring to these detectors are monitored by the building fire alarm system, and actuation of these detectors results in a supervisory alarm signal.*

*Exception No. 3:* Duct detectors used for closing dampers or heating/ventilating/air conditioning system shutdown are not required to sound the building alarm.*

*Exception No. 4:* Detectors at doors for the operation of automatic door release are not required to sound the building alarm.*

**7-6.3.3** Where a standard evacuation signal is required by another section of this *Code*, the evacuation signal shall be the standard fire alarm evacuation signal described in NFPA 72A, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service.*

**7-6.3.4** Notification signals for occupants to evacuate shall be by audible signals and, where deemed necessary by the authority having jurisdiction, shall also be by visible signals.

**7-6.3.5** The general evacuation alarm signal shall operate throughout the entire building.

*Exception No. 1: Where total evacuation of occupants is not practical due to building configuration, only the occupants in the affected zones shall be initially notified. Provisions shall be made to selectively notify occupants in other zones to afford orderly evacuation of the entire building.*

*Exception No. 2: Where occupants are incapable of evacuating themselves because of age, physical/mental disabilities, or physical restraint, only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building are required to be notified. This notification shall include means to readily identify the zone, area, floor, or building in need of evacuation.*

**7-6.3.6** Audible alarm indicating appliances shall be of such character and so distributed as to be effectively heard above the average ambient sound level occurring under normal conditions of occupancy.

**7-6.3.7** Audible alarm indicating appliances shall produce signals that are distinctive from audible signals used for other purposes in the same building.

**7-6.3.8** Recorded or live voice evacuation or relocation instructions to occupants shall be permitted.

**7-6.3.9** Audible and visible fire alarm indicating appliances shall be used only for fire alarm system or other emergency purposes.

*Exception No. 1: Voice communication systems may be used for other purposes, subject to the approval of the authority having jurisdiction, if the fire alarm system takes precedence over all other signals.*

*Exception No. 2: Where otherwise permitted by another section of this Code.*

**7-6.3.10** Alarm notification signals shall take precedence over all other signals.

**7-6.4* Emergency Forces Notification.** Where required by another section of this *Code*, emergency forces notification shall be provided to alert the local fire brigade or municipal fire department of fire or other emergency.

Where fire department notification is required by another section of this *Code*, the fire alarm system shall be arranged to transmit the alarm automatically via any of the following means:

(a) An auxiliary alarm system in accordance with NFPA 72B, *Standard for the Installation, Maintenance, and Use of Auxiliary Protective Signaling Systems for Fire Alarm Service*, or

(b) A central station connection in accordance with NFPA 71, *Standard for the Installation, Maintenance, and Use of Signaling Systems for Central Station Service*, or

(c) A proprietary system in accordance with NFPA 72D, *Standard for the Installation, Maintenance, and Use of Proprietary Protective Signaling Systems*, or

(d) A remote station connection in accordance with NFPA 72C, *Standard for the Installation, Maintenance, and Use of Remote Station Protective Signaling Systems.*

*Exception: Where none of the above means of notification is available, a plan for notification of the municipal fire department, acceptable to the authority having jurisdiction, shall be provided.*

**7-6.5 Emergency Control.**

**7-6.5.1** A protective signaling and control system shall, where required by another section of this *Code*, be arranged to actuate automatically control functions necessary to make the protected premises safer for building occupants.

**7-6.5.2** Where required by another section of this *Code*, the following functions shall be actuated by the protective signaling and control system:

(a) Release of hold-open devices for doors or other opening protectives

(b) Stairwell or elevator shaft pressurization

(c) Smoke management or smoke control systems

(d) Emergency lighting control

(e) Unlocking of doors

**7-6.5.3** The functions specified in 7-6.5.2 are permitted to be actuated by any protective signaling and control system where otherwise not required by this *Code*. Additionally, the protective signaling and control system may recall elevators, as required by 7-4.4, if the activation of the system for this purpose comes only from elevator lobby or associated machine room detectors, or if otherwise permitted by the authority having jurisdiction.

**7-6.5.4** The performance of emergency control functions shall not, in any way, impair the effective response of all required alarm notification functions.

**7-6.5.5*** An auxiliary fire alarm relay used to control an emergency control device that provides any of the functions of 7-6.5.2 or elevator capture per 7-6.5.3, e.g., motor controller for HVAC system fan, shall be located within 3 ft (91 cm) of the emergency control device. The installation wiring between the protective signaling and control system panel and the auxiliary fire alarm relay shall be monitored for integrity.

**7-6.6 Location of Controls.**

**7-6.6.1** Operator controls, visible alarm annunciators, and manual communications capability shall be installed in a control center at a convenient location acceptable to the authority having jurisdiction.

## SECTION 7-7 AUTOMATIC SPRINKLERS AND OTHER EXTINGUISHING EQUIPMENT

**7-7.1 Automatic Sprinklers.**

**7-7.1.1*** Each automatic sprinkler system required by another section of this *Code* shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems.* Where partial sprinkler protection is permitted by another section of this *Code*, 4-1.2 of NFPA 13 shall apply.

*Exception: NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes, may be used as provided in Chapters 20, 21, and 22.*

**7-7.1.2** Sprinkler piping serving not more than six sprinklers for any isolated hazardous area may be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gal per minute per sq ft (6.1 L/min/sq m) of floor area throughout the entire enclosed area. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply.

**7-7.1.3*** In areas protected by automatic sprinklers, automatic heat detection devices required by other sections of this *Code* may be deleted.

**7-7.2 Supervision.**

**7-7.2.1*** Where supervised automatic sprinkler protection is required by another section of this *Code*, a distinct supervisory signal shall be provided to indicate a condition that will impair the satisfactory operation of the sprinkler system. This shall include, but not be limited to, monitoring of control valves, fire-pump power supplies and running conditions, water tank levels and temperatures, pressure of pressure tanks, and air pressure on dry-pipe valves.

**7-7.2.2** Supervisory signals for sprinkler systems shall terminate in a location within the protected building or premises that is constantly attended by qualified personnel in the employ of the owner or shall terminate in an approved remote receiving facility.

**7-7.2.3** Where supervised automatic sprinkler protection is required by another section of this *Code*, waterflow alarms shall be transmitted to an approved proprietary alarm receiving facility, a remote station, a central station, or the fire department. Such connections shall be installed in accordance with 7-6.1.3.

**7-7.3* Other Automatic Extinguishing Equipment.** In any occupancy where the character of the potential fuel for fire is such that extinguishment or control of fire may be more effectively accomplished by a type of automatic extinguishing system other than an automatic sprinkler system such as carbon dioxide, dry chemical, foam, Halon 1301, or water spray, a standard extinguishing system of other type may be installed in lieu of an automatic sprinkler system. Such systems shall be installed in accordance with appropriate NFPA standards.

**7-7.4 Manual Extinguishing Equipment.**

**7-7.4.1*** Where required by the provisions of another section of this *Code*, portable fire extinguishers shall be installed in accordance with NFPA 10, *Standard for the Installation of Portable Fire Extinguishers.*

**7-7.4.2** Where required by the provisions of another section of this *Code*, standpipe and hose systems shall be provided in accordance with NFPA 14, *Standard for the Installation of Standpipe and Hose Systems.*

# CHAPTER 8 NEW ASSEMBLY OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 8-1 GENERAL REQUIREMENTS

**8-1.1 Application.** The requirements of this chapter apply to new assembly occupancies. (*See 8-1.3 for definition.*)

**8-1.2 Mixed Occupancies.** (*See also 1-4.7.*)

**8-1.2.1*** Any assembly occupancy and its access to exits in buildings of other occupancy, such as ballrooms in hotels, restaurants in stores, rooftop assembly occupancies, or assembly rooms in schools, shall be so located, separated, or protected as to avoid any undue danger to the occupants of the assembly occupancy from a fire originating in the other occupancy or smoke therefrom.

**8-1.2.2** Occupancy of any room or space for assembly purposes by fewer than 50 persons in a building of other occupancy and incidental to such other occupancy shall be classed as part of the other occupancy and subject to the provisions applicable thereto.

**8-1.2.3** Assembly occupancies in buildings of other occupancy may use exits common to the assembly occupancy and the other occupancy provided that the assembly area and the other occupancy considered separately each have exits sufficient to meet the requirements of this *Code*.

**8-1.2.4** Exits shall be sufficient for simultaneous occupancy of both the assembly occupancy and other parts of the building.

*Exception*: Where the authority having jurisdiction determines that the conditions are such that simultaneous occupancy will not occur.*

**8-1.3* Special Definitions.**

**Assembly Occupancies.** Include, but are not limited to, all buildings or portions of buildings used for gathering together 50 or more persons for such purposes as deliberation, worship, entertainment, dining, amusement, or awaiting transportation.

**Cyclorama.** The name generally applied to a neutral background that, with suitable lighting, can suggest the infinite space of the sky. It may be curved and may be painted to depict any required background.

**Drop.** A large piece of scenic canvas that hangs vertically, usually across the stage area.

**Flow Time.** Flow time is the time during which there is crowd flow past a point in the means of egress system, and it is a component of total evacuation time.

**Fly.** The space over the stage of a theater where scenery and equipment can be hung out of view. Also called lofts and rigging lofts.

**Fly Gallery.** A narrow raised platform at the side of a legitimate stage from which the lines for flying scenery are manipulated.

**Gridiron.** The arrangement of beams over a legitimate stage supporting the machinery for flying scenery and hanging battens from which lighting is hung.

**Leg Drop.** A long narrow strip of fabric used for masking. Where used on either or both sides of the acting area, to provide entry to the stage by the actors, but also to mask. They may also be called "wings."

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

**Multipurpose Assembly Occupancy.** An assembly room designed to accommodate temporarily any of several possible assembly uses.

**Pinrail.** A beam at one side of a legitimate stage through which wooden or metal pins are driven, and to which lines from the flies are fastened.

**Platform.*** That raised area within a building used for the presentation of music, plays, or other entertainment; the head tables for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round; and similar purposes wherein there are no overhead drops, scenery, or stage effects other than lighting and a screening valance.

**Platform, Temporary.** A platform erected within an area for not more than 30 days.

**Platform, Permanent.** A platform erected within an area for more than 30 days.

**Proscenium Wall.** The wall that separates the stage from the auditorium or house.

**Smoke-Protected Assembly Seating.*** Seating served by means of egress that is not subject to blockage by smoke accumulation within or under a structure.

**Special Amusement Building.** Any building, temporary, permanent, or mobile, containing 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 so arranged that the egress path is not readily apparent due to visual or audio distractions or intentionally confounded egress path, or is not readily available due to the mode of conveyance through the building or structure. Included are such amusements as a "haunted house," a "roller coaster" type ride within a building, a "merry-go-round" within a building, a "submarine" ride, and similar amusements where the occupants are not in the open air.

**Stage.** An area within a building used for the purpose of entertainment, and utilizing drops or scenery or other stage effects and shall be classified as one of the following:

(a) *Stage, Legitimate.* A stage wherein scenery is retractable mechanically, either horizontally or vertically or suspended overhead.

(b) *Stage, Regular.* A stage wherein scenery is not retractable.

(c) *Stage, Thrust.* A platform extending beyond the proscenium arch and into the audience.

**Stage Properties.** Furniture, carpet, and similar materials generally having an overall height of less than 5 ft (152 cm) and used to provide an appearance simulating a room or area.

**Stage Scenery.** Decorative materials such as flats, cycloramas, painted or photographic backings, and similar materials to "dress" the stage.

**8-1.4 Classification of Occupancy.** (*See 4-1.2.*)

**8-1.4.1 Subclassification of Assembly Occupancies.** Each assembly occupancy shall be subclassified according to its occupant load as follows: Class A, occupant load greater than 1000 persons; Class B, occupant load greater than 300 but not greater than 1000 persons; Class C, occupant load of 50 or more but not greater than 300 persons.

**8-1.5 Classification of Hazard of Contents.** Contents of assembly occupancies shall be classified in accordance with the provisions of Section 4-2.

**8-1.6 Minimum Construction Requirements.** (*See 6-2.1.*) The location of an assembly occupancy shall be limited as follows:

| Type of Construction | Below LED | LED | Number of Levels Above LED: 1 | 2 | 3 | 4 & Above |
|---|---|---|---|---|---|---|
| I (443), I (332), II (222) | A†B†C† Any Number of Levels | ABC | ABC | ABC | ABC | A†B†C |
| II (111) | A†B†C† One Level Below LED | ABC | ABC | A†BC | B†C† | N.P. |
| III (211), IV (2HH), V (111) | A†B†C† One Level Below LED | ABC | ABC | A†B†C | B†C† | N.P. |
| II (000) | B†C† One Level Below LED | A†BC | C† | N.P. | N.P. | N.P. |
| III (200), V (000) | B†C† One Level Below LED | BC | C† | N.P. | N.P. | N.P. |

†Permitted if all the following are protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 7-7:
(a) The level of the assembly occupancy, and
(b) Any level below the level of the assembly occupancy, and
(c) In the case of an assembly occupancy located below the level of exit discharge, any level intervening between that level and the level of exit discharge, including the level of exit discharge.
N.P. — Not Permitted
LED — Level of Exit Discharge

**8-1.7 Occupant Load.**

**8-1.7.1*** The occupant load permitted in any assembly building, structure, or portion thereof shall be determined on the basis of the following occupant load factors:

(a)* An assembly area of concentrated use without fixed seats, such as an auditorium, place of worship, dance floor, discotheque, or lodge hall - one person per 7 net sq ft (0.65 sq m).

(b) An assembly area of less concentrated use, such as a conference room, dining room, drinking establishment, exhibit room, gymnasium, or lounge - one person per 15 net sq ft (1.4 sq m).

(c) Bleachers, pews, and similar bench-type seating - one person for 18 linear in. (45.7 linear cm).

(d) *Fixed Seating.* The occupant load of an area having fixed seats shall be determined by the number of fixed seats installed. Required aisle space serving the fixed seats shall not be used to increase the occupant load.

(e) *Kitchens.* One person per 100 gross sq ft (9.3 sq m).

(f) *Libraries.* In stack areas - one person per 100 gross sq ft (9.3 sq m); in reading rooms - one person per 50 net sq ft (4.6 sq m).

**8-1.7.2** The occupant load permitted in a building or portion thereof may be increased above that specified in 8-1.7.1 if the necessary aisles and exits are provided. To increase the occupant load, a diagram indicating placement of equipment, aisles, exits, and seating shall be provided to and approved by the authority having jurisdiction prior to any increase in occupant load. In areas not greater than 10,000 sq ft (930 sq m), the occupant load shall not exceed one person in 5 sq ft (.46 sq m); in areas greater than 10,000 sq ft (930 sq m), the occupant load shall not exceed one person in 7 sq ft (.65 sq m).

**8-1.7.3 Waiting Spaces.** In theaters and other assembly occupancies where persons are admitted to the building at times when seats are not available to them, or when the permitted occupant load has been reached based on 8-1.7.1 or 8-1.7.2 and persons are allowed to wait in a lobby or similar space until seats or space are available, such use of lobby or similar space shall not encroach upon the required clear width of exits. Such waiting shall be restricted to areas other than the required means of egress. Exits shall be provided for such waiting spaces on the basis of one person for each 3 sq ft (0.28 sq m) of waiting space area. Such exits shall be in addition to the exits specified for the main auditorium area and shall conform in construction and arrangement to the general rules for exits given in this chapter.

## SECTION 8-2 MEANS OF EGRESS REQUIREMENTS

**8-2.1 General.** All means of egress shall be in accordance with Chapter 5 and this chapter.

**8-2.2 Means of Egress Components.**

**8-2.2.1** Components of means of egress shall be limited to the types described in 8-2.2.2 through 8-2.2.7.

**8-2.2.2 Doors.**

**8-2.2.2.1** Doors shall comply with 5-2.1.

**8-2.2.2.2** Class C assembly occupancies in covered malls (*see 24-4.4.1 Exception*) may have horizontal or vertical security grilles or doors complying with 5-2.1.4.1 Exception No. 3 on the main entrance/exits.

**8-2.2.2.3 Panic Hardware or Fire Exit Hardware.** Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with 5-2.1.7.

*Exception No. 1: In assembly occupancies having an occupant load not greater than 500, where the main exit consists of a single door or single pair of doors, locking devices complying with 5-2.1.5.1 Exception No. 2 may be used on the main exit. Any latching device on this door(s) shall be released by panic hardware.*

*Exception No. 2: Special locking arrangements as permitted in 8-2.2.2.4.*

**8-2.2.2.4** Special locking arrangements complying with 5-2.1.6 are permitted on doors other than main entrance/exit doors.

**8-2.2.2.5** Revolving doors complying with 5-2.1.10 are permitted.

**8-2.2.2.6 Turnstiles.** No turnstiles or other devices to restrict the movement of persons shall be installed in any assembly occupancy in such a manner as to interfere in any way with required means of egress facilities.

**8-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**8-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**8-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**8-2.2.6 Ramps.**

**8-2.2.6.1** Ramps shall comply with 5-2.5.

**8-2.2.6.2** Ramps in Class A assembly occupancies shall be Class A ramps.

**8-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**8-2.3 Capacity of Means of Egress.**

**8-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3 or, in the case of means of egress serving theater-type seating or similar seating arranged in rows, in accordance with 8-2.3.2.

**8-2.3.2*** Minimum clear widths of aisles and other means of egress shall be in accordance with Table 8-2.3.2(a) or, for buildings providing Smoke-Protected Assembly Seating and for which an Approved Life Safety Evaluation is conducted, Table 8-2.3.2(b). For Table 8-2.3.2(b), the number of seats specified must be within a single assembly space and interpolation shall be permitted between the specific values shown. For both tables, the minimum clear widths shown shall be modified in accordance with all of the following:

(a) If risers exceed 7 in. (17.8 cm) in height, multiply the stair width in the tables by factor A, where

$$A = 1 + \frac{(\text{riser height} - 7.0 \text{ in.})}{5}$$

(b) Stairs not having a handrail within a 30-in. (76 cm) horizontal distance shall be 25 percent wider than otherwise calculated, i.e., multiply by B = 1.25.

(c) Ramps steeper than 1 in 10 slope, used in ascent, shall have their width increased by 10 percent, i.e., multiply by factor C = 1.10.

**Table 8-2.3.2(a)**
**For Use Without Smoke-Protected Assembly Seating**

| No. of Seats | Nominal Flow time (sec.) | Inch of Clear Width Per Seat Served: Stairs | Inch of Clear Width Per Seat Served: Passageways, Ramps, and Doorways |
|---|---|---|---|
| Unlimited | 200 | 0.300 AB | 0.220 C |

(1 in. = 2.54 cm)

**Table 8-2.3.2(b)**
**For Use With Smoke-Protected Assembly Seating**

| No. of Seats | Nominal Flow Time (sec.) | Inch of Clear Width Per Seat Served: Stairs | Inch of Clear Width Per Seat Served: Passageways, Ramps and Doorways |
|---|---|---|---|
| 2,000 | 200 | 0.300 AB | 0.220 C |
| 5,000 | 260 | 0.200 AB | 0.150 C |
| 10,000 | 360 | 0.130 AB | 0.100 C |
| 15,000 | 460 | 0.096 AB | 0.070 C |
| 20,000 | 560 | 0.076 AB | 0.056 C |
| 25,000 or more | 660 | 0.060 AB | 0.044 C |

(1 in. = 2.54 cm)

**8-2.3.3 Main Entrance/Exit.** Every assembly occupancy shall be provided with a main entrance/exit. The main entrance/exit shall be of sufficient width to accommodate one-half of the total occupant load but shall be not less than the total required width of all aisles, exit passageways, and stairways leading thereto and shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street. Each level of an assembly occupancy shall have access to the main entrance/exit, and such access shall have sufficient capacity to accommodate 50 percent of the occupant load of such levels.

*Exception No. 1: A bowling establishment shall have a main entrance/exit of sufficient capacity to accommodate 50 percent of the total occupant load without regard to the number of aisles that it serves.*

*Exception No. 2: In assembly occupancies where there is no well defined main entrance/exit, such as stadiums, sports arenas, and passenger stations, exits may be distributed around the perimeter of the building provided the total exit width provides 116⅔ percent of the width needed to accommodate the permitted occupant load.*

**8-2.3.4 Other Exits.** Each level of an assembly occupancy shall have access to the main entrance/exit and shall be provided with additional exits of sufficient width to accommodate two-thirds of the total occupant load served by that level. Such exits shall discharge in accordance with 8-2.7. Such exits shall be located as far apart as practicable and as far from the main entrance/exit as practicable. Such exits shall be accessible from a cross aisle or a side aisle. (*See 8-2.3.3.*)

*Exception No. 1: Where only two exits are required, each exit shall be of sufficient width to accommodate not less than one-half the total occupant load.*

*Exception No. 2: In assembly occupancies where there is no well defined main entrance/exit, such as stadiums, sports arenas, and passenger stations, exits may be distributed around the perimeter of the building provided the total exit width provides 116⅔ percent of the width needed to accommodate the permitted occupant load.*

**8-2.4 Number of Exits.** *(See also Section 5-4.)*

**8-2.4.1** Every Class A assembly occupancy shall have at least four separate means of egress as remote from each other as practicable.

**8-2.4.2** Every Class B assembly occupancy shall have at least two separate means of egress as remote from each other as practicable and, if of a capacity of over 500, at least three separate means of egress, each not less than 44 in. (112 cm) wide.

**8-2.4.3** Every Class C assembly occupancy shall have at least two means of egress consisting of separate exits or doors leading to a corridor or other spaces giving access to two separate and independent exits in different directions.

**8-2.4.4** Balconies or mezzanines having an occupant load not greater than 50 may be served by a single means of egress and such means of egress may lead to the floor below.

**8-2.4.5** Balconies or mezzanines having an occupant load greater than 50 but not greater than 100 shall have at least two remote means of egress, but both such means of egress may lead to the floor below.

**8-2.4.6** Balconies or mezzanines having an occupant load greater than 100 shall have means of egress provided as for a floor.

**8-2.5 Arrangement of Means of Egress.** *(See also Section 5-5.)*

**8-2.5.1** Exits shall be remote from each other and shall be arranged to minimize the possibility that they may be blocked by any emergency.

*Exception No. 1: A common path of travel may be permitted for the first 20 ft (6.1 m) from any point.*

*Exception No. 2: As provided in 8-2.4.4.*

**8-2.5.2** Means of egress shall not be permitted through kitchens, storerooms, restrooms, closets, or hazardous areas as described in 8-3.2.

**8-2.5.3** Where the floor area of auditoriums and arenas is used for areas described by 8-1.7.1, at least 50 percent of the occupant load shall have means of egress provided independent of the means of egress for adjacent fixed seating areas.

**8-2.5.4 Seating.**

**8-2.5.4.1** The spacing of rows of chairs shall provide a space of not less than 12 in. (30.5 cm) from the back of one chair to the front of the most forward projection of the chair immediately behind it. The rows of chairs shall be spaced not less than 33 in. (84 cm) back to back. Horizontal measurements shall be made between vertical planes. Where all chairs in a row have automatic or self-rising seats that comply with ASTM F851, *Test Method for Self-Rising Seat Mechanisms*, the measurement may be made with the seats in the up position. Where any chair in the row does not have an automatic or self-rising seat, the measurement shall be made with the seat in the down position.

**8-2.5.4.2*** For rows of chairs served by aisles or doorways at both ends, there shall be no more than 100 seats per row, and the minimum clear width between rows of 12 in. (30.5 cm) shall be increased by 0.3 in. (0.8 cm) for every additional seat beyond 14, but need not exceed 22 in. (55.9 cm).

**8-2.5.4.3** For rows of chairs served by an aisle or doorway at one end only, the minimum clear width between rows of 12 in. (30.5 cm) shall be increased by 0.6 in. (1.5 cm) for every additional seat beyond 7, but need not exceed 22 in. (55.9 cm).

**8-2.5.4.4** For rows of chairs served by an aisle or doorway at one end only, the path of travel shall not exceed 30 ft (9.1 m) from any seat to a point where a person has a choice of two paths of travel to two exits.

**8-2.5.4.5** Chairs without dividing arms shall have their capacity determined by allowing 18 in. (45.7 cm) per person.

**8-2.5.4.6** Where bleacher or grandstand seating without backs is used indoors, rows of seats shall be spaced not less than 22 in. (55.9 cm) back to back.

*Exception: Folding or telescopic seating shall comply with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures, with a limit of dead ends in vertical aisles of 16 rows.*

**8-2.5.4.7*** Fixed or loose chairs, tables, and similar furnishings or equipment shall be so arranged and maintained that a path of travel to an aisle or exit is provided. The path of travel shall not exceed 10 ft (3 m) from any point to an aisle or exit.

**8-2.5.4.8*** Rectangular banquet type tables used for drinking or dining, or purposes having similar seating configurations with the path of travel to an aisle exceeding 10 ft (3 m), shall be spaced not less than 54 in. (137 cm) apart where seating occurs back to back nor less than 36 in. (91 cm) where seating is on one side only. The path of travel to an aisle or exit shall not exceed 20 ft (6.1 m).

**8-2.5.5* Tablet-Arm Chair Seating.**

**8-2.5.5.1** Tablet-arm chairs shall not be permitted unless full compliance of row space requirements is provided when the tablet arm is in the usable position. Tablet-arm chairs that do not have a stored position for the tablet arm shall not be permitted unless the clearance required by 8-2.5.4 between rows of chairs is provided and maintained.

**8-2.5.5.2** Where tablet-arm chairs are used, the clear width of rows of seats shall be measured with a tablet arm in the up or use position.

*Exception: Tablet arms may be measured in stored position where the tablet arm automatically returns to the stored position when raised manually in one motion to a vertical position and falls to the stored position by force of gravity.*

**8-2.5.6 Aisles.**

**8-2.5.6.1** Aisle width shall provide sufficient egress capacity for the number of persons accommodated by the catchment areas served by the aisle. The catchment area served by an aisle is that portion of the total space that is naturally served by that section of the aisle. The establishment of catchment areas shall be based on a balanced use of all means of egress with the number of persons in proportion to egress capacity.

**8-2.5.6.2** Where aisles converge to form a single path of egress travel, the required egress capacity of that path shall be not less than the combined required capacity of the converging aisles.

**8-2.5.6.3** Aisles shall terminate at a cross aisle, foyer, door, or vomitory giving access to an exit.

**8-2.5.6.4** Dead-end aisles shall not exceed 20 ft (6.1 m) in length.

*Exception: A longer dead-end aisle is permitted where seats served by the dead-end aisle are not more than 24 seats from another aisle measured along a row of seats having a minimum clear width of 12 in. (30.5 cm) plus 0.6 in. (1.5 cm) for each additional seat above 7 in the row.*

**8-2.5.6.5** In aisles where egress is possible in more than one direction, the aisles shall be uniform in required widths.

**8-2.5.6.6** The width of aisles shall be sized in accordance with 8-2.3.1.

**8-2.5.6.7** In theater and similar type seating facilities, the minimum clear width of aisles shall be as determined by 8-2.3.2 but not less than:

(a) 48 in. (122 cm) for stairs having seating on each side.

(b) 36 in. (91 cm) for stairs having seating on only one side.

(c) 23 in. (58 cm) between a handrail or guardrail and seating where the aisle is subdivided by a handrail.

(d) 42 in. (107 cm) for level or ramped aisles having seating on both sides.

(e) 36 in. (91 cm) for level or ramped aisles having seating on only one side.

(f) 23 in. (58 cm) between a handrail and seating where aisle does not serve more than five rows on one side.

**8-2.5.6.8*** In table and chair type seating facilities, the minimum clear width of aisles shall be as determined by 8-2.3.1 but not less than 36 in. (91 cm). Where loose seating occurs bordering on the aisle, the minimum aisle width is required plus an additional 19 in. (48 cm) for chairs on one side or an additional 38 in. (97 cm) for chairs on both sides of the aisle.

**8-2.5.6.9 Aisle Stairs and Ramps.** Every aisle with a gradient 1 in 8 or less shall consist of a ramp. Every aisle with gradient exceeding 1 in 8 shall consist of a stair having treads, risers, and handrails complying with the following requirements:

(a)* Tread depth shall be uniform in each aisle.

(b)* Treads shall be a minimum of 11 in. (27.9 cm).

(c) Riser heights shall be a minimum of 4 in. (10.2 cm).

(d) Riser heights shall not exceed 8 in. (20.3 cm).

*Exception No. 1 to (d): Where the gradient of an aisle exceeds 8 in. (20.3 cm) in rise and 11 in. (27.9 cm) of run (to maintain necessary sight lines in the adjoining seating area), the rise height may exceed 8 in. (20.3 cm) but shall not exceed 9 in. (22.9 cm).*

*Exception No. 2 to (d): Folding and telescopic seating in accordance with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.*

(e)* Riser heights shall be uniform within a flight.

*Exception to (e): Riser height may be nonuniform, but only to the extent necessary due to changes in gradient within a seating area to maintain necessary sight lines. Where nonuniformities exceed 3/16 in. (0.5 cm) between adjacent risers, the exact location of such nonuniformities shall be indicated by a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.*

(f) Ramped aisles having a gradient exceeding 1 in 15, and aisle stairs, shall be provided with handrails at one side or along the center line.

Where there is seating on both sides of the aisle, the handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 in. (55.9 cm) and not greater than 36 in. (91 cm) measured horizontally, and the handrail shall have rounded terminations or bends. Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate rail located approximately 12 in. (30 cm) below the main handrail.

*Exception No 1 to (f): Handrails are not required for ramped aisles having a gradient not greater than 1 in 8 and having seating on both sides.*

*Exception No. 2 to (f): Handrails are not required if, at the side of the aisle, there is a guardrail that complies with the graspability requirements for handrails.*

(g)* A contrasting marking stripe shall be provided on each tread at the nosing or leading edge such that the location of such tread is readily apparent, particularly when viewed in descent. Such stripes shall be at least 1 in. (2.5 cm) wide and shall not exceed 2 in. (5 cm) wide.

*Exception to (g): The marking stripe may be omitted where tread surfaces and environmental conditions in all conditions of use are such that the location of each tread is readily apparent, particularly when viewed in descent.*

**8-2.5.6.10** Where required by the authority having jurisdiction, plans drawn to scale showing the arrangement of furnishings or equipment shall be submitted to the authority by the building owner, manager, or authorized agent to substantiate conformance with the provisions of this section and shall constitute the only acceptable arrangement until revised or additional plans are submitted and approved.

*Exception: Temporary deviations from the specifics of the approved plans shall be permitted provided the occupant load is not increased and the intent of this section is maintained.*

**8-2.6 Travel Distance to Exits.** Exits shall be so arranged that the total length of travel from any point to reach an exit will not exceed 150 ft (45 m) in any assembly occupancy. *(See also Section 5-6.)*

*Exception: The travel distance may be increased to 200 ft (60 m) in assembly occupancies protected throughout by an approved automatic sprinkler system.*

**8-2.7 Discharge from Exits.**

**8-2.7.1** Exit discharge shall comply with Section 5-7.

**8-2.7.2** The level of exit discharge shall be measured at the point of principal entrance to the building.

**8-2.7.3** Where the principal entrance to an assembly occupancy is via a terrace, either raised or depressed, such terrace may be considered to be the level of exit discharge for the purposes of 8-1.6 if:

(a) The terrace is at least as long (measured parallel to the building) as the total width of the exit(s) it serves, but not less than 5 ft (152 cm) long, and

(b) The terrace is at least as wide (measured perpendicularly to the building) as the exit(s) it serves, but not less than 10 ft (3 m) wide, and

(c) Required stairs leading from the terrace to grade are protected in accordance with 5-2.2.3.3 or are a minimum of 10 ft (3 m) from the building.

**8-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**8-2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with Section 5-9.

**8-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**8-2.11 Special Features.**

**8-2.11.1 Railings.**

(a) The fasciae of boxes, balconies, and galleries shall not rise less than 26 in. (66 cm) high above the adjacent floor or shall have substantial railings not less than 26 in. (66 cm) high above the adjacent floor.

(b) The height of the rail above footrests on the adjacent floor immediately in front of a row of seats shall be no less than 26 in. (66 cm). Railings at the ends of aisles shall not be less than 36 in. (91 cm) high for the full width of the aisle and shall be not less than 42 in. (107 cm) high for the width of the aisle where steps occur.

(c) Cross aisles shall be provided with railings not less than 26 in. (66 cm) high above the adjacent floor.

*Exception: Where the backs of seats on the front of the aisle project 24 in. (61 cm) or more above the adjacent floor of the aisle.*

## SECTION 8-3 PROTECTION

**8-3.1 Protection of Vertical Openings.** All interior stairways and other vertical openings shall be enclosed and protected as provided in Section 6-2.

*Exception No. 1: Unprotected openings connecting not more than three floors may be permitted provided that they comply with 6-2.4.4.*

*Exception No. 2: Atriums in accordance with 6-2.4.5 are permitted.*

*Exception No. 3: Stairs may be open between balconies and main assembly floors in theaters, churches, or auditoriums where the travel distance is within the allowable limits. (See 8-2.6.)*

**8-3.2 Protection from Hazards.**

**8-3.2.1 Stages and Platforms.** *(See 8-1.3.)*

**8-3.2.1.1 Materials and Design.** Materials used in the construction of platforms and stages shall conform to the applicable requirements of the local building code.

**8-3.2.1.2 Platform Construction.** Temporary platforms may be constructed of any materials. The space between the floor and the platform above shall not be used for any purpose other than electrical wiring to platform equipment.

Permanent platforms shall be constructed of materials as required for the type of construction of the building in which the permanent platform is located. Where the space beneath the platform is used for storage or any purpose other than equipment wiring or plumbing, the floor construction shall be not less than 1-hour fire-resistive. Where the space beneath the platform is not used for any purpose other than equipment wiring or plumbing, the underside of the permanent platform need not be protected.

**8-3.2.1.3 Stage Construction.** Regular stages and thrust stages shall be constructed of materials as required for the type of construction of the building in which they are located. In all cases the finish floor may be of wood.

Legitimate stages shall be constructed of materials required for Type I buildings, except that the area extending from the proscenium opening to the back wall of the stage, and for a distance of 6 ft (183 cm) beyond the proscenium opening on each side, may be constructed of steel or heavy timber covered with a wood floor not less than 1½ in. (3.8 cm) in actual thickness.

Openings through stage floors (traps) shall be equipped with tight-fitting trap doors of wood having an actual thickness of not less than 1½ in. (3.8 cm) with approved safety locks.

**8-3.2.1.4 Accessory Rooms.** Dressing rooms, workshops, and storerooms accessory to stages shall be separated from each other and from the stage by not less than 1-hour fire-resistive construction, and openings within such separations shall be protected as required for corridors (20-minute fire door assemblies).

*Exception: A separation is not required for stages having a floor area not exceeding 500 sq ft (46.5 sq m).*

**8-3.2.1.5 Vents.** Legitimate stages shall be provided with one or more vents constructed of noncombustible material. Ventilators shall be located near the center and above the highest part of the stage. They shall be raised above the stage roof and shall have a total ventilation area equal to at least 5 percent of the floor area of the stage.

Regular stages exceeding 1,000 sq ft (93 sq m) in area shall be provided with vents as required for legitimate stages or shall be provided with a mechanical vent installed in an exterior wall of the stage itself. Such vent shall be automatic upon operation of the sprinkler system and shall also be capable of manual operation. The capacity of the exhaust vent shall be approximately equivalent to that which would be provided for a legitimate stage.

Vents shall open by spring action or force of gravity sufficient to overcome the effects of neglect, rust, dirt, frost, snow, or expansion by heat or warping of the framework. Glass, if used in vents, must be protected against falling onto the stage. A wire screen, if used under the glass, must be so placed that, if clogged, it cannot reduce the required vent area or interfere with the operating mechanism or obstruct the distribution of water from an automatic sprinkler. Vents shall be arranged to open automatically by the use of fusible links. The fusible links and operating cable shall hold each door closed against the minimum 30 lb (133 N) counterforce, which may be exerted by springs or counterweights. This minimum counterforce shall be exerted on each door through its entire arc of travel and for a minimum of 115 degrees. A manual control shall also be provided.

Springs, where employed to actuate doors, shall be capable of maintaining full required tension. Springs shall not be stressed more than 50 percent of their rated capacity and shall not be located directly in the air stream nor exposed to the outside.

A fusible link shall be placed in the cable control system on the underside of the vents at or above the roofline or as approved by the authority having jurisdiction and shall be so located as not to be affected by the operation of a fire sprinkler system. Remote, manual, or electrical controls shall provide for both opening and closing of the vent doors for periodic testing and shall be located at a point on the stage designated by the authority having jurisdiction. Where remote control vents are electrical, power failure shall not affect their instant operation in the event of fire. Hand winches may be employed to facilitate operation of manually controlled vents.

**8-3.2.1.6 Proscenium Walls.** Legitimate stages shall be completely separated from the seating area by a proscenium wall of not less than 2-hour fire-resistive noncombustible construction. The proscenium wall shall extend at least 4 ft (122 cm) above the roof of the auditorium.

Proscenium walls may have, in addition to the main proscenium opening, one opening at the orchestra pit level and not more than two openings into the auditorium at the legitimate stage floor level. Each such opening shall not be more than 25 sq ft (2.3 sq m) in area.

All openings in the proscenium wall of a legitimate stage shall be protected by a fire assembly having a 1½-hour fire protection rating, except that the main proscenium opening used for viewing performances shall be provided with an automatic-closing fire-resistive curtain as described below.

**8-3.2.1.7 Proscenium Curtain.** The proscenium opening of every legitimate stage shall be provided with a curtain constructed and mounted so as to intercept hot gases, flames, and smoke and to guard against seeing flame from a fire on the stage from the auditorium side within a five-minute period where the curtain is of asbestos. Other materials may be used if they have passed a thirty-minute fire test in a small scale furnace, 3 ft (91 cm) by 3 ft (91 cm), with the sample mounted in the horizontal plane at the top of the furnace and subjected to the standard time-temperature curve.

The curtain shall be automatic-closing without the use of applied power.

*Exception: In lieu of the protection required herein, all the following may be provided:*

*(a) A noncombustible opaque fabric curtain so arranged that it will close automatically, and*

*(b) An automatic fixed waterspray deluge system shall be located on the auditorium side of the proscenium opening and be so arranged that the entire face of the curtain will be wetted. The system shall be activated by a combination of rate-of-rise and fixed-temperature detectors located on the ceiling of the stage. Detectors shall be spaced in accordance with their listing. The water supply shall be controlled by a deluge valve and shall be sufficient to keep the curtain completely wet for 30 minutes or until the valve is closed by fire department personnel, and*

*(c) The curtain shall be automatically operated in case of fire by a combination of rate-of-rise and fixed-temperature detectors that also activate the deluge spray system. Stage sprinklers and vents shall be automatically operated in case of fire by fusible elements, and*

*(d) Operation of the stage sprinkler system or spray deluge valve shall automatically activate the emergency ventilating system and close the curtain, and*

*(e) The curtain, vents, and spray deluge system valve shall also be capable of manual operation.*

**8-3.2.1.8 Gridirons, Fly Galleries, and Pinrails.** Gridirons, fly galleries, and pinrails shall be constructed of noncombustible materials.

**8-3.2.1.9 Fire Protection.** Every stage (legitimate, regular, or thrust) larger than 500 sq ft (46.5 sq m) in area shall have a system of automatic sprinklers at the ceiling, in usable spaces under the stage, in auxiliary spaces and dressing rooms, storerooms, and workshops. Where there is a stage gridiron, 135°F (57°C) rated sidewall sprinklers with heat-baffle plates shall be installed around the perimeter of the stage, except above the proscenium opening, at points not more than 30 in. (76 cm) below the gridiron, and with sprinklers positioned 4 to 6 in. (10.2 to 15.2 cm) below the baffle plate.

**8-3.2.1.10 Special Exiting.** Each side of a legitimate stage shall be provided with at least one well marked exit providing not less than 32 in. (81 cm) clear width. Such exit shall open directly to a street, exit court, or exit passageway leading to a street.

Fly galleries shall be provided with a means of egress stair not less than 30 in. (76 cm) in width. Each tier of dressing rooms shall be provided with two means of egress meeting the requirements of the *Code.*

Stairways required by this subsection need not be enclosed.

**8-3.2.1.11 Flame-Retardant Requirements.** Combustible scenery of cloth, film, vegetation (dry), and similar effects shall meet the requirements of NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films.* Foamed plastics (*see A-6-5.2.4*) may be used only by specific approval of the authority having jurisdiction. Scenery and stage properties on thrust stages shall be either noncombustible or limited combustible materials.

**8-3.2.1.12 Standpipes.** Each legitimate or regular stage shall be equipped with a Class III standpipe located on each side of the stage, installed in accordance with 7-7.4.2.

**8-3.2.2 Projection Booths.**

**8-3.2.2.1** Every assembly occupancy where an electric arc, Xenon, or other light source that generates hazardous gases, dust, or radiation is used shall have a projection room that complies with 8-3.2.2.2, from which the projection shall be made. Where cellulose nitrate film is used, the projection room shall comply with NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film.* (*See also Chapter 31.*)

**8-3.2.2.2 Projection Rooms for Safety Film.** Projection rooms for safety film shall comply with 8-3.2.2.3 through 8-3.2.2.8.

**8-3.2.2.3** Every projection room shall be of permanent construction consistent with the construction requirements for the type of building in which the projection room is located. Openings need not be protected. The room shall have a floor area of not less than 80 sq ft (7.4 sq m) for a single machine and at least 40 sq ft (3.7 sq m) for each additional machine. Each motion picture projector, floodlight, spotlight, or similar piece of equipment shall have a clear working space of not less than 30 in. (76 cm) on each side and at its rear, but only one such space shall be required between adjacent projectors.

The projection room and the rooms appurtenant thereto shall have a ceiling height of not less than 7 ft 6 in. (229 cm).

**8-3.2.2.4** Each projection room shall have at least one outswinging, self-closing door not less than 30 in. (76 cm) wide and 6 ft 8 in. (203 cm) high.

**8-3.2.2.5** The aggregate of ports and openings for projection equipment shall not exceed 25 percent of the area of the wall between the projection room and the auditorium.

All openings shall be provided with glass or other approved material so as to completely close the opening.

**8-3.2.2.6** Projection room ventilation shall be not less than the following:

(a) *Supply Air.* Each projection room shall be provided with adequate air supply inlets so arranged to provide well distributed air throughout the room. Air inlet ducts shall provide an amount of air equivalent to the amount of air being exhausted by projection equipment. Air may be taken from the outside; from adjacent spaces within the building provided the volume and infiltration rate is sufficient; or from the building air conditioning system, provided it is so arranged as to provide sufficient air whether or not other systems are in operation.

(b) *Exhaust Air.* Projection booths may be exhausted through the lamp exhaust system. The lamp exhaust system shall be positively interconnected with the lamp so that the lamp will not operate unless there is the airflow required for the lamp. Exhaust air ducts shall terminate at the exterior of the building in such a location that the exhaust air cannot be readily recirculated into any air supply system. The projection room ventilation system may also serve appurtenant rooms, such as the generator room and the rewind room.

**8-3.2.2.7** Each projection machine shall be provided with an exhaust duct that will draw air from each lamp and exhaust it directly to the outside of the building. The lamp exhaust may serve to exhaust air from the projection room to provide room air circulation. Such ducts shall be of rigid materials, except for a flexible connector approved for the purpose. The projection lamp and projection room exhaust systems may be combined but shall not be interconnected with any other exhaust or return air system within the buildings.

(a) *Electric Arc Projection Equipment.* The exhaust capacity shall be 200 cfm (.09 cu m/s) for each lamp connected to the lamp exhaust system, or as recommended by the equipment manufacturer. Auxiliary air may be introduced into the system through a screened opening to stabilize the arc.

(b) *Xenon Projection Equipment.* The lamp exhaust system shall exhaust not less than 300 cfm (.14 cu m/s) per lamp, or not less than that exhaust volume required or recommended by the equipment manufacturer, whichever is the greater.

**8-3.2.2.8 Miscellaneous Equipment and Storage.**

(a) Each projection room shall be provided with rewind and film storage facilities.

(b) A maximum of four containers for flammable liquids of not greater than 16 oz (.5 L) capacity and of a nonbreakable type may be permitted in each projection booth.

(c) Appurtenant electrical equipment, such as rheostats, transformers, and generators, may be located within the booth or in a separate room of equivalent construction.

**8-3.2.3 Service Equipment, Hazardous Operations or Processes, and Storage Facilities.**

**8-3.2.3.1** Rooms containing high-pressure boilers, refrigerating machinery of other than domestic refrigerator type, large transformers, or other service equipment subject to possible explosion shall not be located directly under or adjacent to required exits. All such rooms shall be separated by a 1-hour fire barrier from other parts of the building.

**8-3.2.3.2** All openings between the balance of the building and rooms or enclosures for hazardous operations or processes shall be protected by standard self-closing or smoke-actuated fire doors and shall be provided with adequate vents to the outer air, in accordance with Section 6-4 of this *Code*.

**8-3.2.3.3** Rooms or spaces for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

**8-3.2.4 Special Provisions for Food Service Establishments.**

**8-3.2.4.1** All devices in connection with the preparation of food shall be so installed and operated as to avoid hazard to the safety of occupants.

**8-3.2.4.2** All devices in connection with the preparation of food shall be of an approved type and shall be installed in an approved manner.

**8-3.2.4.3** Food preparation facilities shall be protected in accordance with 7-2.3 and are not required to have openings protected between food preparation areas and dining areas.

**8-3.3 Interior Finish.**

**8-3.3.1** The interior finish requirements of this section shall be in accordance with Section 6-5.

**8-3.3.2** Interior finish in all corridors and lobbies shall be Class A or B and, in enclosed stairways, Class A.

**8-3.3.3** Interior finish in general assembly areas of Class A and B assembly occupancies shall be Class A or B. In Class C assembly occupancies it shall be Class A, B, or C.

*Exception: In any assembly occupancy, exposed portions of structural members complying with the requirements for Type IV (2HH) construction may be permitted.*

**8-3.3.4** Screens on which pictures are projected shall comply with requirements of Class A or Class B interior finish.

**8-3.4 Detection, Alarm, and Communication Systems.**

**8-3.4.1 General.** All Class A and all Class B assembly occupancies, and all theaters with more than one audience viewing room, shall be provided with an approved fire alarm system in accordance with this section.

*Exception: Assembly occupancies that are a part of a mixed occupancy (see 1-4.7) may be served by a common fire alarm system provided the individual requirements of each occupancy are met.*

**8-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.1(a), which shall be provided with an emergency power source. The initiating device shall be capable of transmitting an alarm to a receiving station, located within the building, that is constantly attended when the assembly occupancy is occupied.

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing fire detection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing fire detection and protection throughout the building.*

**8-3.4.3 Notification.**

**8-3.4.3.1** The required fire alarm system shall sound an audible alarm in a constantly attended receiving station within the building for purposes of initiating emergency action.

**8-3.4.3.2** Occupant notification shall be by means of either voice or prerecorded message announcement initiated by the person in the constantly attended receiving station.

**8-3.4.3.3** The announcement shall be made via an approved voice communication or public address system, provided with an emergency power source, that is audible above the ambient noise level of the assembly occupancy.

**8-3.4.3.4** Where the authority having jurisdiction determines that it is impractical to have a constantly attended location in an assembly occupancy other than a theater, a fire alarm system in accordance with Section 7-6 initiated by manual stations in accordance with 7-6.2.1(a) or other approved means of initiation, that automatically provides prerecorded evacuation instructions in accordance with 7-6.3.8, may be used.

**8-3.5 Extinguishment Requirements.** (*See 8-1.6, 8-2.6, 8-3.2, and 8-3.6.*)

**8-3.5.1** Buildings containing Class A or Class B assembly occupancies shall be protected by an approved supervised automatic sprinkler system installed in accordance with Section 7-7 as follows:

(a) Throughout the story containing the assembly occupancy, and

(b) Throughout any story below the story containing the assembly occupancy and

(c) In the case of an assembly occupancy located below the level of exit discharge, throughout any story intervening between that story and the level of exit discharge including the level of exit discharge.

*Exception No. 1: Assembly occupancies used primarily for worship with fixed seating.*

*Exception No. 2*: Assembly occupancies consisting of a single multipurpose room less than 12,000 sq ft (1,100 sq m) and not used for exhibition or display.*

*Exception No. 3: Gymnasiums, skating rinks, swimming pools used exclusively for participant sports with no audience facilities for more than 300.*

**8-3.6 Corridors.**

**8-3.6.1** Interior corridors and lobbies shall be constructed in accordance with 5-1.3.4.

*Exception No. 1: Corridor and lobby protection shall not be required where assembly rooms served by the corridor or lobby have at least 50 percent of their exit capacity discharging directly to the outside, independent of corridors and lobbies.*

*Exception No. 2: Corridor and lobby protection is not required in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

*Exception No. 3: Lobbies serving only one assembly area that meet the requirements for intervening rooms (see 5-5.1.6) need not have a fire resistance rating.*

## SECTION 8-4 SPECIAL PROVISIONS

**8-4.1 Windowless or Underground Buildings.**

**8-4.1.1** Windowless or underground buildings shall comply with this chapter and Section 30-7.

**8-4.1.2** Underground buildings or portions of buildings having a floor level more than 30 ft (9.1 m) below the level of exit discharge shall comply with the requirements contained in 8-4.1.3 through 8-4.1.5.

*Exception No. 1: Areas within buildings used only for service to the building such as boiler/heater rooms, cable vaults, dead storage and the like.*

*Exception No. 2: Auditoriums without intervening occupiable levels complying with the requirements of Chapter 8.*

**8-4.1.3** Each level more than 30 ft (9.1 m) below the level of exit discharge shall be divided into not less than two smoke compartments by a smoke barrier complying with Section 6-3 and having a 1-hour fire resistance rating.

(a) Each smoke compartment shall have access to at least one exit without passing through the other required compartment. Any doors connecting required compartments shall be tight-fitting, 1-hour minimum fire doors designed and installed to minimize smoke leakage and to close and latch automatically upon detection of smoke.

(b) Each smoke compartment shall be provided with a mechanical means of moving people vertically, such as an elevator or escalator.

(c) Each smoke compartment shall have an independent air supply and exhaust system capable of smoke control or smoke exhaust functions and providing a minimum smoke exhaust rate of six air changes per hour.

(d) Each smoke compartment shall be provided with an automatic smoke detection system throughout. The system shall be designed such that the activation of any two detectors

shall cause the smoke control system to operate and the building voice alarm to sound.

**8-4.1.4** Any required smoke control or exhaust system shall be provided with a standby power system complying with Article 701 of NFPA 70, *National Electrical Code.*

**8-4.1.5** The building shall be provided with an approved supervised voice alarm system in accordance with Section 7-6. The voice alarm system shall comply with 7-6.3.8. A prerecorded evacuation message shall be provided.

**8-4.2 High Rise Buildings.** High rise assembly occupancy buildings, and high rise mixed occupancy buildings that house assembly occupancies in the high rise portions of the building, shall comply with Section 30-8.

**8-4.3 Outdoor Assembly.**

**8-4.3.1** All assembly seating considered "smoke-protected assembly seating" as defined by NFPA 102, *Standard for Assembly Seating, Tents, and Membrane Structures*, outdoor assembly occupancies, tents, membrane structures, bleachers, grandstands, and stadiums shall comply with the requirements of NFPA 102, *Standard for Assembly Seating, Tents, and Membrane Structures.*

*Exception: Smoke-protected assembly seating complying with 8-2.3.2 need not comply with 5-3.2 or NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.*

**8-4.4 Special Provisions for Exhibition Halls.**

**8-4.4.1** No display or exhibit shall be so installed or operated as to interfere in any way with access to any required exit or with visibility of any required exit or any required exit sign, nor shall any display block access to fire fighting equipment.

**8-4.4.2** A storage room having an enclosure with a smoke barrier having a fire resistance rating of 1 hour and protected by an automatic fire extinguishing system shall be provided for combustible materials not on display.

**8-4.4.3 Exhibits.** Exhibits shall comply with the following:

(a) The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not be greater than 50 ft (15 m).

(b) Exhibit booths shall be constructed of noncombustible or limited combustible materials, pressure-treated fire retardant wood meeting the requirements of NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials*, or of flame-retardant materials complying with NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*, both small and large scale tests. Textile wall coverings, such as carpeting having a napped, tufted, looped, or similar surface used as wall or ceiling finish, shall comply with 6-5.2.3. Plastic shall be limited to Class A or Class B interior wall and ceiling finish.

(c) Curtains, drapes, and decorations shall comply with 31-1.4.

(d)* Acoustical and decorative material including, but not limited to, cotton, hay, paper, straw, moss, split bamboo, and wood chips shall be flame-retardant treated to the satisfaction of the authority having jurisdiction. Materials that cannot be treated for flame retardancy shall not be used.

(e) Exhibit booths that are multilevel, consist of multiple rooms with ceilings, or are over 225 sq ft (20.9 sq m) with ceilings shall be protected by automatic sprinklers in buildings so protected.

*Exception: Vehicles, boats, and similar exhibited products having over 100 sq ft (9.3 sq m) of roofed area shall be provided with smoke detectors acceptable to the authority having jurisdiction.*

(f) Open flame devices within exhibit booths shall comply with 31-2.3.

(g) Cooking and food warming devices in exhibit booths shall comply with 31-2.4 and the following:

1. Gas fired devices shall be installed in accordance with 7-1.1.

2. Devices shall be isolated from the public by at least 4 ft (122 cm) or a barrier between the device and the public.

3. Devices shall be limited to 288 sq in. (.19 sq m) of cooking surface area.

4. Devices shall be placed on noncombustible surface materials.

5. Devices used for cooking shall be separated from each other by a minimum distance of 2 ft (61 cm).

6. Devices shall be kept a minimum of 2 ft (61 cm) from any combustible materials.

7. Single well cooking equipment using combustible oils or solids shall have lids available for immediate use. Multi-vat cooking equipment using combustible oils or solids shall comply with 7-2.3.

8. A 20 BC fire extinguisher shall be provided within the booth for each device, or an approved automatic extinguishing system shall be provided.

(h) Combustible materials within exhibit booths shall be limited to a one day supply. Storage of combustible materials behind the booth is prohibited. (*See 8-4.4.2 and 31-2.6.2.*)

(i) Plans, in a form acceptable to the authority having jurisdiction, shall be submitted to the authority having jurisdiction for approval prior to the move-in of any exhibit or trade show. The plan shall show all details of the proposed exhibit or show. No exhibit or trade show shall occupy any exhibit hall without approved plans.

**8-4.4.4 Vehicles.** Vehicles within an exhibit hall shall comply with the following:

(a) All fuel tank openings shall be locked and sealed in an approved manner to prevent the escape of vapors. Fuel tanks shall be not more than three-quarters nor less than one-eighth full.

(b) At least one battery cable shall be removed from each set of batteries.

(c) Fueling or defueling of vehicles shall be prohibited.

(d) Vehicles shall not be moved during show hours.

**8-4.4.5** Compressed flammable gases, flammable or combustible liquids, hazardous chemicals or materials, Class II or greater lasers, blasting agents, and explosives shall be prohibited within exhibit halls.

*Exception: The authority having jurisdiction may permit the limited use of any of the above items under special circumstances.*

**8-4.5* Special Provisions for the Handicapped.** Where assembly occupancies are required to be made accessible to the

handicapped, the assembly area shall have accommodations for not less than two such persons.

**8-4.6 Special Provisions for Special Amusement Buildings.**

**8-4.6.1** Special amusement buildings shall meet the requirements for assembly occupancies in addition to the requirements of this subsection. Special amusement buildings with an occupant load not greater than 300 persons shall be considered Class C assembly occupancies.

**8-4.6.2*** Every special amusement building shall be protected throughout by an approved automatic sprinkler system installed and maintained in accordance with Section 7-7. Where the special amusement building is moveable or portable, sprinkler water supply may be by an approved temporary means.

**8-4.6.3** Where the nature of the special amusement building is such that it operates in reduced lighting levels, the building shall be protected throughout by an approved automatic smoke detection system in accordance with Section 7-6. Actuation of any smoke detection system device shall sound an alarm at a constantly attended location on the premises. Actuation of the automatic sprinkler system or actuation of a smoke detection system having an approved verification or cross zoning operation capability shall:

(a) Cause illumination in the means of egress to increase to that required by Section 5-8, and

(b) Stop any conflicting or confusing sounds and visuals.

**8-4.6.4 Exit Marking.**

**8-4.6.4.1** Exit marking shall be in accordance with Section 5-10.

**8-4.6.4.2** Exit marking in mobile special amusement buildings shall be of the luminescent, self-luminous, or electroluminescent type.

**8-4.6.4.3** Low level exit signs shall be provided in accordance with 5-10.1.4.

**8-4.6.4.4*** In special amusement buildings where mazes, mirrors, or other designs are used to confound the egress path, approved directional exit marking that will become apparent in an emergency shall be provided.

**8-4.6.5 Interior Finish.** Interior finish shall be Class A throughout in accordance with Section 6-5.

**8-4.7 Operating Features.** (*See Chapter 31.*)

## SECTION 8-5 BUILDING SERVICES

**8-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**8-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**8-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**8-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 9 EXISTING ASSEMBLY OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 9-1 GENERAL REQUIREMENTS

**9-1.1 Application.**

**9-1.1.1** The requirements of this chapter apply to existing assembly occupancies. (*See 9-1.3 for definition.*)

*Exception: An existing building housing an assembly occupancy established prior to the effective date of this Code may have its use continued if it conforms to or is made to conform to the provisions of this Code to the extent that, in the opinion of the authority having jurisdiction, reasonable life safety against the hazards of fire, explosions, and panic is provided and maintained.*

**9-1.1.2** Additions to existing buildings shall conform to the requirements for new construction. Existing portions of the structure need not be modified provided that the new construction has not diminished the firesafety features of the facility.

*Exception: Existing portions must be upgraded if the addition results in a change of assembly classification.*

**9-1.1.3** An assembly occupancy that has its occupant load increased resulting in a change of assembly classification shall meet the requirements for new assembly occupancies.

**9-1.2 Mixed Occupancies.** (*See also 1-4.7.*)

**9-1.2.1*** Any assembly occupancy and its access to exits in buildings of other occupancy, such as ballrooms in hotels, restaurants in stores, rooftop assembly occupancies, or assembly rooms in schools, shall be so located, separated, or protected as to avoid any undue danger to the occupants of the assembly occupancy from a fire originating in the other occupancy or smoke therefrom.

**9-1.2.2** Occupancy of any room or space for assembly purposes by fewer than 50 persons in a building of other occupancy and incidental to such other occupancy shall be classed as part of the other occupancy and subject to the provisions applicable thereto.

**9-1.2.3** Assembly occupancies in buildings of other occupancy may use exits common to the assembly occupancy and the other occupancy provided that the assembly area and the other occupancy considered separately each have exits sufficient to meet the requirements of this *Code*.

**9-1.2.4** Exits shall be sufficient for simultaneous occupancy of both the assembly occupancy and other parts of the building.

*Exception*: Where the authority having jurisdiction determines that the conditions are such that simultaneous occupancy will not occur.*

**9-1.3* Special Definitions.**

**Assembly Occupancies.** Include, but are not limited to, all buildings or portions of buildings used for gathering together 50 or more persons for such purpose as deliberation, worship, entertainment, dining, amusement, or awaiting transportation.

**Cyclorama.** The name generally applied to a neutral background that, with suitable lighting, can suggest the infinite space of the sky. It may be curved and may be painted to depict any required background.

**Drop.** A large piece of scenic canvas that hangs vertically, usually across the stage area.

**Flow Time.** Flow time is the time during which there is crowd flow past a point in the means of egress system, and it is a component of total evacuation time.

**Fly.** The space over the stage of a theater where scenery and equipment can be hung out of view. Also called lofts and rigging lofts.

**Fly Gallery.** A narrow raised platform at the side of a legitimate stage from which the lines for flying scenery are manipulated.

**Gridiron.** The arrangement of beams over a legitimate stage supporting the machinery for flying scenery and hanging battens from which lighting is hung.

**Leg Drop.** A long narrow strip of fabric used for masking. Where used on either or both sides of the acting area, to provide entry to the stage by the actors, but also to mask. They may also be called "wings."

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

**Pinrail.** A beam at one side of a legitimate stage through which wooden or metal pins are driven and to which lines from the flies are fastened.

**Platform.*** That raised area within a building used for the presentation of music, plays, or other entertainment; the head tables for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round; and similar purposes wherein there are no overhead drops, scenery, or stage effects other than lighting and a screening valance.

**Platform, Temporary.** A platform erected within an area for not more than 30 days.

**Platform, Permanent.** A platform erected within an area for more than 30 days.

**Proscenium Wall.** The wall that separates the stage from the auditorium or house.

**Smoke-Protected Assembly Seating.*** Seating served by means of egress that is not subject to blockage by smoke accumulation within or under a structure.

**Stage.** An area within a building used for the purpose of entertainment and utilizing drops or scenery or other stage effects and shall be classified as one of the following:

(a) *Stage, Legitimate.* A stage wherein scenery is retractable mechanically either horizontally or vertically, or suspended overhead.

(b) *Stage, Regular.* A stage wherein scenery is not retractable.

(c) *Stage, Thrust.* A platform extending beyond the proscenium arch and into the audience.

**Stage Properties.** Furniture, carpet, and similar materials generally having an overall height of less than 5 ft (152 cm) and used to provide an appearance simulating a room or area.

**Stage Scenery.** Decorative materials such as flats, cycloramas, painted or photographic backings, and similar materials to "dress" the stage.

**9-1.4 Classification of Occupancy.** (*See 4-1.2.*)

**9-1.4.1 Subclassification of Assembly Occupancies.** Each assembly occupancy shall be subclassified according to its occupant load, as follows: Class A, occupant load greater than 1000 persons; Class B, occupant load greater than 300 but not greater than 1000 persons; Class C, occupant load of 50 or more but not greater than 300 persons.

**9-1.5 Classification of Hazard of Contents.** Contents of assembly occupancies shall be classified in accordance with the provisions of Section 4-2.

**9-1.6 Minimum Construction Requirements.** (*See 6-2.1.*) The location of an assembly occupancy shall be limited as follows:

| Type of Construction | Below LED | LED | Number of Levels Above LED 1 | 2 | 3 | 4 & Above |
|---|---|---|---|---|---|---|
| I (443), I (332), II (222) | A†B†C† Any Number of Levels | ABC | ABC | ABC | ABC | A†BC |
| II (111) | A†B†C† One Level Below LED | ABC | ABC | A†BC | B†C† | N.P. |
| III (211), IV (2HH), V (111) | A†B†C† One Level Below LED | ABC | ABC | A†B†C | B†C† | N.P. |
| II (000) | B†C† One Level Below LED | A†BC | C† | N.P. | N.P. | N.P. |
| III (200), V (000) | B†C† One Level Below LED | A†BC | C† | N.P. | N.P. | N.P. |

†Permitted if the level of the assembly occupancy and any story intervening between that level and the level of exit discharge are protected throughout by an approved automatic sprinkler system. If there are any openings between the level of exit discharge and the exits serving the place of assembly, the level of exit discharge shall also be protected throughout by an approved automatic sprinkler system (*see Section 7-7*).
N.P. — Not Permitted
LED — Level of Exit Discharge

**9-1.7 Occupant Load.**

**9-1.7.1*** The occupant load permitted in any assembly building, structure, or portion thereof shall be determined on the basis of the following occupant load factors:

(a)* An assembly area of concentrated use without fixed seats, such as an auditorium, place of worship, dance floor, discotheque, or lodge hall - one person per 7 net sq ft (.65 sq m).

(b) An assembly area of less concentrated use, such as a conference room, dining room, drinking establishment, exhibit room, gymnasium, or lounge - one person per 15 net sq ft (1.4 sq m).

(c) Bleachers, pews, and similar bench-type seating - one person for 18 linear in. (45.7 linear cm).

(d) *Fixed Seating.* The occupant load of an area having fixed seats shall be determined by the number of fixed seats installed. Required aisle space serving the fixed seats shall not be used to increase the occupant load.

(e) *Kitchens.* One person per 100 gross sq ft (9.3 sq m).

(f) *Libraries.* In stack areas - one person per 100 gross sq ft (9.3 sq m); in reading rooms - one person per 50 net sq ft (4.6 sq m).

*Exception: The authority having jurisdiction may permit occupancy by number of persons not to exceed that for which the existing means of egress are adequate, provided that measures are established to prevent occupancy by any greater number of persons than permitted by room area or by fixed seating.*

**9-1.7.2*** The occupant load permitted in a building or portion thereof may be increased above that specified in 9-1.7.1 if the necessary aisles and exits are provided. To increase the occupant load, a diagram indicating placement of equipment, aisles, exits, and seating shall be provided to and approved by the authority having jurisdiction prior to any increase in occupant load. In areas not greater than 10,000 sq ft (930 sq m), the occupant load shall not exceed one person in 5 sq ft (.46 sq m); in areas greater than 10,000 sq ft (930 sq m), the occupant load shall not exceed one person in 7 sq ft (.65 sq m).

**9-1.7.3 Waiting Spaces.** In theaters and other assembly occupancies where persons are admitted to the building at times when seats are not available to them, or when the permitted occupant load has been reached based on 9-1.7.1 or 9-1.7.2 and persons are allowed to wait in a lobby or similar space until seats or space are available, such use of a lobby or similar space shall not encroach upon the required clear width of exits. Such waiting shall be restricted to areas other than the required means of egress. Exits shall be provided for such waiting spaces on the basis of one person for each 3 sq ft (0.28 sq m) of waiting space area. Such exits shall be in addition to the exits specified for the main auditorium area and shall conform in construction and arrangement to the general rules for exits given in this chapter.

## SECTION 9-2 MEANS OF EGRESS REQUIREMENTS

**9-2.1 General.** All means of egress shall be in accordance with Chapter 5 and this chapter.

**9-2.2 Means of Egress Components.**

**9-2.2.1** Components of means of egress shall be limited to the types described in 9-2.2.2 through 9-2.2.9.

**9-2.2.2 Doors.**

**9-2.2.2.1** Doors shall comply with 5-2.1.

**9-2.2.2.2** Class C assembly occupancies in covered malls (*see 25-4.4.1 Exception*) may have horizontal or vertical security grilles or doors complying with 5-2.1.4.1 Exception No. 3 on the main entrance/exits.

**9-2.2.2.3 Panic Hardware or Fire Exit Hardware.** Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with 5-2.1.7.

*Exception No. 1: In assembly occupancies having an occupant load not greater than 600, where the main exit consists of a single door or single pair of doors, locking devices complying with 5-2.1.5.1 Exception No. 2 may be used on the main exit. Any latching device on this door(s) shall be released by panic hardware.*

*Exception No. 2: Special locking arrangements as permitted in 9-2.2.2.4.*

**9-2.2.2.4** Special locking arrangements complying with 5-2.1.6 are permitted on doors other than main entrance/exit doors.

**9-2.2.2.5** Revolving doors complying with the requirements of 5-2.1.10 for new construction are permitted.

**9-2.2.2.6 Turnstiles.** No turnstiles or other devices to restrict the movement of persons shall be installed in any assembly occupancy in such a manner as to interfere in any way with required means of egress facilities.

**9-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**9-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**9-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**9-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**9-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**9-2.2.8 Escalators and Moving Walks.** Escalators and moving walks complying with 5-2.7 are permitted.

**9-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**9-2.3 Capacity of Means of Egress.**

**9-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3 or, in the case of means of egress serving theater-type seating or similar seating arranged in rows, in accordance with 9-2.3.2.

**9-2.3.2*** Minimum clear widths of aisles and other means of egress shall be in accordance with Table 9-2.3.2(a) or, for buildings providing smoke-protected assembly seating and for which an approved life safety evaluation is conducted, Table 9-2.3.2(b). For Table 9-2.3.2(b), the number of seats specified must be within a single assembly space and interpolation shall be permitted between the specific values shown. For both tables, the minimum clear widths shown shall be modified in accordance with all of the following:

(a) If risers exceed 7 in. (17.8 cm) in height, multiply the stair width in the tables by factor A, where

$$A = 1 + \frac{(\text{riser height} - 7.0 \text{ in.})}{5}$$

(b) Stairs not having a handrail within a 30-in. (76 cm) horizontal distance shall be 25 percent wider than otherwise calculated, i.e., multiply by B = 1.25.

(c) Ramps steeper than 1 in 10 slope, used in ascent, shall have their width increased by 10 percent, i.e., multiply by factor C = 1.10.

**Table 9-2.3.2(a)**
**For Use Without Smoke-Protected Assembly Seating**

| No. of Seats | Nominal Flow Time (sec.) | Inch of Clear Width Per Seat Served: Stairs | Inch of Clear Width Per Seat Served: Passageways, Ramps, and Doorways |
|---|---|---|---|
| Unlimited | 200 | 0.300 AB | 0.220 C |

(1 in. = 2.54 cm)

**Table 9-2.3.2(b)**
**For Use With Smoke-Protected Assembly Seating**

| No. of Seats | Nominal Flow Time (sec.) | Inch of Clear Width Per Seat Served: Stairs | Inch of Clear Width Per Seat Served: Passageways, Ramps, and Doorways |
|---|---|---|---|
| 2,000 | 200 | 0.300 AB | 0.220 C |
| 5,000 | 260 | 0.200 AB | 0.150 C |
| 10,000 | 360 | 0.130 AB | 0.100 C |
| 15,000 | 460 | 0.096 AB | 0.070 C |
| 20,000 | 560 | 0.076 AB | 0.056 C |
| 25,000 or more | 660 | 0.060 AB | 0.044 C |

(1 in. = 2.54 cm)

**9-2.3.3 Main Entrance/Exit.** Every assembly occupancy shall be provided with a main entrance/exit. The main entrance/exit shall be of sufficient width to accommodate one-half of the total occupant load but shall be not less than the total required width of all aisles, exit passageways, and stairways leading thereto and shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street.

*Exception No. 1: A bowling establishment shall have a main entrance/exit of sufficient capacity to accommodate 50 percent of the total occupant load without regard to the number of aisles that it serves.*

*Exception No. 2: In assembly occupancies where there is no well defined main entrance/exit, such as stadiums, sports arenas, and passenger stations, exits may be distributed around the perimeter of the building provided the total exit width provides 116⅔ percent of the width needed to accommodate the permitted occupant load.*

**9-2.3.4 Other Exits.** Each level of an assembly occupancy shall have access to the main entrance/exit and shall be provided with additional exits of sufficient width to accommodate two-thirds of the total occupant load served by that level. Such exits shall discharge in accordance with 9-2.7. Such exits shall be located as far apart as practicable and as far from the main entrance/exit as practicable. Such exits shall be accessible from a cross aisle or a side aisle. (*See 9-2.3.3.*)

*Exception No. 1: Where only two exits are required, each exit shall be of sufficient width to accommodate not less than one-half the total occupant load.*

*Exception No. 2: In assembly occupancies where there is no well defined main entrance/exit, such as stadiums, sports arenas, and passenger stations, exits may be distributed around the perimeter of the building provided the total exit width provides 116⅔ percent of the width needed to accommodate the permitted occupant load.*

**9-2.4 Number of Exits.** *(See also Section 5-4.)*

**9-2.4.1** Every Class A assembly occupancy shall have at least four separate means of egress as remote from each other as practicable.

**9-2.4.2** Every Class B assembly occupancy shall have at least two separate means of egress as remote from each other as practicable and, if of a capacity of over 600, at least three separate means of egress, each not less than 44 in. (112 cm) wide.

**9-2.4.3** Every Class C assembly occupancy shall have at least two means of egress consisting of separate exits or doors leading to a corridor or other spaces giving access to two separate and independent exits in different directions.

**9-2.4.4** Balconies or mezzanines having an occupant load not greater than 50 may be served by a single means of egress and such means of egress may lead to the floor below.

**9-2.4.5** Balconies or mezzanines having an occupant load greater than 50 but not greater than 100 shall have at least two remote means of egress, but both such means of egress may lead to the floor below.

**9-2.4.6** Balconies or mezzanines having an occupant load greater than 100 shall have means of egress provided as for a floor.

**9-2.5 Arrangement of Means of Egress.** *(See also Section 5-5.)*

**9-2.5.1** Exits shall be remote from each other and shall be arranged to minimize the possibility that they may be blocked by any emergency.

*Exception No. 1: A common path of travel may be permitted for the first 20 ft (6.1 m) from any point.*

*Exception No. 2: As provided in 9-2.4.4.*

**9-2.5.2** Means of egress shall not be permitted through kitchens, storerooms, restrooms, closets, or hazardous areas as described in 9-3.2.

**9-2.5.3 (Reserved)**

**9-2.5.4 Seating.**

**9-2.5.4.1** The spacing of rows of chairs shall provide a space of not less than 12 in. (30.5 cm) from the back of one chair to the front of the most forward projection of the chair immediately behind it. Horizontal measurements shall be made between vertical planes. Where all chairs in a row have automatic or self-rising seats that comply with ASTM F851, *Test Method for Self-Rising Seat Mechanisms*, the measurement may be made with the seats in the up position. Where any chair in the row does not have an automatic or self-rising seat, the measurement shall be made with the seat in the down position.

**9-2.5.4.2*** For rows of chairs served by aisles or doorways at both ends, there shall be no more than 100 seats per row, and the minimum clear width between rows of 12 in. (30.5 cm) shall be increased by 0.3 in. (0.8 cm) for every additional seat beyond 14 but need not exceed 22 in. (55.9 cm).

**9-2.5.4.3** For rows of chairs served by an aisle or doorway at one end only, the minimum clear width between rows of 12 in. (30.5 cm) shall be increased by 0.6 in. (1.5 cm) for every additional seat beyond 7, but need not exceed 22 in. (55.9 cm).

**9-2.5.4.4** For rows of chairs served by an aisle or doorway at one end only, the path of travel shall not exceed 30 ft (9.1 m) from any seat to a point where a person has a choice of two paths of travel to two exits.

**9-2.5.4.5** Chairs without dividing arms shall have their capacity determined by allowing 18 in. (45.7 cm) per person.

**9-2.5.4.6** Where bleacher or grandstand seating without backs is used indoors, rows of seats shall be spaced not less than 22 in. (55.9 cm) back to back.

*Exception: Folding or telescopic seating shall comply with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures, with a limit of dead ends in vertical aisles of 16 rows.*

**9-2.5.4.7*** Fixed or loose chairs, tables, and similar furnishings or equipment shall be so arranged and maintained that a path of travel to an aisle or exit is provided. The path of travel shall not exceed 10 ft. (3 m) from any point to an aisle or exit.

**9-2.5.4.8*** Rectangular banquet type tables used for drinking or dining or purposes having similar seating configurations, with the path of travel to an aisle exceeding 10 ft (3 m), shall be spaced not less than 54 in. (137 cm) apart where seating occurs back to back nor less than 36 in. (91 cm) where seating is on one side only. The path of travel to an aisle or exit shall not exceed 20 ft (6.1 m).

**9-2.5.5* Tablet-Arm Chair Seating.**

**9-2.5.5.1** Tablet-arm chairs shall not be permitted unless full compliance of row space requirements is provided when the tablet arm is in the usable position. Tablet-arm chairs that do not have a stored position for the tablet arm shall not be permitted unless the clearance required by 9-2.5.4 between rows of chairs is provided and maintained.

**9-2.5.5.2** Where tablet-arm chairs are used, the clear width of rows of seats shall be measured with a tablet arm in the up or use position.

*Exception: Tablet arms may be measured in stored position where the tablet arm automatically returns to the stored position when raised manually in one motion to a vertical position and falls to the stored position by force of gravity.*

**9-2.5.6 Aisles.**

**9-2.5.6.1** Aisle width shall provide sufficient egress capacity for the number of persons accommodated by the catchment areas served by the aisle. The catchment area served by an aisle is that portion of the total space that is naturally served by that section of the aisle. The establishment of catchment areas shall be based on a balanced use of all means of egress with the number of persons in proportion to egress capacity.

**9-2.5.6.2** Where aisles converge to form a single path of egress travel, the required egress capacity of that path shall be not less than the combined required capacity of the converging aisles.

**9-2.5.6.3** Aisles shall terminate at a cross aisle, foyer, door, or vomitory giving access to an exit.

**9-2.5.6.4** Dead-end aisles shall not exceed 20 ft (6.1 m) in length.

*Exception: A longer dead-end aisle is permitted where seats served by the dead-end aisle are not more than 24 seats from another aisle measured along a row of seats having a minimum clear width of 12 in. (30.5 cm) plus 0.6 in. (1.5 cm) for each additional seat above 7 in the row.*

**9-2.5.6.5** In aisles where egress is possible in more than one direction, the aisles shall be uniform in required widths.

**9-2.5.6.6** The width of aisles shall be sized in accordance with 9-2.3.1.

**9-2.5.6.7** In theater and similar type seating facilities, the minimum clear width of aisles shall be as determined by 9-2.3.2 but not less than:

(a) 42 in. (107 cm) for stairs having seating on each side.

*Exception: 30 in. (76 cm) for catchment areas having not greater than 60 seats.*

(b) 36 in. (91 cm) for stairs having seating on only one side.

*Exception: 30 in. (76 cm) for catchment areas having not greater than 60 seats.*

(c) 20 in. (51 cm) between a handrail or guardrail and seating where the aisle is subdivided by a handrail.

(d) 42 in. (107 cm) for level or ramped aisles having seating on both sides.

*Exception: 30 in. (76 cm) for a catchment area of not greater than 60 seats.*

(e) 36 in. (91 cm) for level or ramped aisles having seating on only one side.

*Exception: 30 in. (76 cm) for catchment areas with not greater than 60 seats.*

(f) 23 in. (58 cm) between a handrail and seating where aisle does not serve more than five rows on one side.

**9-2.5.6.8*** In table and chair type seating facilities, the minimum clear width of aisles shall be as determined by 9-2.3.1 but not less than 36 in. (91 cm). Where loose seating occurs bordering on the aisle, the minimum aisle width is required plus an additional 19 in. (48.3 cm) for chairs on one side or an additional 38 in. (97 cm) for chairs on both sides of the aisle.

**9-2.5.6.9 Aisle Stairs and Ramps.** Every aisle with a gradient 1 in 8 or less shall consist of a ramp. Every aisle with gradient exceeding 1 in 8 shall consist of a stair having treads, risers, and handrails complying with the following requirements:

(a)* Tread depth shall be uniform in each aisle.

*Exception to (a): In aisle stairs where a single intermediate tread is provided halfway between seating platforms, such intermediate treads may have a relatively smaller but uniform depth, but not less than 13 in. (33 cm).*

(b)* Treads shall be a minimum of 11 in. (27.9 cm).

(c) Riser heights shall be a minimum of 4 in. (10.2 cm).

(d) Riser heights shall not exceed 8 in. (20.3 cm).

*Exception No. 1 to (d): Where the gradient of an aisle exceeds 8 in. (20.3 cm) in rise and 11 in. (27.9 cm) of run (to maintain necessary sight lines in the adjoining seating area), the rise height may exceed 8 in. (20.3 cm) but shall not exceed 11 in. (27.9 cm).*

*Exception No. 2 to (d): Folding and telescopic seating in accordance with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.*

(e)* Riser heights shall be uniform within a flight.

*Exception to (e): Riser height may be nonuniform but only to the extent necessary due to changes in gradient within a seating area to maintain necessary sight lines. Where nonuniformities exceed 3/16 in. (0.5 cm) between adjacent risers, the exact location of such nonuniformities shall be indicated by a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.*

(f) Ramped aisles having a gradient exceeding 1 in 15, and aisle stairs, shall be provided with handrails at one side or along the center line.

Where there is seating on both sides of the aisle, the handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 in. (55.9 cm) and not greater than 36 in. (91 cm) measured horizontally, and the handrail shall have rounded terminations or bends. Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate rail located approximately 12 in. (30 cm) below the main handrail.

*Exception No 1 to (f): Handrails are not required for ramped aisles having a gradient not greater than 1 in 8 and having seating on both sides.*

*Exception No. 2 to (f): Handrails are not required if, at the side of the aisle, there is a guardrail that complies with the graspability requirements for handrails.*

*Exception No. 3 to (f): Handrails are not required where risers do not exceed 7 in. (17.8 cm) in height.*

(g)* A contrasting marking stripe shall be provided on each tread at the nosing or leading edge such that the location of such tread is readily apparent, particularly when viewed in descent. Such stripes shall be at least 1 in. (2.5 cm) wide and shall not exceed 2 in. (5 cm) wide.

*Exception to (g): The marking stripe may be omitted where tread surfaces and environmental conditions in all conditions of use are such that the location of each tread is readily apparent, particularly when viewed in descent.*

**9-2.5.6.10** Where required by the authority having jurisdiction, plans drawn to scale showing the arrangement of furnishings or equipment shall be submitted to the authority by the building owner, manager, or authorized agent to substantiate conformance with the provisions of this section and shall constitute the only acceptable arrangement until revised or additional plans are submitted and approved.

*Exception: Temporary deviations from the specifics of the approved plans shall be permitted provided the occupant load is not increased and the intent of this section is maintained.*

**9-2.6 Travel Distance to Exits.** Exits shall be so arranged that the total length of travel from any point to reach an exit will not exceed 150 ft (45 m) in any assembly occupancy. *(See also Section 5-6.)*

*Exception: The travel distance may be increased to 200 ft (60 m) in assembly occupancies protected throughout by an approved automatic sprinkler system.*

**9-2.7 Discharge from Exits.**

**9-2.7.1** Exit discharge shall comply with Section 5-7.

**9-2.7.2** The level of exit discharge shall be measured at the point of principal entrance to the building.

**9-2.7.3** Where the principal entrance to an assembly occupancy is via a terrace, either raised or depressed, such terrace may be considered to be the level of exit discharge for the purposes of 9-1.6 if:

(a) The terrace is at least as long (measured parallel to the building) as the total width of the exit(s) it serves, but not less than 5 ft (152 cm) long, and

(b) The terrace is at least as wide (measured perpendicularly to the building) as the exit(s) it serves, but not less than 5 ft (152 cm) wide, and

(c) Required stairs leading from the terrace to grade are protected in accordance with 5-2.2.3.3 or are a minimum of 10 ft (3 m) from the building.

**9-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**9-2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with Section 5-9.

*Exception: Class C assembly occupancies, used exclusively for a place of worship, shall not be required to have emergency lighting.*

**9-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**9-2.11 Special Features.**

**9-2.11.1 Railings.**

(a) The fasciae of boxes, balconies, and galleries shall not rise less than 26 in. (66 cm) high above the adjacent floor or shall have substantial railings not less than 26 in. (66 cm) high above the adjacent floor.

(b) The height of the rail above footrests on the adjacent floor immediately in front of a row of seats shall be not less than 26 in. (66 cm). Railings at the ends of aisles shall be not less than 36 in. (91 cm) high for the full width of the aisle and shall be not less than 42 in. (107 cm) high for the width of the aisle where steps occur.

(c) Cross aisles shall be provided with railings not less than 26 in. (66 cm) high above the adjacent floor.

*Exception No. 1: Where the backs of seats on the front of the aisle project 24 in. (61 cm) or more above the adjacent floor of the aisle.*

*Exception No. 2: Existing railings 36 in. (91 cm) high at the ends of aisles where steps occur may continue to be used.*

## SECTION 9-3 PROTECTION

**9-3.1 Protection of Vertical Openings.** All interior stairways and other vertical openings shall be enclosed and protected as provided in Section 6-2.

*Exception No. 1: Unprotected openings connecting not more than three floors may be permitted provided that they comply with 6-2.4.4.*

*Exception No. 2: Atriums in accordance with 6-2.4.5 are permitted.*

*Exception No. 3: Stairs may be open between balconies and main assembly floors in theaters, churches, or auditoriums where the travel distance is within the allowable limits. (See 9-2.6.)*

*Exception No. 4: Existing wood lath and plaster, existing ½-in. (1.3-cm) gypsum wallboard, existing installations of ¼-in. (.6-cm) thick wired glass that are, or are rendered, inoperative and fixed in the closed position, or other existing materials having similar fire resistance capabilities shall be acceptable. All such assemblies shall be in good repair and free of any condition that would diminish their original fire resistance characteristics.*

**9-3.2 Protection from Hazards.**

**9-3.2.1 Stages and Platforms.** (*See 9-1.3.*)

**9-3.2.1.1 Materials and Design.** (Reserved)

**9-3.2.1.2 Platform Construction.** (Reserved)

**9-3.2.1.3 Stage Construction.** (Reserved)

**9-3.2.1.4 Accessory Rooms.** (Reserved)

**9-3.2.1.5 Vents.** Legitimate stages shall be provided with one or more vents constructed of noncombustible material. Ventilators shall be located near the center and above the highest part of the stage. They shall be raised above the stage roof and shall have a total ventilation area equal to at least 5 percent of the floor area of the stage.

Regular stages exceeding 1,000 sq ft (93 sq m) in area shall be provided with vents as required for legitimate stages or shall be provided with a mechanical vent installed in an exterior wall of the stage itself. Such vent shall be automatic upon operation of the sprinkler system and shall also be capable of manual operation. The capacity of the exhaust vent shall be approximately equivalent to that which would be provided for a legitimate stage.

Vents shall open by spring action or force of gravity sufficient to overcome the effects of neglect, rust, dirt, frost, snow, or expansion by heat or warping of the framework. Glass, if used in vents, must be protected against falling onto the stage. A wire screen, if used under the glass, must be so placed that, if clogged, it cannot reduce the required vent area or interfere with the operating mechanism or obstruct the distribution of water from an automatic sprinkler. Vents shall be arranged to open automatically by the use of fusible links. The fusible links and operating cable shall hold each door closed against the minimum 30 lb (133 N) counterforce, which may be exerted by springs or counterweights. This minimum counterforce shall be exerted on each door through its entire arc of travel and for a minimum of 115 degrees. A manual control shall also be provided.

Springs, where employed to actuate doors, shall be capable of maintaining full required tension. Springs shall not be stressed more than 50 percent of their rated capacity and shall not be located directly in the air stream nor exposed to the outside.

A fusible link shall be placed in the cable control system on the underside of the vents at or above the roofline or as approved by the authority having jurisdiction and shall be so located as not to be affected by the operation of a fire sprinkler system. Remote, manual, or electrical controls shall provide for both opening and closing of the vent doors for periodic testing and shall be located at a point on the stage designated by the authority having jurisdiction. Where remote control vents are electrical, power failure shall not affect its instant operation in the event of fire. Hand winches may be employed to facilitate operation of manually controlled vents.

**9-3.2.1.6 Proscenium Walls.** Where automatic sprinkler protection is not provided, the proscenium wall of every theater using movable scenery or decorations shall not have more than two openings entering the stage, exclusive of the proscenium opening. Such openings shall not exceed 21 sq ft (2.0 sq m) each and shall be fitted with self-closing fire doors.

**9-3.2.1.7 Proscenium Curtain.** The proscenium opening of every legitimate stage shall be provided with a curtain constructed and mounted so as to intercept hot gases, flames, and smoke and to guard against seeing flame from a fire on the

stage from the auditorium side within a five-minute period where the curtain is of asbestos. Other materials may be used if they have passed a thirty-minute fire test in a small scale furnace, 3 ft (91 cm) by 3 ft (91 cm), with the sample mounted in the horizontal plane at the top of the furnace and subjected to the standard time-temperature curve.

The curtain shall be automatic-closing without the use of applied power.

*Exception: In lieu of the protection required herein, all the following may be provided:*

*(a) A noncombustible opaque fabric curtain so arranged that it will close automatically, and*

*(b) An automatic fixed waterspray deluge system shall be located on the auditorium side of the proscenium opening and be so arranged that the entire face of the curtain will be wetted. The system shall be activated by combination of rate-of-rise and fixed-temperature detectors located on the ceiling of the stage. Detectors shall be spaced in accordance with their listing. The water supply shall be controlled by a deluge valve and shall be sufficient to keep the curtain completely wet for 30 minutes or until the valve is closed by fire department personnel, and*

*(c) The curtain shall be automatically operated in case of fire by a combination of rate-of-rise and fixed-temperature detectors that also activates the deluge spray system. Stage sprinklers and vents shall be automatically operated in case of fire by fusible elements, and*

*(d) Operation of the stage sprinkler system or spray deluge valve shall automatically activate the emergency ventilating system and close the curtain, and*

*(e) The curtain, vents, and spray deluge system valve shall also be capable of manual operation.*

**9-3.2.1.8 Gridirons, Fly Galleries, and Penrails.** (Reserved)

**9-3.2.1.9 Fire Protection.** Every stage (legitimate, regular, or thrust) larger than 500 sq ft (46.5 sq m) in area shall have a system of automatic sprinklers at the ceiling, in usable spaces under the stage, in auxiliary spaces and dressing rooms, storerooms, and workshops. Where there is a stage gridiron, 135°F (57°C) rated sidewall sprinklers with heat-baffle plates shall be installed around the perimeter of the stage, except above the proscenium opening, at points not more than 30 in. (76 cm) below the gridiron, and with sprinklers positioned 4 to 6 in. (10.2 to 15.2 cm) below the baffle plate.

**9-3.2.1.10 Auxiliary Stage Spaces.** Auxiliary stage spaces, such as understage areas, dressing rooms, workshops, and similar spaces associated with the functioning of a stage, shall comply with the following:

(a) No point within any auxiliary space shall be more than 50 ft (15 m) from a door providing access to an exit.

(b) There shall be at least two exits available from every auxiliary stage space, one of which shall be available within a travel distance of 75 ft (23 m). A common path of travel of 20 ft (6.1 m) shall be permitted.

(c) Auxiliary stage spaces shall be equipped with automatic sprinklers where required by 9-3.2.1.3.

(d) No workshop involving the use of combustible or flammable paints, liquids, or gases or their storage shall open directly upon a stage.

**9-3.2.1.11 Flame-Retardant Requirements.** Combustible scenery of cloth, film, vegetation (dry), and similar effects shall meet the requirements of NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films.* Foamed plastics (*see A-6-5.2.4*) may be used only by specific approval of the authority having jurisdiction. Scenery and stage properties on thrust stages shall be either noncombustible or limited combustible materials.

**9-3.2.1.12 Standpipes.** Each legitimate or regular stage shall be equipped with a Class III standpipe located on each side of the stage, installed in accordance with 7-7.4.2.

**9-3.2.2 Projection Booths.**

**9-3.2.2.1** Every place of assembly where an electric arc, Xenon, or other light source that generates hazardous gases, dust, or radiation is used shall have a projection room that complies with 9-3.2.2.2 from which the projection shall be made. Where cellulose nitrate film is used, the projection room shall comply with NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film.* (*See also Chapter 31.*)

**9-3.2.2.2 Projection Rooms for Safety Film.** Projection rooms for safety film shall meet the requirements of 9-3.2.2.3 through 9-3.2.2.8.

**9-3.2.2.3** Every projection room shall be of permanent construction consistent with the construction requirements for the type of building in which the projection room is located. Openings need not be protected. The room shall have a floor area of not less than 80 sq ft (7.4 sq m) for a single machine and at least 40 sq ft (3.7 sq m) for each additional machine. Each motion picture projector, floodlight, spotlight, or similar piece of equipment shall have a clear working space not less than 30 in. (76 cm) on each side and at the rear thereof, but only one such space shall be required between adjacent projectors.

The projection room and the rooms appurtenant thereto shall have a ceiling height of not less than 7 ft 6 in. (229 cm).

**9-3.2.2.4** Each projection room shall have at least one outswinging, self-closing door not less than 30 in. (76 cm) wide and 6 ft 8 in. (203 cm) high.

**9-3.2.2.5** The aggregate of ports and openings for projection equipment shall not exceed 25 percent of the area of the wall between the projection room and the auditorium.

All openings shall be provided with glass or other approved material, so as to completely close the opening.

**9-3.2.2.6** Projection room ventilation shall be not less than the following:

(a) *Supply Air.* Each projection room shall be provided with adequate air supply inlets so arranged to provide well distributed air throughout the room. Air inlet ducts shall provide an amount of air equivalent to the amount of air being exhausted by projection equipment. Air may be taken from the outside; from adjacent spaces within the building provided the volume and infiltration rate is sufficient; or from the building air conditioning system, provided it is so arranged as to provide sufficient air whether or not other systems are in operation.

(b) *Exhaust Air.* Projection booths may be exhausted through the lamp exhaust system. The lamp exhaust system shall be positively interconnected with the lamp so that the lamp will not operate unless there is the airflow required for the lamp. Exhaust air ducts shall terminate at the exterior of the

building in such a location that the exhaust air cannot be readily recirculated into any air supply system. The projection room ventilation system may also serve appurtenant rooms, such as the generator room and the rewind room.

**9-3.2.2.7** Each projection machine shall be provided with an exhaust duct that will draw air from each lamp and exhaust it directly to the outside of the building. The lamp exhaust may serve to exhaust air from the projection room to provide room air circulation. Such ducts shall be of rigid materials, except for a flexible connector approved for the purpose. The projection lamp and projection room exhaust systems may be combined but shall not be interconnected with any other exhaust or return air system within the buildings.

(a) *Electric Arc Projection Equipment.* The exhaust capacity shall be 200 cfm (.09 cu m/s) for each lamp connected to the lamp exhaust system, or as recommended by the equipment manufacturer. Auxiliary air may be introduced into the system through a screened opening to stabilize the arc.

(b) *Xenon Projection Equipment.* The lamp exhaust system shall exhaust not less than 300 cfm (.14 cu m/s) per lamp, or not less than that exhaust volume required or recommended by the equipment manufacturer, whichever is the greater.

**9-3.2.2.8 Miscellaneous Equipment and Storage.**

(a) Each projection room shall be provided with rewind and film storage facilities.

(b) A maximum of four containers for flammable liquids not greater than 16 oz (.5 L) capacity and of a nonbreakable type may be permitted in each projection booth.

(c) Appurtenant electrical equipment, such as rheostats, transformers, and generators, may be located within the booth or in a separate room of equivalent construction.

**9-3.2.3 Service Equipment, Hazardous Operations or Processes, and Storage Facilities.**

**9-3.2.3.1** Rooms containing high pressure boilers, refrigerating machinery of other than domestic refrigerator type, large transformers, or other service equipment subject to possible explosion shall not be located directly under or adjacent to required exits. All such rooms shall be separated by a 1-hour fire barrier from other parts of the building.

**9-3.2.3.2 Opening Protection.** (Reserved)

**9-3.2.3.3** Rooms or space for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

**9-3.2.4 Special Provisions for Food Service Establishments.**

**9-3.2.4.1** All devices in connection with the preparation of food shall be so installed and operated as to avoid hazard to the safety of occupants.

**9-3.2.4.2** All devices in connection with the preparation of food shall be of an approved type and shall be installed in an approved manner.

**9-3.2.4.3** Food preparation facilities shall be protected in accordance with 7-2.3 and are not required to have openings protected between food preparation areas and dining areas.

**9-3.3 Interior Finish.**

**9-3.3.1** The interior finish requirements of this section shall be in accordance with Section 6-5.

**9-3.3.2** Interior finish in all corridors and lobbies shall be Class A or B and, in enclosed stairways, Class A.

**9-3.3.3** Interior finish in general assembly areas of Class A or Class B assembly occupancies shall be Class A or Class B. In Class C assembly occupancies, it shall be Class A, B, or C.

*Exception: In any assembly occupancy, exposed portions of structural members complying with the requirements for Type IV (2HH) construction may be permitted.*

**9-3.3.4** Screens on which pictures are projected shall comply with requirements of Class A or Class B interior finish.

**9-3.4 Detection, Alarm, and Communications Systems.**

**9-3.4.1 General.** All Class A and all Class B assembly occupancies, and all theaters with more than one audience viewing room, shall be provided with an approved fire alarm system in accordance with this section.

*Exception No. 1: Assembly occupancies that are a part of a mixed occupancy (see 1-4.7) may be served by a common fire alarm system provided the individual requirements of each occupancy are met.*

*Exception No. 2: Assembly occupancies where, in the judgment of the authority having jurisdiction, adequate alternative provisions exist or are provided for the discovery of a fire condition and for the prompt alerting of the occupants.*

**9-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.1(a), which shall be provided with an emergency power source. The initiating device shall be capable of transmitting an alarm to a receiving station, located within the building, that is constantly attended when the assembly occupancy is occupied.

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing fire detection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing fire detection and protection throughout the building.*

**9-3.4.3 Notification.**

**9-3.4.3.1** The required fire alarm system shall sound an audible alarm in a constantly attended receiving station within the building for purposes of initiating emergency action.

**9-3.4.3.2** Occupant notification shall be by means of either voice or prerecorded message announcement initiated by the person in the constantly attended receiving station.

**9-3.4.3.3** The announcement shall be made via an approved voice communication or public address system that is audible above the ambient noise level of the assembly occupancy.

**9-3.4.3.4** Where the authority having jurisdiction determines that it is impractical to have a constantly attended location in an assembly occupancy other than a theater, a fire alarm system in accordance with Section 7-6 initiated by manual stations in accordance with 7-6.2.1(a) or other approved means of initiation, that automatically provides prerecorded evacuation instructions in accordance with 7-6.3.8, may be used.

**9-3.5 Extinguishment Requirements.** (*See 9-1.6, 9-2.6, and 9-3.2.*)

**9-3.5.1 Fire Suppression Systems.** Any assembly occupancy used or capable of being used for exhibition or display purposes shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7 where the exhibition or display area exceeds 15,000 sq ft (1400 sq m).

**9-3.6 Corridors.** (Reserved)

**9-3.6.1 Interior Corridor and Lobby Construction.** (Reserved)

## SECTION 9-4 SPECIAL PROVISIONS

**9-4.1 Windowless or Underground Buildings.** Windowless or underground buildings shall comply with this chapter and Section 30-7.

**9-4.2 High Rise Buildings.** (*See 9-1.6.*)

**9-4.3 Outdoor Assembly.**

**9-4.3.1** All grandstands, tents, and other places of outdoor assembly shall comply with the requirements of NFPA 102, *Standard for Assembly Seating, Tents, and Membrane Structures.*

**9-4.4 Special Provisions for Exhibition Halls.**

**9-4.4.1** No display or exhibit shall be so installed or operated as to interfere in any way with access to any required exit or with visibility of any required exit or any required exit sign, nor shall any display block access to fire fighting equipment.

**9-4.4.2** A storage room having an enclosure with a smoke barrier having a fire resistance rating of 1 hour and protected by an automatic fire extinguishing system shall be provided for combustible materials not on display.

**9-4.4.3 Exhibits.** Exhibits shall comply with the following:

(a) The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not be greater than 50 ft (15 m).

(b) Exhibit booths shall be constructed of noncombustible or limited combustible materials, pressure-treated fire retardant wood meeting the requirements of NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials*, or of flame retardant materials complying with NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*, both small and large scale tests. Textile wall coverings, such as carpeting having a napped, tufted, looped, or similar surface used as wall or ceiling finish shall comply with 6-5.2.3. Plastic shall be limited to Class A or Class B interior wall and ceiling finish.

(c) Curtains, drapes, and decorations shall comply with 31-1.4.

(d)* Acoustical and decorative material including, but not limited to, cotton, hay, paper, straw, moss, split bamboo, and wood chips shall be flame-retardant treated to the satisfaction of the authority having jurisdiction. Materials that cannot be treated for flame retardancy shall not be used.

(e) Exhibit booths that are multilevel, consist of multiple rooms with ceilings, or are over 225 sq ft (20.9 sq m) with ceilings shall be protected by automatic sprinklers in buildings so protected.

*Exception: Vehicles, boats, and similar exhibited products having over 100 sq ft (9.3 sq m) of roofed area shall be provided with smoke detectors acceptable to the authority having jurisdiction.*

(f) Open flame devices within exhibit booths shall comply with 31-2.3.

(g) Cooking and food warming devices in exhibit booths shall comply with 31-2.4 and the following:

1. Gas fired devices shall be installed in accordance with 7-1.1.

2. Devices shall be isolated from the public by at least 4 ft (122 cm) or a barrier between the device and the public.

3. Devices shall be limited to 288 sq in. (.19 sq m) of cooking surface area.

4. Devices shall be placed on noncombustible surface materials.

5. Devices used for cooking shall be separated from each other by a minimum distance of 2 ft (61 cm).

6. Devices shall be kept a minimum of 2 ft (61 cm) from any combustible materials.

7. Single well cooking equipment using combustible oils or solids shall have lids available for immediate use. Multi-vat cooking equipment using combustible oils or solids shall comply with 7-2.3.

8. A 20 BC fire extinguisher shall be provided within the booth for each device, or an approved automatic extinguishing system shall be provided.

(h) Combustible materials within exhibit booths shall be limited to a one day supply. Storage of combustible materials behind the booth is prohibited (*See 9-4.4.2 and 31-2.6.2*).

(i) Plans, in a form acceptable to the authority having jurisdiction, shall be submitted to the authority having jurisdiction for approval prior to the move-in of any exhibit or trade show. The plan shall show all details of the proposed exhibit or show. No exhibit or trade show shall occupy any exhibit hall without approved plans.

**9-4.4.4 Vehicles.** Vehicles within an exhibit hall shall comply with the following:

(a) All fuel tank openings shall be locked and sealed in an approved manner to prevent the escape of vapors. Fuel tanks shall be not more than three-quarters nor less than one-eighth full.

(b) At least one battery cable shall be removed from each set of batteries.

(c) Fueling or defueling of vehicles shall be prohibited.

(d) Vehicles shall not be moved during show hours.

**9-4.4.5** Compressed flammable gases, flammable or combustible liquids, hazardous chemicals or materials, Class II or greater lasers, blasting agents, and explosives shall be prohibited within exhibit halls.

*Exception: The authority having jurisdiction may permit the limited use of any of the above items under special circumstances.*

**9-4.5 Special Provisions for the Handicapped.** (Reserved)

**9-4.6 Special Provisions for Amusement Buildings.** (Reserved)

**9-4.7 Operating Features.** (*See Chapter 31.*)

## SECTION 9-5 BUILDING SERVICES

**9-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**9-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**9-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**9-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 10 NEW EDUCATIONAL OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 10-1 GENERAL REQUIREMENTS

**10-1.1 Application.**

**10-1.1.1** The requirements of this chapter apply to new buildings.

**10-1.1.2*** Educational occupancies shall make provisions for the physically handicapped.

**10-1.1.3** Educational occupancies housing classes over the twelfth grade need not comply with this chapter but shall comply with the following requirements:

(a) Instructional Building — Business Occupancy

(b) Classrooms under 50 persons — Business Occupancy

(c) Classrooms 50 persons and over — Assembly Occupancy

(d) Laboratories, Instructional — Business Occupancy

(e) Laboratories, Non-Instructional — Industrial.

**10-1.2 Mixed Occupancies.** *(See also 10-1.4.)*

**10-1.2.1** Where other types of occupancy occur in the same building as an educational occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

*Exception: As otherwise specified in this chapter.*

**10-1.2.2 Assembly and Educational.** Spaces subject to assembly occupancy shall comply with Chapter 8, including Special Provisions for Assembly Occupancies in Buildings of Other Occupancy, which provides that where auditorium and gymnasium exits lead through corridors or stairways also serving as exits for other parts of the building, the exit capacity shall be sufficient to permit simultaneous exit from auditorium and classroom sections.

*Exception: In the case of an assembly occupancy of a type suitable only for use of the school occupant load (and therefore not subject to simultaneous occupancy), the same exit capacity may serve both sections.*

**10-1.2.3 Dormitory and Classrooms.** Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 16 in addition to complying with Chapter 10. Where classroom and dormitory sections are not subject to simultaneous occupancy, the same exit capacity may serve both sections.

**10-1.3 Special Definitions.**

**Common Atmosphere.** A common atmosphere exists between rooms, spaces, or areas within a building, that are not separated by an approved smoke barrier.

**Flexible Plan and Open Plan Educational Buildings.** Includes every building or portion of a building designed for multiple teaching stations.

(a) Flexible plan buildings have movable corridor walls and movable partitions of full-height construction with doors leading from rooms to corridors.

(b) Open plan buildings have rooms and corridors delineated by use of tables, chairs, desks, bookcases, counters, low-height 5-ft (152-cm) partitions, or similar furnishings.

**Interior Room.** A room whose only means of egress is through an adjoining or intervening room that is not an exit.

**Room.** For the purposes of this chapter, a room is a space or area bounded by any obstructions to egress that at any time enclose more than 80 percent of the perimeter of the space or area. Openings of less than 3 ft (91 cm) clear width and less than 6 ft 8 in. (203 cm) high shall not be considered in computing the unobstructed perimeter.

**Separate Atmosphere.** A separate atmosphere exists between rooms, spaces, or areas that are separated by an approved smoke barrier.

**Separate Means of Egress.** A means of egress separated in such a manner from other required means of egress as to provide an atmospheric separation that precludes contamination of both means of egress by the same fire. *(See Section 6-3.)*

**10-1.4 Classification of Occupancy.** *(See 4-1.3.)*

**10-1.4.1** Educational occupancies shall include all buildings 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.

**10-1.4.2** Educational occupancy includes part-day, nursery schools, kindergartens, and other schools whose purpose is primarily educational even though the children are of preschool age.

**10-1.4.3** In cases where instruction is incidental to some other occupancy, the section of this *Code* governing such other occupancy shall apply.

**10-1.4.4** Adult day-care shall include any building used for nonsleeping purposes for less than 24 hours per day to house one or more well, ambulatory or semi-ambulatory (nonbedridden) adults, none of whom requires medical injections by staff personnel. For the purposes of this definition, adults shall include those who:

(a) May require the administration of dry or liquid oral medication by staff personnel when and as prescribed by a licensed medical practitioner, and

(b) May require limited attendance, supervision, or observation, and

(c) Exhibit acceptable behavior (not harmful to self or others), and

(d) Are able to toilet self, and

(e) Are able to feed self, and

(f) Possess adequate mobility, and

(g) Are otherwise essentially homebound.

**10-1.4.5** Other occupancies associated with educational institutions shall be in accordance with the appropriate parts of this *Code*. *(See Chapters 12, 16, 18, 20, 28, 29, and 30, and 1-4.7.)*

**10-1.5 Classification of Hazard of Contents.** Contents of educational occupancies shall be classified in accordance with the provisions of Section 4-2.

**10-1.6 Minumum Construction Requirements.** No Requirements.

**10-1.7 Occupant Load.**

**10-1.7.1** The occupant load of educational buildings or any individual story or section thereof for the purpose of determining exits shall be as determined by the authority having jurisdiction but not less than one person for each 20 sq ft (1.9 sq m) of net classroom area or 50 sq ft (4.6 sq m) of net area of shops, laboratories, and similar vocational rooms. In day-care centers, the occupant load shall be not less than one person for each 35 sq ft (3.3 sq m) of net area.

**10-1.7.2** The occupant load of an area having fixed seats shall be determined by the number of fixed seats installed. Required aisle space serving the fixed seats shall not be used to increase the occupant load.

**10-1.7.3** The capacity of an educational occupancy or a portion thereof may be modified from that specified above if the necessary aisles and exits are provided. An approved aisle or seating diagram shall be required by the authority having jurisdiction to substantiate such a modification.

**10-1.7.4** The occupant load for determining exit requirements of individual lecture rooms, gymnasiums, or cafeterias used for assembly purposes of more than 50 persons shall be determined in accordance with 8-1.7 of this *Code*.

## SECTION 10-2 MEANS OF EGRESS REQUIREMENTS

**10-2.1 General.**

**10-2.1.1** Means of egress shall be in accordance with Chapter 5 and this section.

**10-2.1.2** Rooms normally occupied by preschool, kindergarten, or first-grade pupils shall not be located above or below the level of exit discharge. Rooms normally occupied by second-grade pupils shall not be located more than one story above the level of exit discharge.

**10-2.2 Means of Egress Components.**

**10-2.2.1** Components of means of egress shall be limited to the types described in 10-2.2.2 through 10-2.2.7.

**10-2.2.2 Doors.**

**10-2.2.2.1** Doors shall comply with 5-2.1.

**10-2.2.2.2 Panic Hardware or Fire Exit Hardware.** Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with 5-2.1.7.

**10-2.2.2.3** Special locking arrangements complying with 5-2.1.6 are permitted.

**10-2.2.2.4 Door Closure.** Any exit door designed to normally be kept closed shall conform with 5-2.1.8.

**10-2.2.2.5** Only one locking or latching device shall be permitted on a door or a leaf of a pair of doors.

**10-2.2.3* Stairs.** Stairs shall comply with 5-2.2.

**10-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**10-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**10-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**10-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.7.

**10-2.3 Capacity of Means of Egress.**

**10-2.3.1** Capacity of means of egress shall be in accordance with Section 5-3.

**10-2.3.2** The same exit capacity required for any individual floor may be counted as simultaneously serving all floors above the first story or floor of exit discharge.

**10-2.3.3 Minimum Corridor Width.**

**10-2.3.3.1** Exit access corridors shall be not less than 6 ft (183 cm) clear width.

**10-2.3.3.2** Drinking fountains or other equipment, fixed or movable, shall not be so placed as to obstruct the required minimum 6 ft (183 cm) corridor width.

**10-2.4 Number of Exits.** There shall be at least two exits available from every floor area. (*See Section 5-4.*)

**10-2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**10-2.5.1** Arrangement of means of egress shall be in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**10-2.5.2** Every room or space with a capacity of more than 50 persons or more than 1,000 sq ft (93 sq m) in area shall have at least two doorways as remote from each other as practicable. Such doorways shall provide access to separate exits but, where egress is through corridors, may open upon a common corridor leading to separate exits in opposite directions.

**10-2.5.3** Doors that swing into an exit access corridor shall be recessed to prevent interference with corridor traffic; any doors not so recessed shall open 180 degrees to stop against the wall. Doors in any position shall not reduce the required corridor width by more than one half.

**10-2.5.4 Aisles.**

**10-2.5.4.1** Where there are more than 60 seats, every aisle shall be not less than 3 ft (91 cm) wide where serving seats on one side only, and not less than 3 ft 6 in. (107 cm) wide where serving seats on both sides. Where serving 60 seats or less, aisles shall not be less than 30 in. (76 cm) wide. The space between parallel rows of seats does not constitute an aisle. No more than six seats shall intervene between any seat and an aisle.

**10-2.5.5* Exterior Corridors or Balconies.**

**10-2.5.5.1*** Where exterior corridors or balconies are provided as means of egress, they shall open to the outside air except for railings or balustrades with stairs or level exits to grade not over the allowable travel distance apart and so located that an exit will be available in either direction from the door to any individual room or space, with dead ends not to exceed 20 ft (6.1 m). If balconies are enclosed by glass or in any other manner, they shall be treated as interior corridors.

**10-2.5.5.2** The floors of balconies (exterior corridors) and stairs shall be solid, without openings, and shall comply with requirements for outside stairs as regards balustrades or railings, width and pitch of stairs, and other details, but are not required to be shielded from fire within the building by blank walls, wired glass windows or the like where the stairs are located on the side of the balcony or corridor away from the building and are separated from the building by the full required width of the balcony or corridor. Regardless of other provisions, exterior balconies and stairs may be of the same type of construction as the building that they serve.

**10-2.6 Travel Distance to Exits.** Travel distance to an exit shall not exceed 150 ft (45 m) from any point in a building. (*See also Section 5-6.*)

*Exception: The travel distance may be increased to 200 ft (60 m) in educational occupancies protected throughout by an approved automatic sprinkler system.*

**10-2.7 Discharge from Exits.** Discharge from exits shall be arranged in accordance with Section 5-7.

*Exception: Every classroom or room used for educational purposes or student occupancy below the floor of exit discharge shall have access to at least one exit that leads directly to the exterior at level of discharge without entering the floor above.*

**10-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**10-2.9 Emergency Lighting.** Emergency Lighting shall be provided in accordance with Section 5-9 in the following areas:

(a) In all interior stairs and corridors.

(b) In all normally occupied spaces.

*Exception to (b):*

*1. Administrative areas.*

*2.* General classrooms.*

*3. Mechanical rooms and storage areas.*

(c) In flexible and open plan buildings.

(d) In all portions of buildings that are interior or windowless.

**10-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

*Exception: Signs are not required in situations where location of exits is otherwise obvious and familiar to all occupants, such as in small elementary school buildings.*

**10-2.11 Special Features.**

**10-2.11.1* Windows for Rescue and Ventilation.** Every room or space used for classroom or other educational purposes or normally subject to student occupancy shall have at least one outside window for emergency rescue or ventilation. Such window shall be openable from the inside without the use of tools and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall be not more than 44 in. (112 cm) above the floor, and any latching device shall be capable of being operated from not more than 54 in. (137 cm) above the finished floor. In rooms located greater than three stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Where the room or space has a door leading directly to the outside of the building.*

## SECTION 10-3 PROTECTION

**10-3.1 Protection of Vertical Openings.**

**10-3.1.1** Any vertical opening shall be enclosed and protected in accordance with Section 6-2.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7, unprotected vertical openings connecting not more than three floors may be permitted in accordance with 6-2.4.4.*

**10-3.1.2** Stairs shall be enclosed in accordance with Section 6-2.

*Exception: Stairway enclosure will not be required for a stairway serving only one adjacent floor except a basement and not connected with stairways serving other floors and not connected to corridors.*

**10-3.2 Protection from Hazards.**

**10-3.2.1** Rooms or spaces for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

**10-3.2.2** Food preparation facilities shall be protected in accordance with 7-2.3 and are not required to have openings protected between food preparation areas and dining areas.

**10-3.2.3** Janitor closets shall be protected by an automatic sprinkler system, which may be in accordance with 7-7.1.2. Doors to janitor closets may have ventilating louvers.

**10-3.2.4** Laboratories that use chemicals shall comply with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals.*

**10-3.2.5** Stages shall be protected in accordance with Chapter 8.

**10-3.3 Interior Finish.**

**10-3.3.1** Interior finish, in accordance with Section 6-5, shall be as follows:

(a) Exits — Class A.

(b) Other than exits — Class A or B.

*Exception to (b): Fixtures and low-height partitions not over 5 ft (152 cm) high may be Class C.*

*Exception*: The exposed portions of structural members complying with the requirements for Type IV (2HH) construction may be permitted.*

**10-3.3.2 Interior Floor Finish.** No Requirements.

**10-3.4 Detection, Alarm, and Communications Systems.**

**10-3.4.1 General.** Educational occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**10-3.4.2 Initiation.**

**10-3.4.2.1** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.1(a).

*Exception: In buildings where all normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, the manual pull stations may be omitted except in locations specifically designated by the authority having jurisdiction.*

**10-3.4.2.2** In buildings provided with automatic sprinkler protection, the operation of the sprinkler system shall automatically activate the fire alarm system, in addition to the initiation means required above.

**10-3.4.3 Notification.**

**10-3.4.3.1** Occupant notification shall be by means of an audible alarm in accordance with 7-6.3.

**10-3.4.3.2** Where acceptable to the authority having jurisdiction, the fire alarm system may be used to designate class change provided that the fire alarm is distinctive in signal and overrides all other use.

**10-3.5 Extinguishment Requirements.**

**10-3.5.1** Every portion of educational buildings below the level of exit discharge shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

**10-3.6 Interior Corridors.**

**10-3.6.1** Every interior corridor, including corridors in flexible plan buildings, shall be of construction having not less than a 1-hour fire resistance rating. Such corridor walls shall extend from floor slab to floor slab. All openings shall be protected with doors, frames, and hardware, including closers, that shall all have a fire protection rating of at least 20 minutes.

*Exception No. 1: Such corridor protection shall not be required where all classrooms served by such corridors have at least one door directly to the outside or to an exterior balcony or corridor as in 10-2.5.5.*

*Exception No. 2: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7, corridor walls may be nonrated provided such walls, in conjunction with doors installed therein and ceilings at which they terminate, resist the passage of smoke.*

*Exception No. 3: Where the corridor ceiling is constructed with materials that would have a 1-hour fire resistance rating when tested as a wall, the corridor may terminate at the corridor ceiling.*

**10-3.6.2** Clothing and personal effects shall not be stored in corridors and lobbies.

*Exception: Metal lockers may be installed in corridors for storage of clothing and personal effects providing the corridor width is maintained.*

**10-3.7 Subdivision of Building Spaces.**

**10-3.7.1** School buildings shall be subdivided into compartments by smoke barriers having a 1-hour fire resistance rating and complying with Section 6-3 where:

(a) The maximum area of a compartment, including the aggregate area of all floors having a common atmosphere, exceeds 30,000 sq ft (2800 sq m); or

(b) The length or width of the building exceeds 300 ft (91 m).

*Exception No. 1: Where all classrooms have exterior exit access in accordance with 5-5.3.*

*Exception No. 2: Buildings that consist of only one story and are protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**10-3.7.2** The maximum area of a smoke compartment shall not exceed 30,000 sq ft (2800 sq m) with no dimension exceeding 300 ft (91 m).

## SECTION 10-4 SPECIAL PROVISIONS

**10-4.1 Windowless or Underground Buildings.**

**10-4.1.1** Windowless or underground buildings shall comply with this chapter and Section 30-7.

**10-4.1.2** Underground buildings or portions of buildings having a floor level more than 30 ft (9.1 m) below the level of exit discharge shall comply with the requirements contained in 10-4.1.3 through 10-4.1.6.

*Exception No. 1: Areas within buildings used only for service to the building such as boiler/heater rooms, cable vaults, dead storage, and the like.*

*Exception No. 2: Auditoriums without intervening occupiable levels complying with the requirements of Chapter 8.*

**10-4.1.3** Each level more than 30 ft (9.1 m) below the level of exit discharge shall be divided into not less than two smoke compartments by a smoke barrier complying with Section 6-3 and having a 1-hour fire resistance rating.

(a) Each smoke compartment shall have access to at least one exit without passing through the other required compartment. Any door connecting required compartments shall be tight-fitting, 1-hour fire doors, designed and installed to minimize passage of smoke and to close and latch automatically upon detection of smoke.

(b) Each smoke compartment shall be provided with a mechanical means of moving people vertically, such as an elevator or escalator.

(c) Each smoke compartment shall have an independent air supply and exhaust system capable of smoke control or smoke exhaust functions and providing a minimum smoke exhaust rate of six air changes per hour.

(d) Each smoke compartment shall be provided with an automatic smoke detection system throughout. The system shall be designed such that the activation of any two detectors shall cause the smoke control system to operate and the building voice alarm to sound.

**10-4.1.4** The building shall be provided with emergency lighting in accordance with Section 5-9.

**10-4.1.5** Any required smoke control or exhaust system shall be provided with a standby power system complying with Article 701 of NFPA 70, *National Electrical Code.*

**10-4.1.6** The building shall be provided with an approved supervised voice alarm system in accordance with Section 7-6. The voice alarm system shall comply with 7-6.3.8. A prerecorded evacuation message shall be permitted.

**10-4.2 High Rise Buildings.** High rise buildings shall comply with Section 30-8.

**10-4.3 Flexible Plan and Open Plan Buildings.** Flexible plan and open plan buildings shall also comply with the provisions of Section 10-6.

**10-4.4 Operating Features.** (*See Chapter 31.*)

## SECTION 10-5 BUILDING SERVICES

**10-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**10-5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**10-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**10-5.2.2** Unvented fuel-fired heating equipment shall be prohibited.

**10-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**10-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 10-6 FLEXIBLE PLAN AND OPEN PLAN BUILDINGS

**10-6.1 General Requirements.**

**10-6.1.1** Flexible and open plan buildings shall comply with Sections 10-1 through 10-5, except as modified by this section.

**10-6.2 Means of Egress Requirements.**

**10-6.2.1** Each room occupied by more than 300 persons shall have two or more means of egress entering into separate atmospheres. Where three or more means of egress are required, not more than two of them shall enter into the same atmosphere.

**10-6.2.2** Exit access from interior rooms may pass through an adjoining or an intervening room provided that the travel distances do not exceed those set forth in 10-2.6. Foyers and lobbies constructed as required for corridors shall not be construed as intervening rooms.

**10-6.2.3** Where the only means of egress from an interior room or rooms is through an adjoining or intervening room, smoke detectors shall be installed in the area of the common atmosphere through which the means of egress must pass. The detectors shall actuate alarms audible in the interior room and shall be connected to the school fire alarm system.

*Exception No. 1: Smoke detectors are not required where the aggregate occupant load is less than ten.*

*Exception No. 2: Interior rooms used exclusively for mechanical and public utility service to the buildings.*

*Exception No. 3: Where the building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**10-6.2.4** Flexible plan schools may have walls and partitions rearranged periodically only after revised plans or diagrams have been approved by the authority having jurisdiction.

**10-6.2.5** Open plan schools shall have furniture, fixtures, or low-height partitions so arranged that exits will be clearly visible and unobstructed, and exit paths are direct, not circuitous. If paths or corridors are established, they shall be at least as wide as required by 10-2.3.3.

## SECTION 10-7 DAY-CARE CENTERS

**10-7.1 General Requirements.**

**10-7.1.1 Application.**

**10-7.1.1.1*** The requirements detailed in Section 10-7, Day-Care Centers (more than 12 clients), are based on the minimum staff-to-client ratios that follow:

| Staff Ratio | Age |
|---|---|
| 1:3 | 0 to 2 |
| 1:5 | 2 to 3 |
| 1:10 | 3 to 5 |
| 1:12 | 5 to 7 |
| 1:15 | 7 and over |

The staff-to-client ratios may be modified by the authority having jurisdiction where safeguards, in addition to those specified by this section, are provided.

**10-7.1.1.2*** This section establishes life safety requirements for day-care centers in which more than 12 clients receive care, maintenance, and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day. The provisions of Sections 10-2 through 10-6 shall not apply to this section unless a specific requirement is referenced by this section.

**10-7.1.1.3** Centers housing children 6 years of age and older shall conform to the requirements for educational occupancies, except as noted herein.

**10-7.1.1.4** Where a facility houses more than one age group, the requirements for the younger shall apply unless the area housing the younger is maintained as a separate fire area.

*Exception*: Staff-to-client ratios of 10-7.1.1.1 shall be based on the number of clients in each age category.*

**10-7.1.2 Mixed Occupancies.**

(a) Where centers are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception to (a): In assembly occupancies used primarily for worship.*

(b) Centers in Apartment Buildings.

1. If the two exit accesses from the center enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire resistance rating. The smoke barrier shall be so located that there is an exit on each side of it.

2. The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

3. The door assembly in the smoke barrier shall have a fire protection rating of at least 20 minutes and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

**10-7.1.3 Special Definitions.** (None.)

**10-7.1.4 Classification of Occupancy.** For the purposes of this section, clients are classified in age groups as follows: clients under 6 years of age, and clients 6 years of age and older.

**10-7.1.5 Classification of Hazard of Contents.** The contents shall be classified as ordinary hazard in accordance with Section 4-2.

**10-7.1.6 Minimum Construction Requirements.**

**10-7.1.6.1** Centers shall not be located above the heights indicated for the types of construction given in Table 10-7.1.6.1. (*See 6-2.1.*)

**Table 10-7.1.6.1 Height and Construction Limits**

| Type of Construction | Age Group | Number of Stories (Stories are counted starting at floor of exit discharge) 1 | 2 | 3 | 4 and over |
|---|---|---|---|---|---|
| I (443), I (332), II (222) | 0 thru 5 | X | X | X | X |
| | 6 and older | X | X | X | X |
| II (111), III (211), V (111) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X | X† | N.P. |
| IV (2HH) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |
| II (000) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |
| III (200), V (000) | 0 thru 5 | X† | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |

X: Permitted construction type
N.P.: Not Permitted
X†: Permitted if entire building is protected throughout by an approved automatic sprinkler system.

**10-7.1.6.2 Location.** The story below the level of exit discharge may be used in buildings of any construction type other than Type II (000), Type III (200), and Type V (000). (*See 10-7.2.4.2.*)

**10-7.1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor but not less than one person for each 35 sq ft (3.3 sq m) of net floor area used by the clients.

**10-7.2 Means of Egress Requirements.**

**10-7.2.1 General.** (None.)

**10-7.2.2 Types of Exits.** (*See 10-2.2.*)

**10-7.2.2.1 Stairs.** Exit stairs shall be enclosed in accordance with Chapter 5.

**10-7.2.2.2 Areas of Refuge.** In buildings over five stories above ground level, areas of refuge shall be provided for occupants of day-care centers by horizontal exits.

**10-7.2.3 Capacity of Means of Egress.** (*See 10-2.3.*)

**10-7.2.4 Number of Exits.**

**10-7.2.4.1** Each floor occupied by clients shall have not less than two remote exits in accordance with Chapter 5.

**10-7.2.4.2** Where the story below the level of exit discharge is occupied as a day-care center, the following apply:

(a) One means of egress shall be an outside or interior stair in accordance with 5-2.2. An interior stair, if used, shall only serve the level below the level of exit discharge. The interior stair may communicate with the level of exit discharge; however, the exit route from the level of exit discharge shall not pass through the stair enclosure.

(b) The second means of egress may be via an unenclosed stairway separated from the level of exit discharge in accordance with 6-2.4.3. The path of egress travel on the level of exit discharge shall be protected in accordance with 5-1.3.4.

**10-7.2.5 Arrangement of Means of Egress.** *(Where the story below the exit discharge is used, see also 10-7.2.4.2.)*

**10-7.2.5.1** Means of egress shall be arranged in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**10-7.2.6 Travel Distance to Exits.**

**10-7.2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**10-7.2.6.2** Travel distance:

(a) Between any room door intended as exit access and an exit shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m);

(c) Between any point in a sleeping room and an exit access door of that room shall not exceed 50 ft (15 m).

*Exception: The travel distance in (a) and (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.*

**10-7.2.7 Discharge from Exits.** All exits shall discharge directly to the outside.

*Exception: As provided in 10-7.2.4.2.*

**10-7.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be provided in accordance with Section 5-8.

**10-7.2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with 10-2.9.

**10-7.2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**10-7.2.11 Special Features.**

**10-7.2.11.1*** Every closet door latch shall be such that children can open the door from inside the closet.

**10-7.2.11.2** Every bathroom door lock shall be designed to permit opening of the locked door from the outside in an emergency. The opening device shall be readily accessible to the staff.

**10-7.2.11.3 Panic Hardware or Fire Exit Hardware.** Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware.

**10-7.2.11.4 Windows for Rescue and Ventilation.** Every room or space normally subject to client occupancy, other than bathrooms, shall have at least one outside window for emergency rescue or ventilation. Such window shall be openable from the inside without the use of tools and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall be not more than 44 in. (112 cm) above the floor.

In rooms located greater than three stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Where the room or space has a door leading directly to the outside of the building.*

**10-7.3 Protection.**

**10-7.3.1 Protection of Vertical Openings.** Any vertical opening shall be enclosed and protected in accordance with Section 6-2.

**10-7.3.2 Protection from Hazards.**

**10-7.3.2.1** Rooms or spaces for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

*Exception: Food preparation facilities protected in accordance with 7-2.3 are not required to have openings protected between food preparation areas and dining areas. Where domestic cooking equipment is used for food warming or limited cooking, protection or segregation of food preparation facilities is not required if approved by the authority having jurisdiction.*

**10-7.3.2.2** Janitor closets shall be protected by an automatic sprinkler system, which may be in accordance with 7-7.1.2. Doors to janitor closets may have ventilating louvers.

**10-7.3.3 Interior Finish.**

**10-7.3.3.1** Interior finish for all walls and ceilings shall be Class A or Class B in accordance with Section 6-5. Interior finish in stairways, corridors, and lobbies shall be Class A.

**10-7.3.3.2** Floor coverings within corridors and exits shall be Class I or Class II in accordance with Section 6-5.

**10-7.3.4 Detection, Alarm, and Communications Systems.**

**10-7.3.4.1 General.** Day-care centers shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception No. 1: Day-care centers housed in one room.*

*Exception No. 2: Day-care centers with a required staff of fewer than four persons based on 10-7.1.1.1.*

**10-7.3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means and by operation of any required smoke detectors. (*See 10-7.3.4.5.*)

*Exception: Single station detectors.*

**10-7.3.4.3 Occupant Notification.** Occupant notification shall be by means of an audible alarm in accordance with 7-6.3.

**10-7.3.4.4 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Day-care centers with not more than 100 clients.*

**10-7.3.4.5 Detection.**

(a) A smoke detection system shall be installed in accordance with Section 7-6 with placement of detectors in each story in front of doors to the stairways and at no greater than 30 ft (9.1 m) spacing in the corridors of all floors containing the center. Detectors shall also be installed in lounges, recreation areas, and sleeping rooms in the center.

(b) Single station smoke detectors powered by the house electrical service shall be provided in all rooms used for sleeping.

*Exception: Centers housed in only one room.*

**10-7.3.5 Extinguishment Requirements.**

**10-7.3.5.1** Standpipes for fire department use shall be installed in all buildings of six stories or more housing day-care centers. (*See Section 7-7.*)

**10-7.3.6 Corridors.** Exit access corridors within day-care centers shall comply with 10-3.6.1. (*See 10-7.1.2.*)

**10-7.4 Special Provisions.** (None.)

**10-7.5 Building Services.**

**10-7.5.1 Utilities.**

**10-7.5.1.1** Utilities shall comply with the provisions of Section 7-1.

**10-7.5.1.2** Special protective covers for all electrical receptacles shall be installed in all areas occupied by children under 6 years of age.

**10-7.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**10-7.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**10-7.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**10-7.5.2.3** Any heating equipment in spaces occupied by children shall be provided with partitions, screens, or other means to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

**10-7.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**10-7.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 10-8 GROUP DAY-CARE HOMES

**10-8.1 General Requirements.**

**10-8.1.1 Application.**

**10-8.1.1.1*** This section establishes life safety requirements for group day-care homes in which at least 7 but not more than 12 clients receive care, maintenance, and supervision by other than their relatives or legal guardian(s) for less than 24 hours per day (generally within a dwelling unit). The provisions of Sections 10-2 through 10-6 shall not apply to this section unless a specific requirement is referenced by this section.

**10-8.1.1.2** The requirements detailed in Section 10-8 are based on a minimum staff-to-client ratio of two staff for up to 12 clients, with no more than three clients under age two. This staff-to-client ratio may be modified by the authority having jurisdiction where safeguards, in addition to those specified by this section, are provided.

**10-8.1.2 Mixed Occupancies.**

(a) Where a group home is located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception to (a): In assembly occupancies used primarily for worship.*

(b) Homes in Apartment Buildings.

1. If the two exit accesses from the home enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire resistance rating. The smoke barrier shall be so located that there is an exit on each side of it.

2. The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

3. The door assembly in the smoke barrier shall have a fire protection rating of at least 20 minutes and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

**10-8.1.3 Special Definitions.** (None.)

**10-8.1.4 Classification of Occupancy.** No Requirements.

**10-8.1.5 Classification of Hazard of Contents.** The contents shall be classified as ordinary hazard in accordance with Section 4-2.

**10-8.1.6 Minimum Construction Requirements.** (None.)

**10-8.1.7 Occupant Load.** No Special Requirements.

**10-8.2 Means of Egress Requirements.**

**10-8.2.1 General.** (None.)

**10-8.2.2 Types of Exits.** (*See 10-8.2.4.*)

**10-8.2.3 Capacity of Means of Egress.** (*See 10-2.3.*)

**10-8.2.4 Number of Exits.**

**10-8.2.4.1** Each floor occupied by clients shall have not less than two remote means of escape.

**10-8.2.4.2** Where spaces on the floor above the floor of exit discharge are used by clients, at least one means of egress shall be an exit discharging directly to the outside. The second means of escape may be a window in accordance with 10-2.11.1. No room or space shall be occupied for living or sleeping purposes that is accessible only by ladder, folding stairs, or through a trap door.

**10-8.2.4.3** Where clients are located on a story (basement) below the level of exit discharge, at least one means of egress shall be an exit discharging directly to the outside, and the vertical travel to ground level shall not exceed 8 ft (244 cm). The second means of escape may be a window in accordance with 10-2.11.1. No facility shall be located more than one story below the ground. Any stairway to the story above shall be cut off by a fire barrier containing a door of at least a 20-minute fire protection rating, equipped with a self-closing device.

**10-8.2.5 Arrangement of Means of Egress.** (*Where a story above or below the exit discharge is used, see 10-8.2.4.*)

**10-8.2.5.1** Means of egress shall be arranged in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**10-8.2.6 Travel Distance to Exits.** (*See 10-2.6.*)

**10-8.2.7 Discharge from Exits.** (*Where the story above or below the exit discharge is used, see 10-8.2.4.*)

**10-8.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be provided in accordance with Section 5-8.

**10-8.2.9 Emergency Lighting.** No Requirements.

**10-8.2.10 Marking of Means of Egress.** No Requirements.

**10-8.2.11 Special Requirements.**

**10-8.2.11.1*** Every closet door latch shall be such that children can open the door from the inside of the closet.

**10-8.2.11.2** Every bathroom door lock shall be designed to permit opening of the locked door from outside in an emergency. The opening device shall be readily accessible to the staff.

**10-8.3 Protection.**

**10-8.3.1 Protection of Vertical Openings.** The doorway between the level of exit discharge and any floor below shall be equipped with a door assembly having a 20-minute fire protection rating. Where the floor above the floor of exit discharge is used for sleeping purposes, there shall be a door assembly having a 20-minute fire protection rating at the top or bottom of each stairway.

**10-8.3.2 Protection from Hazards.** No Requirements.

**10-8.3.3 Interior Finish.**

**10-8.3.3.1** The interior finish in exits shall be Class A or B in accordance with Section 6-5.

**10-8.3.3.2** Interior finish in occupied spaces in the home shall be Class A, B or C, in accordance with Section 6-5.

**10-8.3.4 Detection, Alarm, and Communications Systems.**

**10-8.3.4.1** Within the group day-care home, smoke detectors shall be installed in accordance with 7-6.2.9.

*Exception: Houses housing clients 6 years of age or older if no sleeping facilities are provided.*

**10-8.3.4.2** Where the group day-care home is located within a building of another occupancy, such as in apartment or office buildings, any corridors serving the group day-care home shall be provided with a smoke detection system in accordance with Section 7-6, with placement of detectors at no greater than 30 ft (9.1 m) spacing.

**10-8.3.4.3** Single station smoke detectors powered by the house electrical service shall be provided in all rooms used for sleeping.

**10-8.4 Special Provisions.** (None.)

**10-8.5 Building Services.**

**10-8.5.1 Electrical Services.**

**10-8.5.1.1** Electrical wiring shall be installed in accordance with Section 7-1.

**10-8.5.1.2** Special protective covers for electrical receptacles shall be installed in all areas occupied by children under 6 years of age.

**10-8.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**10-8.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**10-8.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**10-8.5.2.3** Any heating equipment in spaces occupied by children shall be provided with partitions, screens or other means, to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

## SECTION 10-9 FAMILY DAY-CARE HOMES

**10-9.1 General Requirements.**

**10-9.1.1 Application.**

**10-9.1.1.1*** This section establishes life safety requirements for family day-care homes in which fewer than 7 clients receive care, maintenance, and supervision by other than their relatives or legal guardian(s) for less than 24 hours per day (generally within a dwelling unit). The provisions of Sections 10-2 through 10-6 shall not apply to this section unless a specific requirement is referenced by this section.

**10-9.1.1.2** The requirements detailed in Section 10-9 are based on a minimum staff-to-client ratio of one staff for up to six clients, including the caretakers own children under age six, with no more than two children under age two.

**10-9.1.2 Mixed Occupancies.** Where family day-care homes are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception: In assembly occupancies used primarily for worship.*

**10-9.1.3 Special Definitions.** (None.)

**10-9.1.4 Classification of Occupancies.** No Requirements.

**10-9.1.5 Classification of Hazard of Contents.** (Not specifically classified.)

**10-9.1.6 Minimum Construction Requirements.** (None.)

**10-9.1.7 Occupant Load.** No Special Requirements.

**10-9.2 Means of Egress Requirements.**

**10-9.2.1 General.** (None.)

**10-9.2.2 Types of Exits.** (*See 10-9.2.4.*)

**10-9.2.3 Capacity of Means of Egress.** (*See 10-2.3.*)

**10-9.2.4 Number of Exits.**

**10-9.2.4.1** Every room used for sleeping, living, or dining purposes shall have at least two means of escape, at least one of which shall be a door or stairway providing a means of unobstructed travel to the outside of the building at street or ground level. The second means of escape may be a window in accordance with 10-2.11.1. No room or space shall be occupied for living or sleeping purposes that is accessible only by a ladder, folding stairs, or through a trap door.

**10-9.2.4.2** Where clients are located on a floor (basement) below the level of exit discharge, at least one means of egress shall be an exit discharging directly to the outside, and the vertical travel to ground level shall not exceed 8 ft (244 cm). The second means of escape may be a window in accordance with 10-2.11.1. No facility shall be located more than one story below the ground.

**10-9.2.5 Arrangement of Means of Egress.** (*See 10-9.2.4.*)

**10-9.2.6 Travel Distance to Exits.** (*See 10-2.6.*)

**10-9.2.7 Discharge from Exits.** (*See 10-9.2.4.*)

**10-9.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be in accordance with Section 5-8.

**10-9.2.9 Emergency Lighting.** No Requirements.

**10-9.2.10 Marking of Means of Egress.** No Requirements.

**10-9.2.11 Special Features.**

**10-9.2.11.1** Each door in a means of egress shall not be less than 28 in. (71 cm) wide.

**10-9.2.11.2*** Every closet door latch shall be such that children can open the door from inside the closet.

**10-9.2.11.3** Every bathroom door lock shall be designed to permit the opening of the locked door from the outside in an emergency. The opening device shall be readily accessible to the staff.

**10-9.3 Protection.**

**10-9.3.1 Protection of Vertical Openings.** (No special provisions.)

**10-9.3.2 Protection from Hazards.** No Requirements.

**10-9.3.3 Interior Finish.**

**10-9.3.3.1** The interior finish in corridors, stairways, lobbies, and exits shall be Class A or B in accordance with Section 6-5.

**10-9.3.3.2** Interior finish in occupied spaces in the home shall be Class A, B, or C, in accordance with Section 6-5.

**10-9.3.4 Detection, Alarm, and Communications Systems.**

**10-9.3.4.1** Within the family day-care home, smoke detectors shall be installed in accordance with 7-6.2.9.

*Exception: Homes housing clients 6 years of age or older if no sleeping facilities are provided.*

**10-9.3.4.2** Where the family day-care home is located within a building of another occupancy such as in apartment or office buildings, any corridors serving the family day-care home shall be provided with a smoke detection system in accordance with Section 7-6, with placement of detectors at no greater than 30 ft (9.1 m) spacing.

**10-9.3.4.3** Single station smoke detectors powered by the house electrical service shall be provided in all rooms used for sleeping.

**10-9.4 Special Provisions.** No Requirements.

**10-9.5 Building Services.**

**10-9.5.1 Electrical Services.**

**10-9.5.1.1** Electrical wiring shall be installed in accordance with Section 7-1.

**10-9.5.1.2** Special protective covers for all electrical receptacles shall be installed in all areas occupied by children in homes for children under 6 years of age.

**10-9.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**10-9.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**10-9.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**10-9.5.2.3** Any heating equipment in spaces occupied by children shall be provided with partitions, screens, or other means to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

# CHAPTER 11 EXISTING EDUCATIONAL OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 11-1 GENERAL REQUIREMENTS

**11-1.1 Application.**

**11-1.1.1** The requirements of this chapter apply to existing buildings.

**11-1.1.2 Reserved.**

**11-1.1.3** Educational occupancies housing classes over the twelfth grade need not comply with this chapter but shall comply with the following requirements:

(a) Instructional Building — Business Occupancy

(b) Classrooms under 50 persons — Business Occupancy

(c) Classrooms 50 persons and over — Assembly Occupancy

(d) Laboratories, Instructional — Business Occupancy

(e) Laboratories, Non-Instructional — Industrial.

**11-1.2 Mixed Occupancies.** *(See also 11-1.4.)*

**11-1.2.1** Where other types of occupancy occur in the same building as an educational occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

*Exception: As otherwise specified in this chapter.*

**11-1.2.2 Assembly and Educational.** Spaces subject to assembly occupancy shall comply with Chapter 9 including Special Provisions for Assembly Occupancies in Buildings of Other Occupancy, which provides that where auditorium and gymnasium exits lead through corridors or stairways also serving as exits for other parts of the building, the exit capacity shall be sufficient to permit simultaneous exit from auditorium and classroom sections.

*Exception: In the case of an assembly occupancy of a type suitable only for use of the school occupant load (and therefore not subject to simultaneous occupancy), the same exit capacity may serve both sections.*

**11-1.2.3 Dormitory and Classrooms.** Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 17 in addition to complying with Chapter 11. Where classroom and dormitory sections are not subject to simultaneous occupancy, the same exit capacity may serve both sections.

**11-1.3 Special Definitions.**

**Common Atmosphere.** A common atmosphere exists between rooms, spaces, or areas within a building that are not separated by an approved smoke barrier.

**Flexible Plan and Open Plan Educational Buildings.** Includes every building or portion of a building designed for multiple teaching stations.

(a) Flexible plan buildings have movable corridor walls and movable partitions of full-height construction with doors leading from rooms to corridors.

(b) Open plan buildings have rooms and corridors delineated by use of tables, chairs, desks, bookcases, counters, low-height 5-ft (152-cm) partitions, or similar furnishings.

**Interior Room.** A room whose only means of egress is through an adjoining or intervening room that is not an exit.

**Room.** For the purposes of this chapter, a room is a space or area bounded by any obstructions to egress that at any time enclose more than 80 percent of the perimeter of the space or area. Openings of less than 3 ft (91 cm) clear width and less than 6 ft 8 in. (203 cm) high shall not be considered in computing the unobstructed perimeter.

**Separate Atmosphere.** A separate atmosphere exists between rooms, spaces, or areas that are separated by an approved smoke barrier.

**Separate Means of Egress.** A means of egress separated in such a manner from other required means of egress to provide an atmospheric separation that precludes contamination of both means of egress by the same fire. *(See Section 6-3.)*

**Story of Exit Discharge.** The story of exit discharge is that story or stories from which the exits are primarily doors discharging directly outside essentially at grade (level of exit discharge). Where no such story exists, the story of exit discharge shall be that story that involves the fewest number of stair risers needed to reach the level of exit discharge.

**11-1.4 Classification of Occupancy.** *(See 4-1.3.)*

**11-1.4.1** Educational occupancies shall include all buildings used for educational purposes through the twelfth grade by 6 or more persons for 4 or more hours per day or more than 12 hours per week.

**11-1.4.2** Educational occupancy includes part-day, nursery schools, kindergartens, and other schools whose purpose is primarily educational even though the children are of preschool age.

**11-1.4.3** In cases where instruction is incidental to some other occupancy, the section of this *Code* governing such other occupancy shall apply.

**11-1.4.4** Adult day-care shall include any building used for nonsleeping purposes for less than 24 hours per day to house one or more well, ambulatory or semi-ambulatory (nonbedridden) adults, none of whom requires medical injections by staff personnel. For the purposes of this definition, adults shall include those who:

(a) May require the administration of dry or liquid oral medication by staff personnel when and as prescribed by a licensed medical practitioner, and

(b) May require limited attendance, supervision, or observation, and

(c) Exhibit acceptable behavior (not harmful to self or others), and

(d) Are able to toilet self, and

(e) Are able to feed self, and

(f) Possess adequate mobility, and

(g) Are otherwise essentially homebound.

**11-1.4.5** Other occupancies associated with educational institutions shall be in accordance with the appropriate parts of this

*Code. (See Chapters 13, 17, 19, 20, 28, 29, and 30, and 1-4.7.)*

**11-1.5 Classification of Hazard of Contents.** Contents of educational occupancies shall be classified in accordance with the provisions of Section 4-2.

**11-1.6 Minimum Construction Requirements.** No Requirements.

**11-1.7 Occupant Load.**

**11-1.7.1** The occupant load of educational buildings or any individual story or section thereof for the purpose of determining exits shall be as determined by the authority having jurisdiction but not less than one person for each 20 sq ft (1.9 sq m) of net classroom area or 50 sq ft (4.6 sq m) of net area of shops, laboratories, and similar vocational rooms. In day-care centers, the occupant load shall be not less than one person for each 35 sq ft (3.3 sq m) of net area.

**11-1.7.2** The occupant load of an area having fixed seats shall be determined by the number of fixed seats installed. Required aisle space serving the fixed seats shall not be used to increase the occupant load.

**11-1.7.3** The capacity of an educational occupancy or a portion thereof may be modified from that specified above if the necessary aisles and exits are provided. An approved aisle or seating diagram shall be required by the authority having jurisdiction to substantiate such a modification.

**11-1.7.4** The occupant load for determining exit requirements of individual lecture rooms, gymnasiums, or cafeterias used for assembly purposes of more than 50 persons shall be determined in accordance with 9-1.7 of this *Code*.

## SECTION 11-2 MEANS OF EGRESS REQUIREMENTS

**11-2.1 General.**

**11-2.1.1** Means of egress shall be in accordance with Chapter 5 and this section.

**11-2.1.2** Rooms normally occupied by preschool, kindergarten, or first-grade pupils shall not be located above or below the story of exit discharge. Rooms normally occupied by second-grade pupils shall not be located more than one story above the story of exit discharge.

**11-2.2 Means of Egress Components.**

**11-2.2.1** Components of means of egress shall be limited to the types described in 10-2.2.2 through 11-2.2.7.

**11-2.2.2 Doors.**

**11-2.2.2.1** Doors shall comply with 5-2.1.

**11-2.2.2.2 Panic Hardware or Fire Exit Hardware.** Any required exit door subject to use by 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with 5-2.1.7.

**11-2.2.2.3** Special locking arrangements complying with 5-2.1.6 are permitted.

**11-2.2.2.4 Door Closure.** Any exit door designed to normally be kept closed shall conform with 5-2.1.8.

**11-2.2.2.5** Only one locking or latching device shall be permitted on a door or a leaf of a pair of doors.

**11-2.2.3* Stairs.**

**11-2.2.3.1** Stairs shall comply with 5-2.2.

**11-2.2.3.2** Stairs shall be Class A.

*Exception: Class B stairs shall be permitted where not used for student access.*

**11-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**11-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**11-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**11-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**11-2.3 Capacity of Means of Egress.**

**11-2.3.1** Capacity of means of egress shall be in accordance with Section 5-3.

**11-2.3.2** The same exit capacity required for any individual floor may be counted as simultaneously serving all floors above the first story or floor of exit discharge.

**11-2.3.3 Minimum Corridor Width.**

**11-2.3.3.1** Exit access corridors shall be not less than 6 ft (183 cm) clear width.

**11-2.3.3.2** Drinking fountains or other equipment, fixed or movable, shall not be so placed as to obstruct the required minimum 6 ft (183 cm) corridor width.

**11-2.4 Number of Exits.** There shall be at least two exits available from every floor area. *(See Section 5-4.)*

**11-2.5 Arrangement of Means of Egress.** *(See also Section 5-5.)*

**11-2.5.1** Arrangement of means of egress shall be in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**11-2.5.2** Every room or space with a capacity of more than 50 persons or more than 1,000 sq ft (93 sq m) in area shall have at least two doorways as remote from each other as practicable. Such doorways shall provide access to separate exits but, where egress is through corridors, may open upon a common corridor leading to separate exits in opposite directions.

**11-2.5.3** Doors that swing into an exit access corridor shall be recessed to prevent interference with corridor traffic; any doors not so recessed shall open 180 degrees to stop against the wall. Doors in any position shall not reduce the required corridor width by more than one-half.

**11-2.5.4 Aisles.**

**11-2.5.4.1** Where there are more than 60 seats, every aisle shall be not less than 3 ft (91 cm) wide where serving seats on

one side only and not less than 3 ft 6 in. (107 cm) where serving seats on both sides. Where serving 60 seats or less, aisles shall not be less than 30 in. (76 cm) wide. The space between parallel rows of seats does not constitute an aisle. No more than six seats shall intervene between any seat and an aisle.

**11-2.5.5* Exterior Corridors or Balconies.**

**11-2.5.5.1*** Where exterior corridors or balconies are provided as means of egress, they shall open to the outside air except for railings or balustrades with stairs or level exits to grade not over the allowable travel distance apart and so located that an exit will be available in either direction from the door to any individual room or space, with dead ends not to exceed 20 ft (6.1 m). If balconies are enclosed by glass or in any other manner, they shall be treated as interior corridors.

**11-2.5.5.2** The floors of balconies (exterior corridors) and stairs shall be solid, without openings, and shall comply with requirements for outside stairs as regards balustrades or railings, width and pitch of stairs, and other details, but are not required to be shielded from fire within the building by blank walls, wired glass windows or the like where the stairs are located on the side of the balcony or corridor away from the building and are separated from the building by the full required width of the balcony or corridor. Regardless of other provisions, exterior balconies and stairs may be of the same type of construction as the building that they serve.

**11-2.6 Travel Distance to Exits.** Travel distance to an exit shall not exceed 150 ft (45 m) from any point in a building. *(See also Section 5-6.)*

*Exception No. 1: The travel distance may be increased to 200 ft (60 m) in educational occupancies protected throughout by an approved automatic sprinkler system.*

*Exception No. 2: Previously approved travel distances.*

**11-2.7 Discharge from Exits.** Discharge from exits shall be arranged in accordance with Section 5-7.

*Exception: Every classroom or room used for educational purposes or student occupancy below the floor of exit discharge shall have access to at least one exit that leads directly to the exterior at level of discharge without entering the floor above.*

**11-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**11-2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with Section 5-9 in the following areas:

(a) In all interior stairs and corridors.

(b) In all normally occupied spaces.

*Exception to (b):*

*1. Administrative areas.*

*2.* General classrooms.*

*3. Mechanical rooms and storage areas.*

(c) In flexible and open plan buildings.

(d) In all portions of buildings that are interior or windowless.

**11-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

*Exception: Signs are not required in situations where location of exits is otherwise obvious and familiar to all occupants, such as in small elementary school buildings.*

**11-2.11 Special Features.**

**11-2.11.1* Windows for Rescue and Ventilation.** Every room or space used for classroom or other educational purposes or normally subject to student occupancy shall have at least one outside window for emergency rescue or ventilation. Such window shall be openable from the inside without the use of tools and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall be not more than 44 in. (112 cm) above the floor. In rooms located greater than three stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Where the room or space has a door leading directly to the outside of the building.*

*Exception No. 3: Awning or hopper type windows that are hinged or subdivided to provide a clear opening not less than 600 sq in. (0.39 sq m) in area, nor any dimension less than 22 in. (55.9 cm) may be continued in use. Screen walls or devices in front of required windows shall not interfere with normal rescue requirements.*

*Exception No. 4: Where the room or space complies with the following:*

*(a) Doors exist that allow travel between adjacent classrooms and, when used to travel from classroom to classroom, provide direct access to exits in both directions or direct access to an exit in one direction and to a separate smoke compartment that provides access to another exit in the other direction, and*

*(b) the corridor is separated from the classrooms by a wall that resists the passage of smoke, and all doors between the classrooms and the corridor are self-closing or automatic-closing in accordance with 5-2.1.8, and*

*(c) the length of travel to exits along such paths shall not exceed 150 ft (45 m), and*

*(d) each communicating door shall be marked in accordance with Section 5-10, and*

*(e) no locking device shall be allowed on the communicating doors.*

## SECTION 11-3 PROTECTION

**11-3.1 Protection of Vertical Openings.**

**11-3.1.1** Any vertical opening shall be enclosed and protected in accordance with Section 6-2.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7, unprotected vertical openings connecting not more than three floors may be permitted in accordance with 6-2.4.4.*

**11-3.1.2** Stairs shall be enclosed in accordance with Section 6-2.

*Exception: Stairway enclosure will not be required for a stairway serving only one adjacent floor except a basement.*

*Such stairway shall not be connected with stairways serving other floors nor with corridors serving other than the two floors involved.*

**11-3.2 Protection from Hazards.**

**11-3.2.1** Rooms or spaces used for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such areas may be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

**11-3.2.2** Food preparation facilities shall be protected in accordance with 7-2.3 and are not required to have openings protected between food preparation areas and dining areas.

**11-3.2.3** Janitor closets shall be protected by an automatic sprinkler system, which may be in accordance with 7-7.1.2. Doors to janitor closets may have ventilating louvers.

**11-3.2.4** Laboratories that use chemicals shall comply with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals.*

**11-3.2.5** Stages shall be protected in accordance with Chapter 9.

**11-3.3 Interior Finish.**

**11-3.3.1** Interior finish, in accordance with Section 6-5, shall be as follows:

(a) Exits — Class A

(b) Corridors and lobbies — Class A or B

*Exception to (b): Fixtures and low-height partitions not over 5 ft (152 cm) high may be Class C.*

(c) All other locations — Class A, B, or C

*Exception*: The exposed portions of structural members complying with the requirements for Type IV (2HH) construction may be permitted.*

**11-3.3.2 Interior Floor Finish.** No Requirements.

**11-3.4 Detection, Alarm, and Communications Systems.**

**11-3.4.1 General.** Educational occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**11-3.4.2 Initiation.**

**11-3.4.2.1** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.1(a).

*Exception: In buildings where all normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, the manual pull stations may be omitted except in locations specifically designated by the authority having jurisdiction.*

**11-3.4.2.2** In buildings provided with automatic sprinkler protection, the operation of the sprinkler system shall automatically activate the fire alarm system, in addition to the initiation means required above.

**11-3.4.3 Notification.**

**11-3.4.3.1** Occupant notification shall be by means of an audible alarm in accordance with 7-6.3.

**11-3.4.3.2** Where acceptable to the authority having jurisdiction, the fire alarm system may be used to designate class change provided that the fire alarm is distinctive in signal and overrides all other use.

**11-3.5 Extinguishment Requirements.**

**11-3.5.1** Wherever student occupancy occurs below the level of exit discharge, every portion of such floor shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7. Where student occupancy does not occur on floors below the level of exit discharge, such floors shall be separated from the rest of the building by 1-hour fire resistance-rated construction or shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

**11-3.6 Interior Corridors.**

**11-3.6.1** Every interior corridor, including corridors in flexible plan buildings, shall be of smoke resistant construction having not less than a twenty-minute fire resistance rating, and all openings shall be protected with doors, frames, and hardware, including closers, that shall all have a fire protection rating of at least 20 minutes.

*Exception No. 1: Such corridor protection shall not be required where all classrooms served by such corridors have at least one door directly to the outside or to an exterior balcony or corridor as in 11-2.5.5.*

*Exception No. 2: Where permitted by the authority having jurisdiction, the corridor may be separated from all other*

*areas by non-rated partitions where the building is protected throughout by an approved automatic sprinkler system with valve supervision.*

*Exception No. 3: Existing doors may be 1¾-in. (4.4-cm) solid bonded wood core doors or the equivalent.*

**11-3.6.2** Clothing and personal effects shall not be stored in corridors and lobbies.

*Exception: Metal lockers may be installed in corridors for storage of clothing and personal effects providing the corridor width is maintained.*

**11-3.7 Subdivision of Building Spaces.**

**11-3.7.1** School buildings shall be subdivided into compartments by smoke barriers complying with Section 6-3 when:

(a) The maximum area of a compartment, including the aggregate area of all floors having a common atmosphere, exceeds 30,000 sq ft (2800 sq m); or

(b) Where the length or width of the building exceeds 300 ft (91 m).

*Exception No. 1: Where all classrooms have exterior exit access in accordance with 5-5.3.*

*Exception No. 2: Buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**11-3.7.2** The maximum area of a smoke compartment shall not exceed 30,000 sq ft (2800 sq m) with no dimension exceeding 300 ft (91 m).

## SECTION 11-4 SPECIAL PROVISIONS

**11-4.1 Windowless or Underground Buildings.** Windowless buildings and underground structures shall comply with Section 30-7.

**11-4.2 High Rise Buildings.** Reserved.

**11-4.3 Flexible Plan and Open Plan Buildings.** Flexible plan and open plan buildings shall also comply with the provisions of Section 11-6.

**11-4.4 Operating Features.** (*See Chapter 31.*)

## SECTION 11-5 BUILDING SERVICES

**11-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**11-5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**11-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**11-5.2.2** Unvented fuel-fired heating equipment shall be prohibited.

**11-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**11-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 11-6 FLEXIBLE PLAN AND OPEN PLAN BUILDINGS

**11-6.1 General Requirements.**

**11-6.1.1** Flexible and open plan buildings shall comply with Sections 11-1 through 11-5 except as modified by this section.

**11-6.2 Means of Egress Requirements.**

**11-6.2.1** Each room occupied by more than 300 persons shall have two or more means of egress entering into separate atmospheres. Where three or more means of egress are required, not more than two of them shall enter into the same atmosphere.

**11-6.2.2** Exit access from interior rooms may pass through an adjoining or an intervening room provided that the travel distances do not exceed those set forth in 11-2.6. Foyers and lobbies constructed as required for corridors shall not be construed as intervening rooms.

**11-6.2.3** Where the only means of egress from an interior room or rooms is through an adjoining or intervening room, smoke detectors shall be installed in the area of the common atmosphere through which the means of egress must pass. The detectors shall actuate alarms audible in the interior room and shall be connected to the school fire alarm system.

*Exception No. 1: Smoke detectors are not required where the aggregate occupant load is less than ten.*

*Exception No. 2: Interior rooms used exclusively for mechanical and public utility service to the buildings.*

*Exception No. 3: Where the building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**11-6.2.4** Flexible plan schools may have walls and partitions rearranged periodically only after revised plans or diagrams have been approved by the authority having jurisdiction.

**11-6.2.5** Open plan schools shall have furniture, fixtures, or low-height partitions so arranged that exits will be clearly visible and unobstructed, and exit paths are direct, not circuitous. If paths or corridors are established, they shall be at least as wide as required by 11-2.3.3.

**11-6.2.6** Where existing flexible plan or open plan schools are remodeled and subdivided into rooms or spaces utilizing full height partitions, such schools shall comply with requirements of Section 10-1 through 10-5.

## SECTION 11-7 DAY-CARE CENTERS

**11-7.1 General Requirements.**

**11-7.1.1 Application.**

**11-7.1.1.1*** The requirements detailed in Section 11-7, Day-Care Centers (more than 12 clients), are based on the minimum staff-to-client ratios that follow:

| Staff Ratio | Age |
|---|---|
| 1:3 | 0 to 2 |
| 1:5 | 2 to 3 |
| 1:10 | 3 to 5 |
| 1:12 | 5 to 7 |
| 1:15 | 7 and over |

The staff-to-client ratios may be modified by the authority having jurisdiction where safeguards, in addition to those specified by this section, are provided.

**11-7.1.1.2*** This section establishes life safety requirements for day-care centers in which more than 12 clients receive care, maintenance, and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day. The provisions of Sections 11-2 through 11-6 shall not apply to this section unless a specific requirement is referenced by this section.

**11-7.1.1.3** Centers housing children 6 years of age and older shall conform to the requirements for educational occupancies, except as noted herein.

**11-7.1.1.4** Where a facility houses more than one age group, the requirements for the younger shall apply, unless the area housing the younger is maintained as a separate fire area.

*Exception*: Staff-to-client ratios of 11-7.1.1.1 shall be based on the number of clients in each age category.*

**11-7.1.2 Mixed Occupancies.**

(a) Where centers are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception to (a): In assembly occupancies used primarily for worship.*

(b) Centers in Apartment Buildings.

1. If the two exit accesses from the center enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire resistance rating. The smoke barrier shall be so located that there is an exit on each side of it.

2. The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

*Exception to (b)2: Existing doors not less than 32 in. (81 cm) wide may be accepted.*

3. The door assembly in the smoke barrier shall have a fire protection rating of at least 20 minutes and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

**11-7.1.3 Special Definitions.** (None.)

**11-7.1.4 Classification of Occupancy.** For the purposes of this section, clients are classified in age groups as follows: clients under 6 years of age, and clients 6 years of age and older.

**11-7.1.5 Classification of Hazard of Contents.** The contents shall be classified as ordinary hazard in accordance with Section 4-2.

**11-7.1.6 Minimum Construction Requirements.**

**11-7.1.6.1** Centers shall not be located above the heights indicated for the types of construction given in Table 11-7.1.6.1. (*See 6-2.1.*)

**Table 11-7.1.6.1 Height and Construction Limits**

| Type of Construction | Age Group | Number of Stories (Stories are counted starting at floor of exit discharge) 1 | 2 | 3 | 4 and over |
|---|---|---|---|---|---|
| I (443), I (332), II (222) | 0 thru 5 | X | X | X | X |
| | 6 and older | X | X | X | X |
| II (111), III (211), V (111) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X | X† | N.P. |
| IV (2HH) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |
| II (000) | 0 thru 5 | X | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |
| III (200), V (000) | 0 thru 5 | X† | X† | N.P. | N.P. |
| | 6 and older | X | X† | N.P. | N.P. |

X: Permitted construction type
N.P.: Not Permitted
X†: Permitted if entire building is protected throughout by an approved automatic sprinkler system.

**11-7.1.6.2 Location.** The story below the level of exit discharge may be used in buildings of any construction type other than Type II (000), Type III (200), and Type V (000). (*See 11-7.2.4.2.*)

**11-7.1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor but not less than one person for each 35 sq ft (3.3 sq m) of net floor area used by the clients.

**11-7.2 Means of Egress Requirements.**

**11-7.2.1 General.** (None.)

**11-7.2.2 Types of Exits.** (*See 11-2.2.*)

**11-7.2.2.1 Stairs.** Exit stairs shall be enclosed in accordance with Chapter 5.

**11-7.2.2.2 Areas of Refuge.** In buildings over five stories above ground level, areas of refuge shall be provided for occupants of day-care centers either by smokeproof enclosures or horizontal exits.

**11-7.2.3 Capacity of Means of Egress.** (*See 11-2.3.*)

**11-7.2.4 Number of Exits.**

**11-7.2.4.1** Each floor occupied by clients shall have not less than two remote exits in accordance with Chapter 5.

**11-7.2.4.2** Where the story below the level of exit discharge is occupied as a day care center, the following apply:

(a) One means of egress shall be an outside or interior stair in accordance with 5-2.2. An interior stair, if used, shall only serve the level below the level of exit discharge. The interior stair may communicate with the level of exit discharge; however, the exit route from the level of exit discharge shall not pass through the stair enclosure.

(b) The second means of egress may be via an unenclosed stairway separated from the level of exit discharge in accordance with 6-2.4.3. The path of egress travel on the level of exit discharge shall be protected in accordance with 5-1.3.4.

*Exception to (b): The path of travel on the level of exit discharge may be unprotected if the level of exit discharge and the level below the level of exit discharge are protected throughout by a smoke detection system or an approved automatic sprinkler system.*

**11-7.2.5 Arrangement of Means of Egress.** (*Where the story below the exit discharge is used, see also 11-7.2.4.2.*)

**11-7.2.5.1** Means of egress shall be arranged in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**11-7.2.6 Travel Distance to Exits.**

**11-7.2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**11-7.2.6.2** Travel distance:

(a) Between any room door intended as exit access and an exit shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m);

(c) Between any point in a sleeping room and an exit access door of that room shall not exceed 50 ft (15 m).

*Exception: The travel distance in (a) and (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**11-7.2.7 Discharge from Exits.** All exits shall discharge directly to the outside.

*Exception: As provided in 11-7.2.4.2.*

**11-7.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be provided in accordance with Section 5-8.

**11-7.2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with 11-2.9.

**11-7.2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**11-7.2.11 Special Features.**

**11-7.2.11.1*** Every closet door latch shall be such that children can open the door from inside the closet.

**11-7.2.11.2** Every bathroom door lock shall be designed to permit opening of the locked door from the outside in an emergency. The opening device shall be readily accessible to the staff.

**11-7.2.11.3 Panic Hardware or Fire Exit Hardware.** Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware.

**11-7.2.11.4 Windows for Rescue and Ventilation.** Every room or space normally subject to client occupancy, other than bathrooms, shall have at least one outside window for emergency rescue or ventilation. Such window shall be openable from the inside without the use of tools and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall be not more than 44 in. (112 cm) above the floor.

In rooms located greater than three stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Where the room or space has a door leading directly to the outside of the building.*

**11-7.3 Protection.**

**11-7.3.1 Protection of Vertical Openings.** Any vertical opening shall be enclosed and protected in accordance with Section 6-2.

**11-7.3.2 Protection from Hazards.**

**11-7.3.2.1** Rooms or spaces for the storage, processing, or use of the materials specified in this section shall be protected in accordance with the following:

(a) Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials in quantities deemed hazardous by recognized standards, or fuel shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such rooms or spaces may be protected by an automatic extinguishing system as set forth in Section 6-4.

(b) Rooms or spaces used for processing or use of combustible supplies in quantities considered hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquids in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors and shall also be protected by an automatic extinguishing system as set forth in Section 6-4.

(c) Boiler and furnace rooms, laundries, and maintenance shops, including woodworking and painting areas, shall be separated from the remainder of the building by construction having not less than a 1-hour fire resistance rating with all openings protected by self-closing or smoke-actuated fire doors, or such areas shall be protected throughout by an approved automatic extinguishing system as set forth in Section 6-4.

*Exception to (c): Rooms enclosing air-handling equipment.*

(d)* Where automatic extinguishing systems are used to meet the requirements of this section, the rooms or spaces shall be separated from the remainder of the building by construction which resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, the protection may be in accordance with 7-7.1.2.

*Exception: Food preparation facilities protected in accordance with 7-2.3 are not required to have openings protected between food preparation areas and dining areas. Where domestic cooking equipment is used for food warming or limited cooking, protection or segregation of food preparation facilities is not required if approved by the authority having jurisdiction.*

**11-7.3.2.2** Janitor closets shall be protected by an automatic sprinkler system, which may be in accordance with 7-7.1.2. Doors to janitor closets may have ventilating louvers.

**11-7.3.3 Interior Finish.**

**11-7.3.3.1** Interior finish for all walls and ceilings shall be Class A or Class B in accordance with Section 6-5.

**11-7.3.4 Detection, Alarm, and Communications Systems.**

**11-7.3.4.1 General.** Day-care centers shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception No. 1: Day-care centers housed in one room.*

*Exception No. 2: Day-care centers with a required staff of fewer than four persons based on 11-7.1.1.1.*

**11-7.3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means and by operation of any required smoke detectors. (*See 11-7.3.4.5.*)

*Exception: Single station detectors.*

**11-7.3.4.3 Occupant Notification.** Occupant notification shall be by means of an audible alarm in accordance with 7-6.3.

**11-7.3.4.4 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Day-care centers with not more than 100 clients.*

**11-7.3.4.5 Detection.**

(a) A smoke detection system shall be installed in accordance with Section 7-6 with placement of detectors in each story in front of doors to the stairways and at no greater than 30 ft (9.1 m) spacing in the corridors of all floors containing the center. Detectors shall also be installed in lounges, recreation areas, and sleeping rooms in the center.

(b) Single station smoke detectors shall be provided in all rooms used for sleeping.

*Exception No. 1: Centers housing clients 6 years of age or older if no sleeping facilities are provided.*

*Exception No. 2: Centers housed in only one room.*

**11-7.3.5 Extinguishment Requirements.**

**11-7.3.5.1** Standpipes for fire department use shall be installed in all buildings of six stories or more housing day-care centers. (*See Section 7-7.*)

**11-7.3.6 Corridors.** Exit access corridors within day-care centers shall comply with 11-3.6.1. (*See 11-7.1.2.*)

**11-7.4 Special Provisions.** (None.)

**11-7.5 Building Services.**

**11-7.5.1 Utilities.**

**11-7.5.1.1** Utilities shall comply with the provisions of Section 7-1.

**11-7.5.1.2** Special protective covers for all electrical receptacles shall be installed in all areas occupied by children under 6 years of age.

**11-7.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**11-7.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**11-7.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**11-7.5.2.3** Any heating equipment in spaces occupied by children shall be provided with partitions, screens, or other means to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

**11-7.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**11-7.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 11-8 GROUP DAY-CARE HOMES

**11-8.1 General Requirements.**

**11-8.1.1 Application.**

**11-8.1.1.1*** This section establishes life safety requirements for group day-care homes in which at least 7 but not more than 12 clients receive care, maintenance, and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day (generally within a dwelling unit). The provisions of Sections 11-2 through 11-6 shall not apply to this section unless a specific requirement is referenced by this section.

**11-8.1.1.2** The requirements detailed in Section 11-8 are based on a minimum staff-to-client ratio of two staff for up to 12 clients, with no more than three clients under age two. This staff-to-client ratio may be modified by the authority having jurisdiction where safeguards, in addition to those specified by this section, are provided.

**11-8.1.2 Mixed Occupancies.**

(a) Where a group home is located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception to (a): In assembly occupancies used primarily for worship.*

(b) Homes in Apartment Buildings.

1. If the two exit accesses from the home enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire resistance rating. The smoke barrier shall be so located that there is an exit on each side of it.

2. The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

*Exception to (b)2: Existing doors not less than 32 in. (81 cm) wide may be accepted.*

3. The door assembly in the smoke barrier shall have a fire protection rating of at least 20 minutes and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

**11-8.1.3 Special Definitions.** (None.)

**11-8.1.4 Classification of Occupancy.** No Requirements.

**11-8.1.5 Classification of Hazard of Contents.** The contents shall be classified as ordinary hazard in accordance with Section 4-2.

**11-8.1.6 Minimum Construction Requirements.** (None.)

**11-8.1.7 Occupant Load.** No Special Requirements.

**11-8.2 Means of Egress Requirements.**

**11-8.2.1 General.** (None.)

**11-8.2.2 Types of Exits.** (*See 11-8.2.4.*)

**11-8.2.3 Capacity of Means of Egress.** (*See 11-2.3.*)

**11-8.2.4 Number of Exits.**

**11-8.2.4.1** Each floor occupied by clients shall have not less than two remote means of escape.

**11-8.2.4.2** Where spaces on the floor above the floor of exit discharge are used by clients, at least one means of egress shall be an exit discharging directly to the outside. The second means of escape may be a window in accordance with 11-2.11.1. No room or space shall be occupied for living or sleeping purposes that is accessible only by ladder, folding stairs, or through a trap door.

**11-8.2.4.3** Where clients are located on a story (basement) below the level of exit discharge, at least one means of egress shall be an exit discharging directly to the outside and the vertical travel to ground level shall not exceed 8 ft (244 cm). The second means of escape may be a window in accordance with 11-2.11.1. No facility shall be located more than one story below the ground. Any stairway to the story above shall be cut off by a fire barrier containing a door of at least a 20-minute fire protection rating, equipped with a self-closing device.

**11-8.2.5 Arrangement of Means of Egress.** *(Where a story above or below the exit discharge is used, see 11-8.2.4.)*

**11-8.2.5.1** Means of egress shall be arranged in accordance with Section 5-5. Dead ends shall not exceed 20 ft (6.1 m).

**11-8.2.6 Travel Distance to Exits.** (*See 11-2.6.*)

**11-8.2.7 Discharge from Exits.** *(Where the story above or below the exit discharge is used, see 11-8.2.4.)*

**11-8.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be provided in accordance with Section 5-8.

**11-8.2.9 Emergency Lighting.** No Requirements.

**11-8.2.10 Marking of Means of Egress.** No Requirements.

**11-8.2.11 Special Requirements.**

**11-8.2.11.1*** Every closet door latch shall be such that children can open the door from the inside of the closet.

**11-8.2.11.2** Every bathroom door lock shall be designed to permit opening of the locked door from outside in an emergency. The opening device shall be readily accessible to the staff.

**11-8.3 Protection.**

**11-8.3.1 Protection of Vertical Openings.** The doorway between the level of exit discharge and any floor below shall be equipped with a door assembly having a 20-minute fire protection rating. Where the floor above the floor of exit discharge is used for sleeping purposes, there shall be a door assembly having a 20-minute fire protection rating at the top or bottom of each stairway.

*Exception: Existing self-closing 1¾-in. (4.4-cm) solid bonded wood core doors without rated frames may be accepted by the authority having jurisdiction.*

**11-8.3.2 Protection from Hazards.** No Requirements.

**11-8.3.3 Interior Finish.**

**11-8.3.3.1** The interior finish in exits shall be Class A or B in accordance with Section 6-5.

**11-8.3.3.2** Interior finish in occupied spaces in the home shall be Class A, B, or C in accordance with Section 6-5.

**11-8.3.4 Detection, Alarm, and Communications Systems.**

**11-8.3.4.1** Within the group day-care home, smoke detectors shall be installed in accordance with 7-6.2.9.

*Exception: Houses housing clients 6 years of age or older if no sleeping facilities are provided.*

**11-8.3.4.2** Where the group day-care home is located within a building of another occupancy, such as in apartment or office buildings, any corridors serving the group day-care home shall be provided with a smoke detection system in accordance with Section 7-6, with placement of detectors at no greater than 30 ft (9.1 m) spacing.

**11-8.3.4.3** Single station smoke detectors shall be provided in all rooms used for sleeping.

**11-8.4 Special Provisions.** (None.)

**11-8.5 Building Services.**

**11-8.5.1 Electrical Services.**

**11-8.5.1.1** Electrical wiring shall be installed in accordance with Section 7-1.

**11-8.5.1.2** Special protective covers for electrical receptacles shall be installed in all areas occupied by children under 6 years of age.

**11-8.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**11-8.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**11-8.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**11-8.5.2.3** Any heating equipment in spaces occupied by

children shall be provided with partitions, screens, or other means to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

## SECTION 11-9 FAMILY DAY-CARE HOMES

**11-9.1 General Requirements.**

**11-9.1.1 Application.**

**11-9.1.1.1*** This section establishes life safety requirements for family day-care homes in which fewer than 7 clients receive care, maintenance, and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day (generally within a dwelling unit). The provisions of Sections 11-2 through 11-6 shall not apply to this section unless a specific requirement is referenced by this section.

**11-9.1.1.2** The requirements detailed in Section 11-9 are based on a minimum staff-to-client ratio of one staff for up to six clients, including the caretakers own children under age six, with no more than two children under age two.

**11-9.1.2 Mixed Occupancies.** Where family day-care homes are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers.

*Exception: In assembly occupancies used primarily for worship.*

**11-9.1.3 Special Definitions.** (None.)

**11-9.1.4 Classification of Occupancies.** No Requirements.

**11-9.1.5 Classification of Hazard of Contents.** (Not specifically classified.)

**11-9.1.6 Minimum Construction Requirements.** (None.)

**11-9.1.7 Occupant Load.** No Special Requirements.

**11-9.2 Means of Egress Requirements.**

**11-9.2.1 General.** (None.)

**11-9.2.2 Types of Exits.** (*See 11-9.2.4.*)

**11-9.2.3 Capacity of Means of Egress.** (*See 11-2.3.*)

**11-9.2.4 Number of Exits.**

**11-9.2.4.1** Every room used for sleeping, living, or dining purposes shall have at least two means of escape, at least one of which shall be a door or stairway providing a means of unobstructed travel to the outside of the building at street or ground level. The second means of escape may be a window in accordance with 11-2.11.1. No room or space shall be occupied for living or sleeping purposes that is accessible only by a ladder, folding stairs, or through a trap door.

**11-9.2.4.2** Where clients are located on a floor (basement) below the level of exit discharge, at least one means of egress shall be an exit discharging directly to the outside, and the vertical travel to ground level shall not exceed 8 ft (244 cm). The second means of escape may be a window in accordance with 11-2.11.1. No facility shall be located more than one story below the ground.

**11-9.2.5 Arrangement of Means of Egress.** (*See 11-9.2.4.*)

**11-9.2.6 Travel Distance to Exits.** (*See 11-2.6.*)

**11-9.2.7 Discharge from Exits.** (*See 11-9.2.4.*)

**11-9.2.8 Illumination of Means of Egress.** Illumination of the means of egress shall be in accordance with Section 5-8.

**11-9.2.9 Emergency Lighting.** No Requirements.

**11-9.2.10 Marking of Means of Egress.** No Requirements.

**11-9.2.11 Special Features.**

**11-9.2.11.1** Each door in a means of egress shall not be less than 24 in. (61 cm) wide.

**11-9.2.11.2*** Every closet door latch shall be such that children can open the door from inside the closet.

**11-9.2.11.3** Every bathroom door lock shall be designed to permit the opening of the locked door from the outside in an emergency. The opening device shall be readily accessible to the staff.

**11-9.3 Protection.**

**11-9.3.1 Protection of Vertical Openings.** (No special provisions.)

**11-9.3.2 Protection from Hazards.** No Requirements.

**11-9.3.3 Interior Finish.**

**11-9.3.3.1** The interior finish in corridors, stairways, lobbies, and exits shall be Class A or B in accordance with Section 6-5.

**11-9.3.3.2** Interior finish in occupied spaces in the home shall be Class A, B, or C in accordance with Section 6-5.

**11-9.3.4 Detection, Alarm, and Communications Systems.**

**11-9.3.4.1** Within the family day-care home, smoke detectors shall be installed in accordance with 7-6.2.9.

*Exception: Homes housing clients 6 years of age or older if no sleeping facilities are provided.*

**11-9.3.4.2** Where the family day-care home is located within a building of another occupancy, such as in apartment or office buildings, any corridors serving the family day-care home shall be provided with a smoke detection system in accordance with Section 7-6, with placement of detectors at no greater than 30 ft (9.1 m) spacing.

**11-9.3.4.3** Single station smoke detectors shall be provided in all rooms used for sleeping.

**11-9.4 Special Provisions.** No Requirements.

**11-9.5 Building Services.**

**11-9.5.1 Electrical Services.**

**11-9.5.1.1** Electrical wiring shall be installed in accordance with Section 7-1.

**11-9.5.1.2** Special protective covers for all electrical receptacles shall be installed in all areas occupied by children in homes for children under 6 years of age.

**11-9.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**11-9.5.2.1** Heating, ventilating, and air conditioning equipment shall be installed in accordance with Section 7-2.

**11-9.5.2.2** Unvented fuel-fired room heaters shall not be permitted.

**11-9.5.2.3** Any heating equipment in spaces occupied by children shall be provided with partitions, screens, or other means to protect the children from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to assure adequate air for combustion and ventilation for the heating equipment.

# CHAPTER 12 NEW HEALTH CARE OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 12-1 GENERAL REQUIREMENTS

**12-1.1 Application.** (*See also Section 1-4.*)

**12-1.1.1 General.**

**12-1.1.1.1** New health care facilities shall comply with the provisions of this chapter. (*See Chapter 31 for operating features.*)

*Exception*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

**12-1.1.1.2** This chapter establishes life safety requirements for the design of all new hospitals, nursing homes, and limited care facilities. Where requirements vary, the specific occupancy is named in the paragraph pertaining thereto. Section 12-6 establishes life safety requirements for the design of all new ambulatory health care centers.

**12-1.1.1.3** Health care occupancies are those used for purposes such as medical or other treatment or care of persons suffering from physical or mental illness, disease or infirmity; for the care of infants, convalescents, or infirm aged persons.

**12-1.1.1.4** Health care facilities provide sleeping accommodations for the occupants and are occupied by persons who are mostly incapable of self-preservation because of age, physical or mental disability, or because of security measures not under the occupants' control.

**12-1.1.1.5** This chapter also covers ambulatory health care centers as defined in 12-1.3(d). See Section 12-6 for requirements.

**12-1.1.1.6** Buildings or sections of buildings that primarily house patients who are capable of judgment and appropriate physical action for self-preservation under emergency conditions in the opinion of the governing body of the facility and the governmental agency having jurisdiction may come under other chapters of the *Code* instead of Chapter 12.

**12-1.1.1.7** It shall be recognized that, in buildings housing certain types of patients or having detention rooms or a security section, it may be necessary to lock doors and bar windows to confine and protect building inhabitants. In such instances, the authority having jurisdiction shall make appropriate modifications to those sections of this *Code* that would otherwise require exits to be kept unlocked.

**12-1.1.1.8** Buildings or sections of buildings that house older persons and that provide activities that foster continued independence but do not include those services distinctive to health care facilities [as defined in 12-1.3(c)] may be subject to the requirements of other sections of this *Code*, such as Chapters 18 or 21.

**12-1.1.1.9** Health care occupancies shall include all buildings or parts thereof with occupancy as described in this chapter under Special Definitions, 12-1.3.

**12-1.1.1.10** Except for ambulatory health care centers, facilities that do not provide housing on a 24-hour basis for their occupants are classified as other occupancies and are covered by other chapters of the *Code*.

**12-1.1.2* Objective.** The objective of this chapter is to provide a reasonable level of safety by reducing the probability of injury and loss of life from the effects of fire with due consideration for functional requirements. This is accomplished by limiting the development and spread of a fire emergency to the room of fire origin and reducing the need for occupant evacuation, except from the room of fire origin.

**12-1.1.3 Total Concept.** All health care facilities shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency requiring the evacuation of occupants. Because the safety of health care occupants cannot be assured adequately by dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate staffing, and careful development of operating and maintenance procedures composed of the following:

(a) Proper design, construction, and compartmentation; and

(b) Provision for detection, alarm, and extinguishment; and

(c) Fire prevention and the planning, training, and drilling in programs for the isolation of fire, transfer of occupants to areas of refuge, or evacuation of the building.

**12-1.1.4 Additions, Conversions, Modernization, Renovation, and Construction Operations.** (*See also 1-4.5 and 1-4.6.*)

**12-1.1.4.1 Additions.** Additions shall be separated from any existing structure not conforming to the provisions within Chapter 13 by a fire barrier having at least a 2-hour fire resistance rating constructed of materials as required for the addition.

**12-1.1.4.2** Communicating openings in dividing fire barriers required by 12-1.1.4.1 shall occur only in corridors and shall be protected by approved self-closing fire doors. (*See also Section 6-2.*)

**12-1.1.4.3** Doors in barriers required by 12-1.1.4.1 shall normally be kept closed.

*Exception: Doors may be held open only if they meet the requirements of 12-2.2.2.6.*

**12-1.1.4.4 Conversions.** Conversions shall comply with 1-6.4. A conversion from a hospital to a nursing home or from a nursing home to a hospital is not a change in occupancy or suboccupancy classification.

**12-1.1.4.5 Modernizations or Renovations.** In modernization projects and renovations to existing facilities, only that portion of the total facility affected by the project need comply with the provisions of Chapter 12 in accordance with Section 1-4.6.

**12-1.1.4.6 Construction Operations.** See 1-6.3 and Chapter 31 for life safety provisions during construction.

**12-1.2 Mixed Occupancies.** (*See also 1-4.7.*)

**12-1.2.1*** Sections of health care facilities may be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve health care occupants for purposes of:

1. Housing, or
2. Treatment, or
3. Customary access by patients incapable of self-preservation.

(b) They are adequately separated from areas of health care occupancies by construction having a fire resistance rating of at least 2 hours.

**12-1.2.2** Ambulatory care (*see Section 12-6*), medical clinics, and similar facilities that are contiguous to health care occupancies but are primarily intended to provide outpatient services may be classified as a business or ambulatory care occupancy, provided the facilities are separated from health care occupancies by not less than 2-hour fire-resistive construction.

*Exception*: Where a facility is intended to provide services for health care patients who are litter borne, it shall meet all requirements for health care facilities.*

**12-1.2.3** Health care occupancies in buildings housing other occupancies shall be completely separated from them by construction having a fire resistance rating of at least 2 hours as provided for additions in 12-1.1.4.

**12-1.2.4** All means of egress from health care occupancies that traverse non-health care spaces shall conform to requirements of this *Code* for health care occupancies.

*Exception: It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to health care egress provisions but that do comply with requirements set forth in the appropriate occupancy chapter of this Code as long as the occupancy does not contain high hazard contents. The horizontal exit must comply with the requirements of 12-2.2.5.*

**12-1.2.5** Auditoriums, chapels, staff residential areas, or other occupancies provided in connection with health care facilities shall have exits provided in accordance with other applicable sections of the *Code*.

**12-1.2.6** Any area with a hazard of contents classified higher than that of the health care occupancy and located in the same building shall be protected as required in 12-3.2.

**12-1.2.7** Non-health care related occupancies classified as containing high hazard contents shall not be permitted in buildings housing health care occupancies.

**12-1.3 Special Definitions.**

(a) *Hospital.* A building or part thereof used on a 24-hour basis for the medical, psychiatric, obstetrical, or surgical care of four or more inpatients. Hospital, wherever used in this *Code*, shall include general hospitals, psychiatric hospitals, and specialty hospitals.

(b) *Nursing Home.* A building or part thereof used on a 24-hour basis for the housing and nursing care of four or more persons who, because of mental or physical incapacity, may be unable to provide for their own needs and safety without the assistance of another person. Nursing home, wherever used in this *Code*, shall include nursing and convalescent homes, skilled nursing facilities, intermediate care facilities, and infirmaries in homes for the aged.

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

(d) *Ambulatory Health Care Centers.* A building or part thereof used to provide services or treatment to four or more patients at the same time and meeting either (1) or (2) below.

1. Those facilities that provide, on an outpatient basis, treatment for patients that would render them incapable of taking action for self-preservation under emergency conditions without assistance from others, such as hemodialysis units or freestanding emergency medical units.

2. Those facilities that provide, on an outpatient basis, surgical treatment requiring general anesthesia.

**12-1.4 Classification of Occupancy.** *(See Definitions, 12-1.3.)*

**12-1.5 Classification of Hazard of Contents.** The classification of hazard of contents shall be as defined in Section 4-2.

**12-1.6 Minimum Construction Requirements.**

**12-1.6.1** For the purpose of 12-1.6, stories shall be counted starting at the primary level of exit discharge and ending at the highest occupiable level. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade of the exterior wall line for 50 percent or more of its perimeter. Building levels below the primary level shall not be counted as a story in determining the height of a building.

**12-1.6.2** Health care occupancies shall be limited to the following types of building construction (*see 6-2.1*):

**Table 12-1.6.2**

| Construction Type | 1 Story | 2 Stories | 3 Stories and <45 ft (13.7 m) | 4 or 5 Stories and <75 ft (23 m) | 6 or More Stories or ≥75 ft (23 m) |
|---|---|---|---|---|---|
| I (443) I (332) II (222) | X | X | X† | X† | X†† |
| II (111) | X | X†† | X†† | N.P. | N.P. |
| II (000) | X†† | N.P. | N.P. | N.P. | N.P. |
| III (211) | X†† | N.P. | N.P. | N.P. | N.P. |
| III (200) | N.P. | N.P. | N.P. | N.P. | N.P. |
| IV (2HH) | X†† | N.P. | N.P. | N.P. | N.P. |
| V (111) | X†† | N.P. | N.P. | N.P. | N.P. |
| V (000) | N.P. | N.P. | N.P. | N.P. | N.P. |

X = Permitted type of construction
X† = Building, other than Hospitals, requires supervised automatic sprinkler protection (see 12-3.5.1)
X†† = Building requires supervised automatic sprinkler protection (see 12-3.5.1)
N.P. = Not Permitted

*Exception: Any building of Type I or Type II (222 or 111) construction may include roofing systems involving combustible supports, decking, or roofing provided: (1) the roof covering meets Class A requirements in accordance with NFPA 256, Standard Methods of Fire Tests of Roof Coverings, and (2) the roof is separated from all occupied portions of the building by a noncombustible floor assembly having at least a 2-hour fire resistance rating that includes at least 2½ in. (6.4 cm) of concrete or gypsum fill. To qualify for this exception, the attic or other space so developed shall either be unoccupied or protected throughout by an approved automatic sprinkler system.*

**12-1.6.3** All interior walls and partitions in buildings of Type I or Type II construction shall be of noncombustible or limited-combustible materials.

**12-1.6.4** Openings for the passage of pipes or conduit in walls or partitions that are required to have fire or smoke resisting capability shall be protected in accordance with 6-2.3.4.2 or 6-3.6.1.

**12-1.6.5** For construction requirements of enclosures of vertical openings between floors, see 12-3.1.

**12-1.6.6** All buildings with more than one level below the level of exit discharge shall have all such lower levels separated from the level of exit discharge by at least Type II (111) construction.

**12-1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor but not less than one person for each 120 sq ft (11.1 sq m) gross floor area in health care sleeping departments, and not less than one person for each 240 sq ft (22.3 sq m) of gross floor area of inpatient health care treatment departments. Gross floor areas shall be measured within the exterior building walls with no deductions. (*See Chapter 3.*)

## SECTION 12-2 MEANS OF EGRESS REQUIREMENTS

**12-2.1 General.** Every aisle, passageway, corridor, exit discharge, exit location, and access shall be in accordance with Chapter 5.

*Exception No. 1: As modified in the following paragraphs.*

*Exception No. 2: The requirements of Chapter 5 specifying net clear door width do not apply. Projections into the door opening by stops or by hinge stiles shall be permitted.*

**12-2.2* Means of Egress Components.**

**12-2.2.1** Components of the Means of Egress shall be limited to the types described in 12-2.2.2 through 12-2.2.7.

**12-2.2.2 Doors.**

**12-2.2.2.1** Doors shall comply with 5-2.1.

**12-2.2.2.2** Locks shall not be permitted on patient sleeping room doors.

*Exception No. 1: Key locking devices that restrict access to the room from the corridor and that are operable only by staff from the corridor side may be permitted. Such devices shall not restrict egress from the room.*

*Exception No. 2: Door locking arrangements are permitted in health care occupancies or portions of health care occupancies where the clinical needs of the patients require specialized security measures for their safety, provided keys are carried by staff at all times.*

**12-2.2.2.3** Doors not in a required means of egress may be subject to locking.

**12-2.2.2.4** Doors within a required means of egress shall not be equipped with a latch or lock that requires the use of a tool or key from the egress side.

*Exception No. 1: Door locking arrangements are permitted in mental health facilities (See 12-1.1.1.7 and 12-2.2.2.5.)*

*Exception No. 2*: Special locking arrangements complying with 5-2.1.6 are permitted provided not more than one such device may be in any egress path.*

**12-2.2.2.5** In buildings in which doors are locked, provisions shall be made for the rapid removal of occupants by such reliable means as the remote control of locks or by keying all locks to keys readily available to staff who are in constant attendance.

**12-2.2.2.6*** Any door in an exit passageway, stairway enclosure, horizontal exit, smoke barrier, or hazardous area enclosure (except boiler rooms, heater rooms, and mechanical equipment rooms) may be held open only by an automatic release device that complies with 5-2.1.8. The automatic sprinkler system if provided, the required fire alarm system, and the systems required by 5-2.1.8(c) shall be arranged so as to initiate the closing action of all such doors by zone or throughout the entire facility.

**12-2.2.2.7** Where doors in a stair enclosure are held open by an automatic device as permitted in 12-2.2.2.6, initiation of a door closing action on any level shall cause all doors at all levels in the stair enclosure to close.

**12-2.2.2.8** High rise health care occupancies shall comply with the provisions of 5-2.1.5.2. Selected doors on stairways may be equipped with hardware that prevents reentry in accordance with 5-2.1.5.2 Exception No. 1.

**12-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**12-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**12-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4, modified as follows:

(a) At least 30 net sq ft (2.8 sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 sq m) per resident in a limited care facility shall be provided within the aggregated area of corridors, patient rooms, treatment rooms, lounge or dining areas, and other low hazard areas on each side of the horizontal exit. On stories not housing bed or litter patients, at least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the horizontal exit for the total number of occupants in adjoining compartments.

(b) A single door may be used in a horizontal exit if the exit serves one direction only. Such door shall be a swinging door or

a horizontal sliding door complying with 5-2.1.14. The door shall be a minimum of 44 in (112 cm) in width.

(c) A horizontal exit involving a corridor 8 ft (244 cm) or more in width serving as a means of egress from both sides of the doorway shall have the opening protected by a pair of swinging doors arranged to swing in the opposite direction from each other, with each door being at least 44 in. (112 cm) wide, or a horizontal sliding door complying with 5-2.1.14 and providing a clear opening of at least 88 in (224 cm).

(d) A horizontal exit involving a corridor 6 ft (183 cm) or more in width serving as a means of egress from both sides of the doorway shall have the opening protected by a pair of swinging doors, arranged to swing in the opposite direction from each other, with each door being at least 34 in. (86 cm) wide, or a horizontal sliding door complying with 5-2.1.14 and providing a clear opening of at least 68 in. (173 cm).

(e) An approved vision panel is required in each horizontal exit. Center mullions are prohibited.

(f) The total exit capacity of the other exits (stairs, ramps, doors leading outside the building) shall not be reduced below one-third that required for the entire area of the building.

**12-2.2.6 Ramps.**

**12-2.2.6.1** Ramps shall be Class A and shall comply with 5-2.5.

*Exception: A Class B ramp may be used where the height of the ramp is 1 ft (30.5 cm) or less.*

**12-2.2.6.2** Ramps enclosed as exits shall be of sufficient width to provide exit capacity in accordance with 12-2.3.2.

**12-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**12-2.3 Capacity of Means of Egress.**

**12-2.3.1** The capacity of any required means of egress shall be based on its width as defined in Section 5-3.

**12-2.3.2** The capacity of means of egress providing travel by means of stairs shall be 1.0 in. (2.5 cm) per person; and the capacity of means of egress providing horizontal travel (without stairs) such as doors, ramps, or horizontal exits shall be 0.7 in. (1.8 cm) per person.

*Exception: The capacity of means of egress in health care occupancies protected throughout by an approved supervised automatic sprinkler system may be increased to 0.6 in. (1.5 cm) per person for travel by means of stairs and to 0.5 in. (1.3 cm) per person for horizontal travel without stairs.*

**12-2.3.3*** Aisles, corridors, and ramps required for exit access in a hospital or nursing home shall be at least 8 ft (244 cm) in clear and unobstructed width. Where ramps are used as exits, see 12-2.2.6.

*Exception: Aisles, corridors, and ramps in adjunct areas not intended for the housing, treatment, or use of inpatients may be a minimum of 44 in. (112 cm) in clear and unobstructed width.*

**12-2.3.4*** Aisles, corridors, and ramps required for exit access in a limited care facility or hospital for psychiatric care shall be at least 6 ft (183 cm) in clear and unobstructed width. Where ramps are used as exits, see 12-2.2.6.

*Exception: Aisles, corridors and ramps in adjunct areas not intended for the housing, treatment, or use of patients may be a minimum of 44 in. (112 cm) in clear and unobstructed width.*

**12-2.3.5** The minimum width of doors in the means of egress from sleeping rooms; diagnostic and treatment areas, such as X-ray, surgery, or physical therapy; and nursery rooms shall be as follows:

(a) Hospitals and nursing homes: 44 in. (112 cm).

(b) Psychiatric hospitals and limited care facilities: 36 in. (91 cm).

*Exception No. 1: Doors that are so located as not to be subject to use by any health care occupant may be not less than 34 in. (86 cm) wide.*

*Exception No. 2: Doors in exit stair enclosures shall not be less than 36 in. (91 cm) wide.*

*Exception No. 3: Newborn nurseries may be served by 36 in. (91 cm) doors.*

*Exception No. 4: A 36-in. (91-cm) door leaf may be used in conjunction with an inactive leaf of at least 8 in. (20.3 cm) with a rabbet, bevel, or astragal at the meeting edge.*

**12-2.4 Number of Exits.**

**12-2.4.1** At least two exits of the types described in 12-2.2.2 through 12-2.2.7, remotely located from each other, shall be provided for each floor or fire section of the building.

**12-2.4.2** At least one exit from each floor or fire section shall be either:

(a) A door leading directly outside the building, or

(b) A stair, or

(c) A smokeproof enclosure, or

(d) A ramp, or

(e) An exit passageway.

Any fire section not meeting these requirements shall be considered as part of an adjoining zone. Egress shall not require return through the zone of fire origin.

**12-2.4.3*** At least two exits of the types described in 12-2.2.2 through 12-2.2.7 shall be accessible from each smoke compartment. Egress may be through adjacent compartment(s), but shall not require return through the compartment of fire origin.

**12-2.5 Arrangement of Means of Egress.**

**12-2.5.1** Every habitable room shall have an exit access door leading directly to an exit access corridor.

*Exception No. 1: If there is an exit door opening directly to the outside from the room at ground level.*

*Exception No. 2: For patient sleeping rooms, one adjacent room, such as a sitting or anteroom, may intervene if the intervening room is not used to serve as an exit access for more than eight patient sleeping beds.*

*Exception No. 3: Exception No. 2 above shall apply to special nursing suites permitted in 12-2.5.3 without being limited to eight beds or basinettes.*

*Exception No. 4: For rooms other than patient sleeping rooms, one or more adjacent rooms, such as offices, work rooms, etc., may intervene provided that such intervening rooms are not hazardous areas as defined in 12-3.2.*

**12-2.5.2** Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 sq ft (93 sq m) shall have at least two exit access doors remote from each other.

Any room or any suite of rooms, other than patient sleeping rooms, of more than 2,500 sq ft (230 sq m) shall have at least two exit access doors remote from each other.

**12-2.5.3** Any patient sleeping room that complies with the requirements previously set forth in this section may be subdivided with non-fire-rated, noncombustible or limited-combustible partitions, provided that the arrangement allows for direct and constant visual supervision by nursing personnel. Rooms that are so subdivided shall not exceed 5,000 sq ft (460 sq m).

**12-2.5.4** Any suite of rooms, other than patient sleeping rooms, that complies with the requirements previously set forth in this section may be subdivided with non-fire-rated, noncombustible, or limited-combustible partitions. Such suites shall not exceed 10,000 sq ft (930 sq m) in area and either:

(a) The maximum travel distance from any point in the suite to a corridor door shall be limited to 50 ft (15 m), or

(b) There shall be unrestricted access from patient treatment areas to a corridor with a maximum of one intervening room.

**12-2.5.5** Every corridor shall provide access to at least two approved exits in accordance with Sections 5-4 and 5-5 without passing through any intervening rooms or spaces other than corridors or lobbies.

**12-2.5.6** Every exit or exit access shall be so arranged that no corridor, aisle, or passageway has a pocket or dead end exceeding 30 ft (9.1 m).

**12-2.6 Travel Distance to Exits.**

**12-2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**12-2.6.2** Travel distance:

(a) Between any room door required as exit access and an exit shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m);

*Exception: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system.*

(c) Between any point in a health care sleeping room and an exit access door of that room shall not exceed 50 ft (15 m).

(d) Between any point in a suite of rooms as permitted by 12-2.5 and an exit access door of that suite shall not exceed 100 ft (30 m) and shall meet (b) above.

**12-2.7 Discharge from Exits.**

**12-2.7.1** Discharge from exits shall be arranged in accordance with Section 5-7.

**12-2.8 Illumination of Means of Egress.**

**12-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**12-2.9 Emergency Lighting.**

**12-2.9.1** Emergency lighting shall be provided in accordance with Section 5-9.

**12-2.9.2** Buildings equipped with or in which patients require the use of life support systems (*see 12-5.1.3*) shall have emergency lighting equipment supplied by the Life Safety Branch of the electrical system as described in NFPA 99, *Standard for Health Care Facilities.*

**12-2.10 Marking of Means of Egress.**

**12-2.10.1** Means of egress shall have signs in accordance with Section 5-10.

**12-2.10.2** Buildings equipped with or in which patients require the use of life support systems (*see 12-5.1.3*) shall have illumination of the required exit and directional signs supplied by the Life Safety Branch of the electrical system as described in NFPA 99, *Standard for Health Care Facilities.*

**12-2.11 Special Features.**

## SECTION 12-3 PROTECTION

**12-3.1 Protection of Vertical Openings.**

**12-3.1.1** Any stairway, ramp, elevator hoistway, light or ventilation shaft, chute, and other vertical opening between stories shall be enclosed in accordance with 6-2.4 with construction having a 2-hour fire resistance rating.

*Exception No. 1: One-hour rated enclosures are permitted in buildings required to be of 1-hour construction.*

*Exception No. 2: Stairs that do not connect to a corridor, do not connect more than two levels, and do not serve as a means of egress need not comply with these regulations.*

*Exception No. 3: The fire resistance rating of enclosures connecting not more than three stories in health care occupancies protected throughout by an approved supervised automatic sprinkler system may be reduced to 1 hour.*

*Exception No. 4: Duct penetrations of floor assemblies that are protected in accordance with NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.*

*Exception No. 5: Floor and ceiling openings for pipes or conduits where the opening around the pipes or conduits is sealed in an approved manner. (See 6-2.3.4.2.)*

*Exception No. 6: An atrium may be used in accordance with 6-2.4.5. Exception No. 1 to 6-2.4.5(g) shall not apply to patient sleeping and treatment rooms.*

**12-3.1.2** A door in a stair enclosure shall be self-closing, shall normally be kept in a closed position, and shall be marked in accordance with Section 5-10.

*Exception: Doors in stair enclosures may be held open under the conditions specified by 12-2.2.2.6 and 12-2.2.2.7.*

**12-3.2 Protection from Hazards.**

**12-3.2.1* Hazardous Areas.** Any hazardous area shall be protected in accordance with Section 6-4. The following areas listed shall be protected as indicated. The automatic extinguishing may be in accordance with 12-3.5.4. Where sprinkler protection without fire rated separation is used, the areas shall be separated from other spaces by partitions complying with 6-3.2, with doors complying with 6-3.4.

| Description | Separation/Protection |
|---|---|
| Boiler and fuel-fired heater rooms | 2 hrs or 1 hr and sprinklers |
| Employee locker rooms | 1 hr or sprinklers |
| Gift/retail shops | See 12-3.2.5 |
| Handicraft shops | 1 hr or sprinklers |
| Laboratories that employ hazardous materials but such materials are in quantities less than that which would cause classification as severe hazard | 1 hr or sprinklers |
| Central/bulk laundries greater than 100 sq ft (9.3 sq m) | 1 hr and sprinklers |
| Paint shops employing hazardous substances and materials in quantities less than that which would cause classification as severe hazard | 2 hrs or 1 hr and sprinklers |
| Physical Plant Maintenance Shop | 2 hrs or 1 hr and sprinklers |
| Soiled linen room | 1 hr and sprinklers |
| Storage rooms more than 50 sq ft (4.6 sq m) in area but not more than 100 sq ft (9.3 sq m) in area storing combustible material | 1 hr or sprinklers |
| Storage rooms more than 100 sq ft (9.3 sq m) storing combustible materials | 1 hr and sprinklers |
| Trash collection rooms | 1 hr and sprinklers |

**12-3.2.2* Laboratories.** Laboratories employing quantities of flammable, combustible, or hazardous materials that are considered as severe hazard shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**12-3.2.3 Anesthetizing Locations.** Anesthetizing locations shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**12-3.2.4 Medical Gas.** Medical gas storage and administration areas shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**12-3.2.5 Gift Shops.** Gift shops shall be protected as hazardous areas where used for the storage or display of combustibles in quantities considered hazardous. Gift shops not considered hazardous and having separately protected storage may be:

(a) Open to a lobby if the gift shop is not greater than 500 sq ft (46.5 sq m) and is protected throughout by an approved automatic sprinkler system, or

(b) Separated from a lobby with non-fire-rated walls if the gift shop is protected throughout by an approved automatic sprinkler system, or

(c) Separated from corridors by non-fire-rated walls if the gift shop is protected throughout by an approved automatic sprinkler system.

**12-3.2.6 Cooking Facilities.** Cooking facilities shall be protected in accordance with 7-2.3.

*Exception*: Where domestic cooking equipment is used for food warming or limited cooking, protection or segregation of food preparation facilities is not required.*

**12-3.3 Interior Finish.**

**12-3.3.1** Interior finish of walls and ceilings throughout shall be Class A in accordance with Section 6-5.

*Exception No. 1: Walls and ceilings may have Class A or B interior finish in individual rooms having a capacity of not over four persons.*

*Exception No. 2: Corridor wall finish up to 4 ft (122 cm) in height that is restricted to the lower half of the wall may be Class A or B.*

**12-3.3.2*** Interior floor finish in corridors and exits shall be Class I in accordance with Section 6-5.

**12-3.4 Detection, Alarm, and Communications Systems.**

**12-3.4.1 General.**

**12-3.4.1.1** Health care occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**12-3.4.1.2** All required fire alarm systems shall be electrically supervised.

**12-3.4.1.3** All required fire alarm systems and detection systems shall be provided with a secondary power supply in accordance with NFPA 72A, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service.*

**12-3.4.2 Initiation.** Initiation of the required fire alarm systems shall be by manual means in accordance with 7-6.2 and by means of any detection devices or detection systems required.

*Exception: Fire alarm pull stations in patient sleeping areas may be omitted at exits if located at all nurses' control stations or other continuously attended staff location, provided such pull stations are visible and continuously accessible and that travel distances in 7-6.2.4 are not exceeded.*

**12-3.4.3 Notification.**

**12-3.4.3.1 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm activating device by means of an internal audible alarm in accordance with 7-6.3. Presignal systems are prohibited.

**12-3.4.3.2 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Smoke detection devices or smoke detection systems equipped with reconfirmation features need not automatically notify the fire department unless the alarm condition is reconfirmed after a maximum 120 second time period.*

**12-3.4.4 Emergency Control.** Operation of any activating device in the required fire alarm system shall be arranged to automatically accomplish, without delay, any control functions to be performed by that device. (*See 7-6.5.*)

**12-3.4.5 Detection.**

**12-3.4.5.1 Corridors.** An approved automatic smoke detection system shall be installed in all corridors of nursing homes and limited care facilities. Such system shall be installed in accordance with Section 7-6.

*Exception: Where each patient sleeping room is protected by an approved smoke detection system, and a smoke detector is provided at smoke barriers and horizontal exits, such corridor systems will not be required on the patient sleeping room floors.*

**12-3.4.5.2 Spaces Open to Corridors.** (*See 12-3.6.1.*)

**12-3.5 Extinguishment Requirements.**

**12-3.5.1** Where required by 12-1.6, health care facilities shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.

*Exception: In Types I and II construction, where approved by the authority having jurisdiction, alternative protection measures may be substituted for sprinkler protection in specified areas where the authority having jurisdiction has prohibited sprinklers, without causing a building to be classified as non-sprinklered.*

**12-3.5.2** Where this *Code* permits exceptions for fully sprinklered health care occupancies, the sprinkler system shall be:

(a) In complete accordance with Section 7-7.

(b) Electrically connected to the fire alarm system, and

(c) Fully supervised.

*Exception: In Types I and II construction, where approved by the authority having jurisdiction, alternative protection measures may be substituted for sprinkler protection in specified areas where the authority having jurisdiction has prohibited sprinklers, without causing a building to be classified as non-sprinklered.*

**12-3.5.3** The main sprinkler control valve(s) shall be electrically supervised so that at least a local alarm will sound at a constantly attended location when the valve is closed.

**12-3.5.4** Isolated hazardous areas may be protected in accordance with 7-7.1.2 if the additional requirements of this paragraph are met. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply. Where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the building fire alarm or notify by a signal any constantly attended location, such as PBX, security, or emergency room, whereby necessary corrective action shall be directed.

**12-3.5.5** Portable fire extinguishers shall be provided in all health care occupancies in accordance with 7-7.4.1.

**12-3.6 Corridors.**

**12-3.6.1*** Corridors shall be separated from all other areas by partitions complying with 12-3.6.2 through 12-3.6.4 (*also see 12-2.5.5*).

*Exception No. 1: Waiting areas on a patient sleeping floor may be open to the corridor, provided:*

*(a) The area does not exceed 250 sq ft (23.2 sq m), and*

*(b) The area is located to permit direct supervision by the facility staff, and*

*(c) The area is equipped with an electrically supervised, automatic smoke detection system installed in accordance with 12-3.4, and*

*(d) Not more than one such waiting area is permitted in each smoke compartment, and*

*(e) The area does not obstruct access to required exits.*

*Exception No. 2: Waiting areas on floors other than health care sleeping floors may be open to the corridor, provided:*

*(a) Each area does not exceed 600 sq ft (55.7 sq m), and*

*(b) The area is located to permit direct supervision by the facility staff, and*

*(c) The area does not obstruct access to required exits, and*

*(d) The area is equipped with an electrically supervised, automatic smoke detection system installed in accordance with 12-3.4.*

*Exception No. 3: Buildings protected throughout by an approved supervised automatic sprinkler system may have spaces that are unlimited in size open to the corridor, provided:*

*(a) The spaces are not used for patient sleeping rooms, treatment rooms, or hazardous areas, and*

*(b) Each space is located to permit direct supervision by the facility staff, and*

*(c) The space and corridors that the space opens onto in the same smoke compartment are protected by an electrically supervised, automatic smoke detection system installed in accordance with 12-3.4, and*

*(d) The space does not obstruct access to required exits.*

*Exception No. 4*: Space for nurses' stations.*

*Exception No. 5: Gift shops may be open to the corridor where protected in accordance with 12-3.2.5.*

*Exception No. 6: In a limited care facility, group meeting or multipurpose therapeutic spaces, other than hazardous areas, under continuous supervision by facility staff may be open to the corridor, provided:*

*(a) Each area does not exceed 1,500 sq ft (140 sq m), and*

*(b) The area is located to permit direct supervision by the facility staff, and*

*(c) The area does not obstruct any access to required exits, and*

*(d) The area is equipped with an electrically supervised, automatic smoke detection system installed in accordance with 12-3.4, and*

*(e)* Each space is protected by automatic sprinklers, or the furniture and furnishings in combination with all other combustibles within the area are of such a minimum quantity and are so arranged that a fully developed fire is unlikely to occur, and*

*(f) Not more than one such space is permitted per smoke compartment.*

**12-3.6.2 Construction of Corridor Walls.**

**12-3.6.2.1** Corridor walls shall be continuous from the floor to the underside of the floor or roof deck above, through any concealed spaces, such as those above the suspended ceilings, and through interstitial structural and mechanical spaces, and shall have a fire resistance rating of at least 1 hour.

*Exception No.1: In buildings protected throughout by an approved supervised automatic sprinkler system, a corridor may be separated from all other areas by nonfire-rated partitions and may be terminated at the ceiling when the ceiling is constructed to limit the transfer of smoke.*

*Exception No. 2: Corridor partitions may terminate at ceilings that are not an integral part of a floor construction if there*

*exists 5 ft (152 cm) or more of space between the top of the ceiling subsystem and the bottom of the floor or roof above, provided:*

*(a) The ceiling shall have been tested as a part of a fire-rated assembly in accordance with NFPA 251, Standard Methods of Fire Tests of Building Construction and Materials, for a test period of 1 hour or more, and*

*(b) Corridor partitions form smoketight joints with the ceilings (joint filler, if used, shall be noncombustible) and,*

*(c) Each compartment of interstitial space that constitutes a separate smoke area is vented, in case of smoke emergency, to the outside by mechanical means having sufficient capacity to provide at least two air changes per hour, but in no case having a capacity less than 5,000 cfm (2.36 cu m/s), and*

*(d) The interstitial space shall not be used for storage, and*

*(e) The space shall not be used as a plenum for supply, exhaust or return air except as noted in (c).*

**12-3.6.2.2** Corridor walls shall form a barrier to limit the transfer of smoke.

**12-3.6.2.3** Fixed wired glass vision panels shall be permitted in corridor walls, provided they do not exceed 1,296 sq in. (.84 sq m) in area and are mounted in steel or other approved metal frames.

*Exception: There shall be no restrictions in area and fire resistance of glass and frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**12-3.6.3* Corridor Doors.**

**12-3.6.3.1** Doors protecting corridor openings in other than required enclosures of vertical openings, exits, or hazardous areas shall be substantial doors, such as those constructed of 1¾-in. (4.4-cm) solid bonded core wood or of construction that will resist fire for at least 20 minutes.

*Exception No. 1: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7, the door construction requirements noted above are not required, but the doors shall be constructed to resist the passage of smoke.*

*Exception No. 2: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.*

**12-3.6.3.2** Doors shall be provided with latches suitable for keeping the door closed and acceptable to the authority having jurisdiction.

*Exception: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.*

**12-3.6.3.3** Door frames shall be labeled, or shall be of steel construction, or shall be of other materials complying with the requirements of NFPA 252, *Standard Methods of Fire Tests of Door Assemblies.*

*Exception: Door frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**12-3.6.3.4** Door-closing devices are not required on doors in corridor wall openings other than those serving required enclosures of vertical openings, exits, or hazardous areas.

**12-3.6.3.5** Fixed view panels of wired glass, in steel or other approved metal frames, limited to 1,296 sq in. (.84 sq m) in area, may be installed in these doors.

*Exception: There shall be no restrictions in area and fire resistance of glass and frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**12-3.6.3.6** Dutch doors may be used where they conform to 12-3.6.3, and in addition, both upper leaf and lower leaf shall be equipped with a latching device, and the meeting edges of the upper and lower leaves shall be equipped with an astragal, rabbet, or bevel.

Dutch doors protecting openings in enclosures around hazardous areas shall comply with NFPA 80, *Standard for Fire Doors and Windows.*

**12-3.6.4 Transfer Grilles.** Transfer grilles, whether or not protected by fusible link operated dampers, shall not be used in these walls or doors.

*Exception: Doors to toilet rooms, bathrooms, shower rooms, sink closets and similar auxiliary spaces that do not contain flammable or combustible materials may have ventilating louvers or may be undercut.*

**12-3.7* Subdivision of Building Spaces.**

**12-3.7.1** Smoke barriers shall be provided, regardless of building construction type, as follows:

(a) To divide every story used by inpatients for sleeping or treatment, or any story having an occupant load of 50 or more persons, regardless of use, into at least two compartments, and

(b) To limit on any story the length and width of each smoke compartment to no more than 150 ft (45 m).

*Exception No. 1: Protection may be accomplished in conjunction with the provision of horizontal exits.*

*Exception No. 2: One dimension may be extended provided that the total width plus length does not exceed 300 ft (91 m) and provided that travel distance from a room to a smoke barrier door or horizontal exit is no more than 150 ft (45 m).*

**12-3.7.2** Smoke barriers shall be provided on stories that are usable but unoccupied.

**12-3.7.3** Any required smoke barrier shall be constructed in accordance with Section 6-3 and shall have a fire resistance rating of at least 1 hour.

*Exception: Where an atrium is used, smoke barriers may terminate at an atrium wall constructed in accordance with Exception No. 2 to 6-2.4.5(g). A minimum of two separate smoke compartments shall be provided on each floor.*

**12-3.7.4** At least 30 net sq ft (2.8 sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 sq m) per resident in a limited care facility shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas, and other low hazard areas on each side of the smoke barrier. On stories not housing bed or litter patients, at least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the smoke barrier for the total number of occupants in adjoining compartments.

**12-3.7.5** Doors in smoke barriers shall be substantial doors, such as 1¾ in. (4.4 cm) thick, solid bonded wood core or construction that will resist fire for at least twenty minutes. Cross corridor openings in smoke barriers shall be protected by a pair of swinging doors or a horizontal sliding door complying with 5-2.1.14. Swinging doors shall be arranged so that each door will swing in a direction opposite from the other. The minimum door leaf width for swinging doors shall be as follows:

(a) hospitals and nursing homes: 44 in. (122 cm)

(b) hospitals for psychiatric care and limited care facilities: 34 in. (86 cm)

The minimum clear opening for horizontal sliding doors shall be as follows:

(a) hospitals and nursing homes: 88 in. (224 cm)

(b) hospitals for psychiatric care and limited care facilities: 68 in. (173 cm)

**12-3.7.6** Doors in smoke barriers shall comply with 6-3.4 and shall be self-closing or automatic closing in accordance with 12-2.2.2.6.

**12-3.7.7** Vision panels of approved transparent wired glass not exceeding 1,296 sq in. (.84 sq m) in steel or other approved metal frames shall be provided in each cross corridor swinging door and at each cross corridor horizontal sliding door in a smoke barrier.

**12-3.7.8** Rabbets, bevels, or astragals are required at the meeting edges, and stops are required at the head and sides of door frames in smoke barriers. Positive latching hardware is not required. Center mullions are prohibited.

**12-3.8 Special Features.**

**12-3.8.1** Every patient sleeping room shall have an outside window or outside door arranged and located so that it can be opened from the inside to permit the venting of products of combustion and to permit any occupant to have direct access to fresh air in case of emergency. (*See 12-1.1.1.7 for detention screen requirements.*) The maximum allowable sill height shall not exceed 36 in. (91 cm) above the floor. Where windows require the use of tools or keys for operation, the tools or keys shall be located on the floor involved at a prominent location accessible to staff.

*Exception No. 1: The window sill in special nursing care areas such as those housing ICU, CCU, hemodialysis, and neonatal patients may be up to 60 in. (152 cm) above the floor.*

*Exception No. 2: Rooms intended for occupancy of less than 24 hours, such as those housing obstetrical labor beds, recovery beds, and observation beds in the emergency department; and newborn nurseries need not comply with this requirement.*

*Exception No. 3: Windows opening into atriums where the atrium has a smoke removal system are, for the purposes of this requirement, considered outside windows; such windows shall normally be closed and operable only with the use of tool or key.*

*Exception No. 4: The window sill in limited care facilities may be up to 44 in. (112 cm) above the floor.*

*Exception No. 5: Buildings designed with approved engineered smoke control systems in accordance with Section 7-3 need not comply with the operable features of this requirement.*

## SECTION 12-4 SPECIAL PROVISIONS

**12-4.1 Windowless Buildings.** See Section 30-7 for requirements for windowless buildings.

**12-4.2 High Rise Buildings.** (*See 12-1.6 and 12-2.2.2.8.*)

**12-4.3 Operating Features.** (*See Chapter 31.*)

## SECTION 12-5 BUILDING SERVICES

**12-5.1 Utilities.**

**12-5.1.1** Utilities shall comply with the provisions of Section 7-1.

**12-5.1.2** Alarms, emergency communication systems, and the illumination of generator set locations shall be as described in the Life Safety Branch of NFPA 99, *Standard for Health Care Facilities.*

**12-5.1.3** Any health care occupancy as indicated within 12-1.1.1.2 that normally utilizes life support devices shall have electrical systems designed and installed in accordance with NFPA 99, *Standard for Health Care Facilities.*

*Exception: This requirement does not apply to a facility that has life support equipment for emergency purposes only.*

**12-5.2 Heating, Ventilating, and Air Conditioning.**

**12-5.2.1** Heating, ventilating, and air conditioning shall comply with the provisions of Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

*Exception: As modified in 12-5.2.2 following.*

**12-5.2.2** Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. Any heating device shall have safety features to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperatures or ignition failure.

*Exception No. 1: Approved suspended unit heaters may be used in locations other than means of egress and patient sleeping areas, provided such heaters are located high enough to be out of the reach of persons using the area, and provided they are equipped with the safety features called for above.*

*Exception No. 2.: Fireplaces may be installed and used only in areas other than patient sleeping areas, provided that these areas are separated from patient sleeping spaces by construction having a 1-hour fire resistance rating and they comply with NFPA 211, Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. In addition thereto, the fireplace shall be equipped with a hearth that shall be raised at least 4 in. (10.2 cm) and a fireplace enclosure guaranteed against breakage up to a temperature of 650°F (343°C) and constructed of heat tempered glass or other approved material. If, in the opinion of the authority having jurisdiction, special hazards are present, a lock on the enclosure and other safety precautions may be required.*

**12-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**12-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.**

**12-5.4.1** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

**12-5.4.2** Any rubbish chute or linen chute, including pneumatic rubbish and linen systems, shall be provided with automatic extinguishing protection installed in accordance with Section 7-7. (*See Section 7-5.*)

**12-5.4.3** Any trash chute shall discharge into a trash collecting room used for no other purpose and protected in accordance with Section 6-4.

**12-5.4.4** An incinerator shall not be directly flue-fed nor shall any floor charging chute directly connect with the combustion chamber.

## SECTION 12-6 NEW AMBULATORY HEALTH CARE CENTERS

**12-6.1 General Requirements.**

**12-6.1.1 Application.**

**12-6.1.1.1** Ambulatory health care centers shall comply with the provisions of both Chapter 26 and (this) Section 12-6, as may be more stringent.

**12-6.1.1.2** This section establishes life safety requirements, in addition to those required in Chapter 26, for the design of all ambulatory health care centers and outpatient surgical centers that meet the requirements of 12-1.3(d).

**12-6.1.2 Reserved.**

**12-6.1.3 Special Definitions.** (*See 12-1.3*)

**12-6.1.4 Classification of Occupancy.** (*See 12-1.3*)

**12-6.1.5 Reserved.**

**12-6.1.6 Minimum Construction Requirements.**

**12-6.1.6.1** For purposes of 12-6.1.6, stories shall be counted starting at the primary level of exit discharge and ending at the highest occupiable level. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade of this exterior wall line for 50 percent or more of its perimeter.

**12-6.1.6.2** Buildings of one story in height housing ambulatory health care centers may be of Type I, II, III, IV, or V construction. (*See 6-2.1.*)

**12-6.1.6.3** Buildings of two or more stories in height housing ambulatory health care centers may be of Type I (443), I (332), or II (222), Type II (111), Type III (211), Type IV (2HH), or Type V (111) construction. (*See 6-2.1.*)

*Exception: Such buildings may be constructed of Type II (000), III (200), or V (000) if protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**12-6.1.6.4** Any level below the level of exit discharge shall be separated from the level of exit discharge by at least Type II (111), Type III (211), or Type V (111) construction. (*See 6-2.1.*)

*Exception: Such separation is not required for such levels if they are under the control of the ambulatory health care center and any hazardous spaces are protected in accordance with Section 6-4.*

**12-6.1.6.5** Where new ambulatory health care centers are located in existing buildings, the authority having jurisdiction may accept construction systems of lesser fire resistance than required above if it can be demonstrated to the authority's satisfaction that in case of fire prompt evacuation of the center can be made, or that the exposing occupancies and materials of construction present no threat of either fire penetration from such occupancy into the ambulatory health care center or collapse of the structure.

**12-6.1.7 Occupant Load.**

**12-6.2 Means of Egress Requirements.**

**12-6.2.1 General.** Every aisle, passageway, corridor, exit discharge, exit location, and access shall be in accordance with Chapter 5.

*Exception No. 1: As modified in the following paragraphs.*

*Exception No. 2: The requirements of Chapter 5 specifying net clear door width do not apply. Projections into the door opening by stops or by hinge stiles shall be permitted.*

**12-6.2.2 Means of Egress Components.**

**12-6.2.2.1** Components of means of egress shall be limited to the types described in 26-2.2.

**12-6-2.2.2** Special locking arrangements complying with 5-2.1.6 are permitted on exterior doors.

**12-6.2.2.3** Any door in an exit passageway, horizontal exit, smoke barrier, stairway enclosure, or hazardous area enclosure may be held open only by an automatic release device that complies with 5-2.1.8. The required manual fire alarm system and the systems required by 5-2.1.8(c) shall be arranged so as to initiate the closing action of all such doors by zone or throughout the entire facility.

**12-6.2.2.4** Where doors in a stair enclosure are held open by an automatic device as permitted in 12-6.2.2.3, initiation of a door closing action on any level shall cause all doors at all levels in the stair enclosure to close.

**12-6.2.3 Capacity of Means of Egress.**

**12-6.2.3.1** The capacity of any required means of egress shall be determined in accordance with the provisions of 26-2.3 and shall be based on its width as defined in Section 5-3.

**12-6.2.3.2** The minimum width of any corridor or passageway required for exit access shall be 44 in. (112 cm) clear.

**12-6.2.3.3** Doors in the means of egress from diagnostic or treatment areas, such as X-ray, surgical, or physical therapy shall be at least 34 in. (86 cm) wide.

**12-6.2.4 Number of Exits.**

**12-6.2.4.1** At least two exits of the types described in 26-2.2 remotely located from each other shall be provided for each floor or fire section of the building.

**12-6.2.4.2** Any room and any suite of rooms of more than 1,000 sq ft (93 sq m) shall have at least two exit access doors remotely located from each other.

**12-6.2.5 Arrangement of Means of Egress.** (*See 26-2.5.*)

**12-6.2.6 Travel Distance to Exits.**

**12-6.2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**12-6.2.6.2** Travel distance:

(a) Between any room door required as exit access and an exit shall not exceed 100 ft (30 m); and

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m).

*Exception: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system.*

**12-6.2.7 Discharge from Exits.** (*See 26-2.7.*)

**12-6.2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**12-6.2.9 Emergency Lighting and Essential Electrical Systems.**

**12-6.2.9.1** Emergency lighting shall be provided in accordance with Section 5-9.

**12-6.2.9.2** Where general anesthesia or life support equipment is used, each ambulatory health care center shall be provided with an essential electrical system in accordance with NFPA 99, *Standard for Health Care Facilities.*

*Exception: Where battery operated equipment is provided and acceptable to the authority having jurisdiction.*

**12-6.2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**12-6.2.11 Special Features.**

**12-6.3 Protection.**

**12-6.3.1 Protection of Vertical Openings.** (*See 26-3.1.*)

**12-6.3.2 Protection from Hazards.** (*See 26-3.2.*)

**12-6.3.2.1** Laboratories employing quantities of flammable, combustible, or hazardous materials that are considered as severe hazard shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**12-6.3.2.2** Anesthetizing locations shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**12-6.3.3 Interior Finish.** (*See 26-3.3.*)

**12-6.3.4 Detection, Alarm, and Communications Systems.**

**12-6.3.4.1 General.** Centers shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

**12-6.3.4.2 Initiation.** Initiation of the required fire alarm systems shall be by manual means in accordance with 7-6.2 and by means of any detection devices or detection systems required.

**12-6.3.4.3 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm activating device by means of an internal audible alarm in accordance with 7-6.3.

*Exception: The presignal system allowed by 7-6.3.2 Exception No. 1 shall not be permitted.*

**12-6.3.4.4 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

**12-6.3.4.5 Emergency Control.** Operation of any activating device in the required fire alarm system shall be arranged to automatically accomplish, without delay, any control functions required to be performed by that device. (*See 7-6.5.*)

**12-6.3.5 Extinguishment Requirements.** (*See 26-3.5.*)

**12-6.3.5.1** Isolated hazardous areas may be protected in accordance with 7-7.1.2 if the additional requirements of this paragraph are met. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply. Where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the building fire alarm or notify by a signal any constantly attended location, such as PBX, security, or emergency room, whereby necessary corrective action shall be directed.

**12-6.3.5.2** Portable fire extinguishers shall be provided in ambulatory health care occupancies in accordance with 7-7.4.1.

**12-6.3.6 Corridors.** (*See 26-3.6.*)

**12-6.3.7 Subdivision of Building Space.**

**12-6.3.7.1** Ambulatory health care occupancies shall be separated from other tenants and occupancies by walls having at least a 1-hour fire resistance rating. Such walls shall extend from the floor slab below to the floor or roof slab above. Doors shall be constructed of at least 1¾-in. (4.4-cm) solid bonded wood core or the equivalent and equipped with positive latches. These doors shall be self-closing and normally kept in the closed position except when in use. Any vision panels shall be of fixed wired glass, set in steel or other approved metal frames, and limited in size to 1,296 sq in. (.84 sq m).

**12-6.3.7.2** The ambulatory health care facility shall be divided into at least two smoke compartments on patient treatment floors.

*Exception: Facilities of less than 2,000 sq ft (185 sq m) and protected by an approved automatic smoke detection system need not be divided.*

**12-6.3.7.3** Any required smoke barrier shall be constructed in accordance with Section 6-3 and shall have a fire resistance rating of at least 1 hour.

**12-6.3.7.4** Vision panels in the smoke barrier shall be of fixed wired glass, set in steel or other approved metal frames, and shall be limited in size to 1,296 sq in. (.84 sq m).

**12-6.3.7.5** At least 15 net sq ft (1.4 sq m) per ambulatory health care facility occupant shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounges, and other low hazard areas on each side of the smoke compartment for the total number of occupants in adjoining compartments. The length and width of each smoke compartment shall be limited to no more than 150 ft (45 m).

*Exception: One dimension may be extended provided that the total width plus length does not exceed 300 ft (91 m) and pro-*

*vided that travel distance from a room door to smoke barrier door or horizontal exit is not more than 150 ft (45 m).*

**12-6.3.7.6** Doors in smoke barriers shall be at least 1¾-in. (4.4-cm) solid bonded wood core or the equivalent and shall be self-closing. A vision panel is required.

**12-6.3.7.7** Doors in smoke barriers shall normally be kept closed, or if held open, they shall be equipped with automatic devices that will release the doors upon activation of:

(a) The fire alarm system, and either

(b) A local smoke detector, or

(c) A complete automatic fire extinguishing system or complete automatic fire detection system.

**12-6.4 Special Provisions.** (*See Section 26-4.*)

**12-6.5 Building Services.**

**12-6.5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**12-6.5.2 Heating, Ventilating, and Air Conditioning.**

**12-6.5.2.1** Heating, ventilating, and air conditioning shall comply with the provisions of Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

*Exception: As modified in 12-6.5.2.2 following.*

**12-6.5.2.2** Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from the outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. Any heating device shall have safety features to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperature or ignition failure.

*Exception: Approved suspended unit heaters may be used in locations other than means of egress and patient treatment areas, provided such heaters are located high enough to be out of the reach of persons using the area and provided they are equipped with the safety features called for above.*

**12-6.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**12-6.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 13 EXISTING HEALTH CARE OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 13-1 GENERAL REQUIREMENTS

**13-1.1 Application.** (*See also Section 1-4.*)

**13-1.1.1 General.**

**13-1.1.1.1** Existing health care facilities shall comply with the provisions of this chapter. (*See Chapter 31 for operating features.*)

*Exception*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

**13-1.1.1.2** This chapter establishes life safety requirements for all existing hospitals, nursing homes, and limited care facilities. Where requirements vary, the specific occupancy is named in the paragraph pertaining thereto. Section 13-6 establishes life safety requirements for all existing ambulatory health care centers.

**13-1.1.1.3** Health care occupancies are those used for purposes such as medical or other treatment or care of persons suffering from physical or mental illness, disease or infirmity; for the care of infants, convalescents, or infirm aged persons.

**13-1.1.1.4** Health care facilities provide sleeping accommodations for the occupants and are occupied by persons who are mostly incapable of self-preservation because of age, physical or mental disability, or because of security measures not under the occupants' control.

**13-1.1.1.5** This chapter also covers ambulatory health care centers as defined in 13-1.3(d). See Section 13-6 for requirements.

**13-1.1.1.6** Buildings or sections of buildings that primarily house patients who are capable of judgment and appropriate physical action for self-preservation under emergency conditions in the opinion of the governing body of the facility and the governmental agency having jurisdiction may come under other chapters of the *Code* instead of Chapter 13.

**13-1.1.1.7** It shall be recognized that, in buildings housing certain types of patients or having detention rooms or a security section, it may be necessary to lock doors and bar windows to confine and protect building inhabitants. In such instances, the authority having jurisdiction shall make appropriate modifications to those sections of this *Code* that would otherwise require exits to be kept unlocked.

**13-1.1.1.8** Buildings or sections of buildings that house older persons and that provide activities that foster continued independence but do not include those services distinctive to health care facilities [as defined in 13-1.3(c)] may be subject to the requirements of other sections of this *Code*, such as Chapters 19 or 21.

**13-1.1.1.9** Health care occupancies shall include all buildings or parts thereof with occupancy as described in this chapter under Special Definitions, 13-1.3.

**13-1.1.1.10** Except for ambulatory health care centers, facilities that do not provide housing on a 24-hour basis for their occupants are classified as other occupancies and are covered by other chapters of the *Code*.

**13-1.1.2* Objective.** The objective of this chapter is to provide a reasonable level of safety by reducing the probability of injury and loss of life from the effects of fire with due consideration for functional requirements. This is accomplished by limiting the development and spread of a fire emergency to the room of fire origin and reducing the need for occupant evacuation, except from the room of fire origin.

**13-1.1.3 Total Concept.** All health care facilities shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency requiring the evacuation of occupants. Because the safety of health care occupants cannot be assured adequately by dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate staffing, and careful development of operating and maintenance procedures composed of the following:

(a) Proper design, construction, and compartmentation; and

(b) Provision for detection, alarm, and extinguishment; and

(c) Fire prevention and the planning, training, and drilling in programs for the isolation of fire, transfer of occupants to areas of refuge, or evacuation of the building.

**13-1.1.4 Additions, Conversions, Modernization, Renovation, and Construction Operations.** (*See also 1-4.5 and 1-4.6.*)

**13-1.1.4.1 Additions.** Additions shall be separated from any existing structure not conforming to the provisions within Chapter 13 by a fire barrier having at least a 2-hour fire resistance rating constructed of materials as required for the addition.

**13-1.1.4.2** Communicating openings in dividing fire barriers required by 13-1.1.4.1 shall occur only in corridors and shall be protected by approved self-closing fire doors. (*See also Section 6-2.*)

**13-1.1.4.3** Doors in barriers required by 13-1.1.4.1 shall normally be kept closed.

*Exception: Doors may be held open only if they meet the requirements of 13-2.2.2.6.*

**13-1.1.4.4 Conversions.** Conversions shall comply with 1-6.4. A conversion from a hospital to a nursing home or from a nursing home to a hospital is not a change in occupancy or suboccupancy classification.

**13-1.1.4.5 Modernizations or Renovations.** In modernization projects and renovations to existing facilities, only that portion of the total facility affected by the project need comply with the provision of Chapter 12 in accordance with 1-4.6.

*Exception: Existing health care occupancies 75 ft (23 m) or more in height shall not be required to comply with the sprinkler provision applicable to new construction when undergoing modernization or renovation provided all other applicable provisions of this Code are met.*

**13-1.1.4.6 Construction Operations.** See 1-6.3 and Chapter 31 for life safety provisions during construction.

**13-1.1.5 Modification of Retroactive Provisions.** (*See also Sections 1-4 and 1-5.*) The requirements of this chapter may be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction and if the resulting arrangement could be considered as presenting minimum hazard to the life safety of the occupants. The requirements may be modified by the authority having jurisdiction to allow alternative arrangements that will secure as nearly equivalent safety to life from fire as practical.

**13-1.2 Mixed Occupancies.** (*See also 1-4.7.*)

**13-1.2.1*** Sections of health care facilities may be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve health care occupants for purposes of

1. Housing, or
2. Treatment, or
3. Customary access by patients incapable of self-preservation.

(b) They are adequately separated from areas of health care occupancies by construction having a fire resistance rating of at least 2 hours.

**13-1.2.2** Ambulatory care (*see Section 13-6*), medical clinics, and similar facilities that are contiguous to health care occupancies but are primarily intended to provide outpatient services may be classified as a business or ambulatory care occupancy, provided the facilities are separated from health care occupancies by not less than 2-hour fire-resistive construction.

*Exception*: Where a facility is intended to provide services for health care patients who are litter borne, it shall meet all requirements for health care facilities.*

**13-1.2.3** Health care occupancies in buildings housing other occupancies shall be completely separated from them by construction having a fire resistance rating of at least 2 hours as provided for additions in 13-1.1.4.

**13-1.2.4** All means of egress from health care occupancies that traverse non-health care spaces shall conform to requirements of this *Code* for health care occupancies.

*Exception: It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform with health care egress provisions but that do comply with requirements set forth in the appropriate occupancy chapter of this Code as long as the occupancy does not contain high hazard contents. The horizontal exit must comply with the requirements of 13-2.2.5.*

**13-1.2.5** Auditoriums, chapels, staff residential areas, or other occupancies provided in connection with health care facilities shall have exits provided in accordance with other applicable sections of the *Code*.

**13-1.2.6** Any area with a hazard of contents classified higher than that of the health care occupancy and located in the same building shall be protected as required in 13-3.2.

**13-1.2.7** Non-health care related occupancies classified as containing high hazard contents shall not be permitted in buildings housing health care occupancies.

**13-1.3 Special Definitions.**

(a) *Hospital.* A building or part thereof used on a 24-hour basis for the medical, psychiatric, obstetrical, or surgical care of four or more inpatients. Hospital, wherever used in this *Code*, shall include general hospitals, psychiatric hospitals, and specialty hospitals.

(b) *Nursing Home.* A building or part thereof used on a 24-hour basis for the housing and nursing care of four or more persons who, because of mental or physical incapacity, may be unable to provide for their own needs and safety without the assistance of another person. Nursing home, wherever used in this *Code*, shall include nursing and convalescent homes, skilled nursing facilities, intermediate care facilities, and infirmaries in homes for the aged.

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

(d) *Ambulatory Health Care Centers.* A building or part thereof used to provide services or treatment to four or more patients at the same time and meeting either (1) or (2) below.

1. Those facilities that provide, on an outpatient basis, treatment for patients that would render them incapable of taking action for self-preservation under emergency conditions without assistance from others, such as hemodialysis units or freestanding emergency medical units.

2. Those facilities that provide, on an outpatient basis, surgical treatment requiring general anesthesia.

**13-1.4 Classification of Occupancy.** See Definitions, 13-1.3.

**13-1.5 Classification of Hazard of Contents.** The classification of hazard of contents shall be as defined in Section 4-2.

**13-1.6 Minimum Construction Requirements.**

**13-1.6.1** For the purpose of 13-1.6, stories shall be counted starting at the primary level of exit discharge and ending at the highest occupiable level. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade of the exterior wall line for 50 percent or more of its perimeter. Building levels below the primary level shall not be counted as a story in determining the height of a building.

**13-1.6.2** Health care occupancies shall be limited to the following types of building construction (*see 6-2.1*):

Table 13-1.6.2

| Construction Type | Stories | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | over 3 |
| I (443)<br>I (332)<br>II (222) | X | X | X | X |
| II (111) | X | X† | X† | N.P. |
| II (000) | X† | X† | N.P. | N.P. |
| IV (2HH) | X† | X† | N.P. | N.P. |
| III (211) | X† | X† | N.P. | N.P. |
| V (111) | X† | X† | N.P. | N.P. |
| III (200) | X† | N.P. | N.P. | N.P. |
| V (000) | X† | N.P. | N.P. | N.P. |

X = Permitted type of construction
X† = Building requires automatic sprinkler protection (*See 13-3.5.1*)
N.P. = Not Permitted

*Exception: Any building of Type I or Type II (222 or 111) construction may include roofing systems involving combustible supports, decking, or roofing provided: (1) the roof covering meets Class C requirements in accordance with NFPA 256, Standard Methods of Fire Tests of Roof Coverings, and (2) the roof is separated from all occupied portions of the building by a noncombustible floor assembly that includes at least 2½ in. (6.4 cm) of concrete or gypsum fill. To qualify for this exception, the attic or other space so developed shall either be unoccupied or protected throughout by an approved automatic sprinkler system.*

**13-1.6.3** All interior walls and partitions in buildings of Type I or Type II construction shall be of noncombustible or limited-combustible materials.

*Exception: Listed fire retardant treated wood studs may be used within non-load bearing 1-hour fire-rated partitions.*

**13-1.6.4** Openings for the passage of pipes or conduit in walls or partitions that are required to have fire or smoke resisting capability shall be protected in accordance with 6-2.3.4.2 or 6-3.6.1.

**13-1.6.5 Firestopping.** Each exterior wall of frame construction and interior stud partitions shall be firestopped so as to cut off all concealed draft openings, both horizontal and vertical, between any cellar or basement and the first floor. Such firestopping shall consist of wood at least 2 in. (5 cm) (nominal) thick or of suitable noncombustible material.

**13-1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor but not less than one person for each 120 sq ft (11.1 sq m) gross floor area in health care sleeping departments, and not less than one person for each 240 sq ft (22.3 sq m) of gross floor area of inpatient health care treatment departments. Gross floor areas shall be measured within the exterior building walls with no deductions. (*See Chapter 3.*)

## SECTION 13-2 MEANS OF EGRESS REQUIREMENTS

**13-2.1 General.** Every aisle, passageway, corridor, exit discharge, exit location, and access shall be in accordance with Chapter 5.

*Exception: As modified in the following paragraphs.*

**13-2.2 Means of Egress Components.**

**13-2.2.1** Components of the Means of Egress shall be limited to the types described in 13-2.2.2 through 13-2.2.7.

**13-2.2.2 Doors.**

**13-2.2.2.1** Doors shall comply with 5-2.1.

**13-2.2.2.2** Locks shall not be permitted on patient sleeping room doors.

*Exception No. 1: Key locking devices that restrict access to the room from the corridor and that are operable only by staff from the corridor side may be permitted. Such devices shall not restrict egress from the room.*

*Exception No. 2: Door locking arrangements are permitted in health care occupancies or portions of health care occupancies where the clinical needs of the patients require specialized security measures for their safety, provided keys are carried by staff at all times.*

**13-2.2.2.3** Doors not in a required means of egress may be subject to locking.

**13-2.2.2.4** Doors within a required means of egress shall not be equipped with a latch or lock that requires the use of a tool or key from the egress side.

*Exception No. 1: Door locking arrangements are permitted in mental health facilities (see 13-1.1.1.7 and 13-2.2.2.5.)*

*Exception No. 2*: Special locking arrangements complying with 5-2.1.6 are permitted, provided not more than one such device may be in any egress path.*

**13-2.2.2.5** In buildings in which doors are locked, provisions shall be made for the rapid removal of occupants by such reliable means as the remote control of locks or by keying all locks to keys readily available to staff who are in constant attendance.

**13-2.2.2.6*** Any door in an exit passageway, stairway enclosure, horizontal exit, smoke barrier, or hazardous area enclosure may be held open only by an automatic release device that complies with 5-2.1.8. The automatic sprinkler system if provided, the required fire alarm system, and the systems required by 5-2.1.8(c) shall be arranged so as to initiate the closing action of all such doors by zone or throughout the entire facility.

**13-2.2.2.7** Where doors in a stair enclosure are held open by an automatic device as permitted in 13-2.2.2.6, initiation of a door closing action on any level shall cause all doors at all levels in the stair enclosure to close.

**13-2.2.2.8*** Health care occupancies are exempted from the provisions of 5-2.1.5.2.

**13-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**13-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**13-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4, modified as follows:

(a) At least 30 net sq ft (2.8 sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 sq m) per resident in a limited care facility shall be provided within the aggregated area of corridors, patient rooms, treatment rooms, lounge or dining areas, and other low hazard areas on each side of the horizontal exit. On stories not housing bed or litter patients, at least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the horizontal exit for the total number of occupants in adjoining compartments.

(b)* A door in a horizontal exit is not required to swing with exit travel as specified in 5-2.4.3.4.

(c) The total exit capacity of the other exits (stairs, ramps, doors leading outside the building) shall not be reduced below one-third that required for the entire area of the building.

(d) Door openings in horizontal exits shall be protected by a swinging door a minimum of 34 in. (86 cm) in width or a horizontal sliding door complying with 5-2.1.14 and providing a clear opening of at least 34 in. (86 cm).

**13.2.2.6 Ramps.**

**13-2.2.6.1** Ramps shall comply with 5-2.5.

**13-2.2.6.2** Ramps enclosed as exits shall be of sufficient width to provide exit capacity in accordance with 13-2.3.2.

**13-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**13-2.3 Capacity of Means of Egress.**

**13-2.3.1** The capacity of any required means of egress shall be based on its width as defined in Section 5-3.

**13-2.3.2** The capacity of means of egress providing travel by means of stairs shall be 1.0 in. (2.5 cm) per person; and the capacity of means of egress providing horizontal travel (without stairs); such as doors, ramps, or horizontal exits shall be 0.7 in. (1.8 cm) per person.

*Exception: The capacity of means of egress in health care occupancies protected throughout by an approved supervised automatic sprinkler system may be increased to 0.6 in. (1.5 cm) per person for travel by means of stairs, and to 0.5 in. (1.3 cm) per person for horizontal travel without stairs.*

**13-2.3.3** Any required aisle, corridor, or ramp shall be not less than 48 in. (122 cm) in clear width where serving as means of egress from patient sleeping rooms. It shall be so arranged as to avoid any obstructions to the convenient removal of nonambulatory persons carried on stretchers or on mattresses serving as stretchers.

*Exception: Aisles, corridors and ramps in adjunct areas not intended for the housing, treatment, or use of patients may be a minimum of 44 in. (112 cm) in clear and unobstructed width.*

**13-2.3.4** For evacuation purposes only, the minimum width for doors in the means of egress from hospital, nursing home, limited care facility and psychiatric hospital sleeping rooms, diagnostic and treatment areas, such as X-ray, surgery, or physical therapy shall be at least 34 in. (86 cm) wide.

**13-2.4 Number of Exits.**

**13-2.4.1** At least two exits of the types described in 13-2.2.2 through 13-2.2.7, remotely located from each other, shall be provided for each floor or fire section of the building.

**13-2.4.2** At least one exit from each floor or fire section shall be either:

(a) A door leading directly outside the building, or

(b) A stair, or

(c) A smokeproof enclosure, or

(d) A ramp, or

(e) An exit passageway.

Any fire section not meeting these requirements shall be considered as part of an adjoining zone. Egress shall not require return through the zone of fire origin.

**13-2.4.3*** At least two exits of the types described in 13-2.2.2 through 13-2.2.7 shall be accessible from each smoke compartment. Egress may be through adjacent compartment(s), but shall not require return through the compartment of fire origin.

**13-2.5 Arrangement of Means of Egress.**

**13-2.5.1** Every habitable room shall have an exit access door leading directly to an exit access corridor.

*Exception No. 1: If there is an exit door opening directly to the outside from the room at ground level.*

*Exception No. 2: For patient sleeping rooms, one adjacent room, such as a sitting or anteroom, may intervene if the intervening room is not used to serve as an exit access for more than eight patient sleeping beds.*

*Exception No. 3: Exception No. 2 above shall apply to special nursing suites permitted in 13-2.5.3 without being limited to eight beds or basinettes.*

*Exception No. 4: For rooms other than patient sleeping rooms, one or more adjacent rooms, such as offices, work rooms, etc., may intervene provided that such intervening rooms are not hazardous areas as defined in 13-3.2.*

**13-2.5.2** Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 sq ft (93 sq m) shall have at least two exit access doors remote from each other.

Any room or any suite of rooms, other than patient sleeping rooms, of more than 2,500 sq ft (230 sq m) shall have at least two exit access doors remote from each other.

**13-2.5.3** Any patient sleeping room that complies with the requirements previously set forth in this section may be subdivided with non-fire-rated, noncombustible or limited-combustible partitions, provided that the arrangement allows for direct and constant visual supervision by nursing personnel. Rooms that are so subdivided shall not exceed 5,000 sq ft (460 sq m).

**13-2.5.4** Any suite of rooms, other than patient sleeping rooms, that complies with the requirements previously set forth in this section may be subdivided with non-fire-rated, noncombustible, or limited-combustible partitions. Such suites shall not exceed 10,000 sq ft (930 sq m) in area and either:

(a) The maximum travel distance from any point in the suite to a corridor door shall be limited to 50 ft (15 m), or

(b) There shall be unrestricted access from patient treatment areas to a corridor with a maximum of one intervening room.

**13-2.5.5*** Every corridor shall provide access to at least two approved exits in accordance with Sections 5-4 and 5-5 without passing through any intervening rooms or spaces other than corridors or lobbies.

*Exception: Existing dead-end corridors may be continued in use if it is not practical and feasible to alter them so that exits will be accessible in at least two different directions from all points in aisles, passageways, and corridors.*

**13-2.6 Travel Distance to Exits.**

**13-2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**13-2.6.2** Travel distance:

(a) Between any room door required as exit access and an exit shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m);

*Exception: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system.*

(c) Between any point in a health care sleeping room and an exit access door of that room shall not exceed 50 ft (15 m).

(d) Between any point in a suite of rooms as permitted by 13-2.5 and an exit access door of that suite shall not exceed 100 ft (30 m) and shall meet (b) above.

**13-2.7 Discharge From Exits.**

**13-2.7.1** Discharge from exits shall be arranged in accordance with Section 5-7.

**13-2.8 Illumination of Means of Egress.**

**13-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**13-2.9 Emergency Lighting.**

**13-2.9.1** Emergency lighting shall be provided in accordance with Section 5-9.

**13-2.10 Marking of Means of Egress.**

**13-2.10.1** Means of egress shall have signs in accordance with Section 5-10.

*Exception: Where the line of exit travel is obvious, signs may be omitted in one story buildings with an occupancy of less than 30 persons.*

**13-2.11 Special Features.**

## SECTION 13-3 PROTECTION

**13-3.1 Protection of Vertical Openings.**

**13-3.1.1** Any stairway, ramp, elevator hoistway, light or ventilation shaft, chute, and other vertical opening between stories shall be enclosed in accordance with Section 6-2.4 with construction having a 1-hour fire resistance rating.

*Exception No. 1: Where a full enclosure of a stairway that is not a required exit is impracticable, the required enclosure may be limited to that necessary to prevent a fire originating in any story from spreading to any other story.*

*Exception No. 2: Stairs that do not connect to a corridor, do not connect more than two levels, and do not serve as a means of egress need not comply with these regulations.*

*Exception No. 3: Floor and ceiling openings for pipes or conduits where the opening around the pipes or conduits is sealed in an approved manner. (See 6-2.3.4.2.)*

*Exception No. 4: An atrium may be used in accordance with 6-2.4.5. Exception No. 1 to 6-2.4.5(g) shall not apply to patient sleeping and treatment rooms.*

**13-3.1.2** A door in a stair enclosure shall be self-closing, shall normally be kept in a closed position, and shall be marked in accordance with Section 5-10.

*Exception: Doors in stair enclosures may be held open under the conditions specified by 13-2.2.2.6 and 13-2.2.2.7.*

**13-3.2 Protection from Hazards.**

**13-3.2.1 Hazardous Areas.** Any hazardous areas shall be safeguarded by a fire barrier of 1-hour fire resistance rating or provided with an automatic extinguishing system in accordance with 6-4.1. The automatic extinguishing may be in accordance with 13-3.5.4. Hazardous areas include, but are not restricted to, the following:

- Boiler and fuel-fired heater rooms
- Central/bulk laundries greater than 100 sq ft (9.3 sq m)
- Repair shops
- Handicraft shops
- Employee locker rooms
- Soiled linen rooms
- Paint shops
- Trash collection rooms
- Rooms or spaces of more than 50 sq ft (4.6 sq m), including repair shops, used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction.
- Laboratories employing quantities of flammable or combustible materials less than that which would be considered severe.

**13-3.2.2* Laboratories.** Laboratories employing quantities of flammable, combustible, or hazardous materials that are considered as severe hazard shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**13-3.2.3 Anesthetizing Locations.** Anesthetizing locations shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**13-3.2.4 Medical Gas.** Medical gas storage and administration areas shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**13-3.2.5 Gift Shops.** Gift shops shall be protected as hazardous areas where used for the storage or display of combustibles in quantities considered hazardous. Gift shops not considered hazardous and having separately protected storage may be:

(a) Open to a lobby if the gift shop is not greater than 500 sq ft (46.5 sq m) and is protected throughout by an approved automatic sprinkler system, or

(b) Separated from a lobby with non-fire-rated walls if the gift shop is protected throughout by an approved automatic sprinkler system, or

(c) Separated from corridors by non-fire-rated walls if the gift shop is protected throughout by an approved automatic sprinkler system.

**13-3.2.6 Cooking Facilities.** Cooking facilities shall be protected in accordance with 7-2.3.

*Exception*: Where domestic cooking equipment is used for food warming or limited cooking, protection or segregation of food preparation facilities is not required.*

**13-3.3* Interior Finish.**

**13-3.3.1** Interior finish on walls and ceilings throughout shall be Class A or Class B, in accordance with Section 6-5.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, Class C interior finish may be continued in use on all walls and ceilings within rooms separated from the exit access corridors in accordance with 13-3.6.*

**13-3.3.2** Newly installed interior floor finish in corridors and exits shall be Class I in accordance with Section 6-5. No restrictions shall apply to existing interior floor finish.

**13-3.4 Detection, Alarm, and Communications Systems.**

**13-3.4.1 General.** Health care occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**13-3.4.2 Initiation.** Initiation of the required fire alarm systems shall be by manual means in accordance with 7-6.2 and by means of any detection devices or detection systems required.

*Exception No. 1: Fire alarm pull stations in patient sleeping areas may be omitted at exits if located at all nurses' control stations or other continuously attended staff location, provided such pull stations are visible and continuously accessible and that travel distances in 7-6.2.4 are not exceeded.*

*Exception No. 2: Fixed extinguishing systems protecting commercial cooking equipment in kitchens that are protected by a complete automatic sprinkler system need not initiate the fire alarm system.*

**13-3.4.3 Notification.**

**13-3.4.3.1 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm activating device by means of an internal audible alarm in accordance with 7-6.3. Presignal systems are prohibited.

*Exception: Where visual devices have been installed in patient sleeping areas, in place of the audible alarm, they may be accepted by the authority having jurisdiction.*

**13-3.4.3.2 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Smoke detection devices or smoke detection systems equipped with reconfirmation features need not automatically notify the fire department unless the alarm condition is reconfirmed after a maximum 120 second time period.*

**13-3.4.4 Emergency Control.** Operation of any activating device in the required fire alarm system shall be arranged to automatically accomplish, without delay, any control functions to be performed by that device. (*See 7-6.5.*)

**13-3.4.5 Detection.**

**13-3.4.5.1 Corridors.** An approved automatic smoke detection system shall be installed in all corridors of limited care facilities. Such systems shall be installed in accordance with Section 7-6.

*Exception No. 1: Where each patient sleeping room is protected by an approved smoke detection system, and a smoke detector is provided at smoke barriers and horizontal exits, such corridor systems will not be required on the patient sleeping room floors.*

*Exception No. 2: Buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**13-3.4.5.2 Spaces Open to Corridors.** (*See 13-3.6.1.*)

**13-3.5 Extinguishment Requirements.**

**13-3.5.1** Where required by 13-1.6, health care facilities shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

*Exception: In Types I and II construction, where approved by the authority having jurisdiction, alternative protection measures may be substituted for sprinkler protection in specified areas where the authority having jurisdiction has prohibited sprinklers, without causing a building to be classified as nonsprinklered.*

**13-3.5.2** Where this *Code* permits exceptions for fully sprinklered health care occupancies, the sprinkler system shall be:

(a) In complete accordance with Section 7-7.

(b) Electrically connected to the fire alarm system, and

(c) Fully supervised.

*Exception: In Types I and II construction, where approved by the authority having jurisdiction, alternative protection measures may be substituted for sprinkler protection in specified areas where the authority having jurisdiction has prohibited sprinklers, without causing a building to be classified as nonsprinklered.*

**13-3.5.3** The main sprinkler control valve(s) shall be electrically supervised so that at least a local alarm will sound at a constantly attended location when the valve is closed.

**13-3.5.4** Isolated hazardous areas may be protected in accordance with 7-7.1.2 if the additional requirements of this paragraph are met. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply. For new installations in existing buildings, where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the building fire alarm or notify by a signal any constantly attended location, such as PBX, security, or emergency room, whereby necessary corrective action shall be directed.

**13-3.5.5** Portable fire extinguishers shall be provided in all health care occupancies in accordance with 7-7.4.1.

**13-3.6 Corridors.**

**13-3.6.1*** Corridors shall be separated from all other areas by partitions complying with 13-3.6.2 through 13-3.6.4 (*also see 13-2.5.5*).

*Exception No. 1: Waiting areas may be open to the corridor, provided:*

*(a) Each area does not exceed 600 sq ft (55.7 sq m), and*

*(b) The area is located to permit direct supervision by the facility staff, and*

*(c) The area does not obstruct any access to required exits, and*

*(d) The area is equipped with an electrically supervised, automatic smoke detection system installed in accordance with 13-3.4.*

*Exception No. 2: Spaces other than patient sleeping rooms, treatment rooms, and hazardous areas may be open to the corridor and may be unlimited in area provided:*

*(a) Each space is located to permit direct supervision by the facility staff, and*

*(b) The space and corridors that the space opens onto in the same smoke compartment are protected by an electrically supervised, automatic smoke detection system installed in accordance with 13-3.4, and*

*(c)* Each space is protected by automatic sprinklers or the furnishings and furniture in combination with all other combustibles within the area are of such a minimum quantity and are so arranged that a fully developed fire is unlikely to occur, and*

*(d) The space does not obstruct access to required exits.*

*Exception No. 3*: Spaces for nurses' stations.*

*Exception No. 4: Gift shops may be open to the corridor where protected in accordance with 13-3.2.5.*

*Exception No. 5: In a limited care facility, group meeting or multipurpose therapeutic spaces, other than hazardous areas, under continuous supervision by facility staff may be open to the corridor provided:*

*(a) Each area does not exceed 1,500 sq ft (140 sq m), and*

*(b) The area is located to permit direct supervision by the facility staff, and*

*(c) The area does not obstruct any access to required exits, and*

*(d) The area is equipped with an electrically supervised, automatic smoke detection system installed in accordance with 13-3.4, and*

*(e) Not more than one such space is permitted per smoke compartment.*

**13-3.6.2 Construction of Corridor Walls.**

**13-3.6.2.1*** Corridor walls shall be continuous from the floor to the underside of the floor or roof deck above, through any concealed spaces, such as those above the suspended ceilings, and through interstitial structural and mechanical spaces, and shall have a fire resistance rating of at least 20 minutes.

*Exception No. 1: In health care occupancies protected throughout by an approved supervised automatic sprinkler system, a corridor may be separated from all other areas by nonfire-rated partitions and may be terminated at the ceiling when the ceiling is constructed to limit the transfer of smoke.*

*Exception No. 2: Corridor partitions may terminate at ceilings that are not an integral part of a floor construction if there exists 5 ft (152 cm) or more of space between the top of the ceiling subsystem and the bottom of the floor or roof above, provided:*

*(a) The ceiling shall have been tested as a part of a fire-rated assembly in accordance with NFPA 251, Standard Methods of Fire Tests of Building Construction and Materials, for a test period of 1 hour or more, and*

*(b) Corridor partitions form smoketight joints with the ceilings (joint filler, if used, shall be noncombustible), and*

*(c) Each compartment of interstitial space that constitutes a separate smoke area is vented, in case of smoke emergency, to the outside by mechanical means having sufficient capacity to provide at least two air changes per hour, but in no case having a capacity less than 5,000 cfm (2.36 cu m/s), and*

*(d) The interstitial space shall not be used for storage, and*

*(e) The space shall not be used as a plenum for supply, exhaust or return air except as noted in (c).*

*Exception No. 3*: Corridor partitions may terminate at monolithic ceilings that resist the passage of smoke and there is a smoketight joint between the top of the partition and the bottom of the ceiling.*

**13-3.6.2.2** Corridor walls shall form a barrier to limit the transfer of smoke.

**13-3.6.2.3** Fixed wired glass vision panels shall be permitted in corridor walls, provided they do not exceed 1,296 sq in. (.84 sq m) in area and are mounted in steel or other approved metal frames.

*Exception: There shall be no restrictions in area and fire resistance of glass and frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**13-3.6.3 Corridor Doors.**

**13-3.6.3.1** Doors protecting corridor openings in other than required enclosures of vertical openings, exits, or hazardous areas shall be substantial doors, such as those constructed of 1¾-in. (4.4-cm) solid bonded core wood or of construction that will resist fire for at least 20 minutes.

*Exception No. 1: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7, the door construction requirements noted above are not required but the doors shall be constructed to resist the passage of smoke.*

*Exception No. 2: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.*

**13-3.6.3.2*** Doors shall be provided with means suitable for keeping the door closed and acceptable to the authority having jurisdiction.

*Exception: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.*

**13-3.6.3.3** Door frames shall be labeled, or shall be of steel construction, or shall be of other materials complying with the requirements of NFPA 252, *Standard Methods of Fire Tests of Door Assemblies.*

*Exception: Door frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**13-3.6.3.4** Door-closing devices are not required on doors in corridor wall openings other than those serving required enclosures of vertical openings, exits, or hazardous areas.

**13-3.6.3.5** Fixed view panels of wired glass, in steel or other approved metal frames, limited to 1,296 sq in. (.84 sq m) in area, may be installed in these doors.

*Exception: There shall be no restrictions in area and fire resistance of glass and frames in buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7.*

**13-3.6.3.6** Dutch doors may be used where they conform to 13-3.6.3, and in addition, both upper leaf and lower leaf shall be equipped with a latching device, and the meeting edges of the upper and lower leaves shall be equipped with an astragal, rabbet, or bevel.

Dutch doors protecting openings in enclosures around hazardous areas shall comply with NFPA 80, *Standard for Fire Doors and Windows.*

**13-3.6.4 Transfer Grilles.** Transfer grilles, whether or not protected by fusible link operated dampers, shall not be used in these walls or doors.

*Exception: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials may have ventilating louvers or may be undercut.*

**13-3.7 Subdivision of Building Spaces.**

**13-3.7.1** Smoke barriers shall be provided, regardless of building construction type, to divide every story used for sleeping rooms for more than 30 patients into at least two smoke compartments. The maximum area of any such smoke compartment shall not exceed 22,500 sq ft (2,100 sq m), of which both length and width shall be no more than 150 ft (45 m).

*Exception No. 1: Protection may be accomplished in conjunction with the provision of horizontal exits.*

*Exception No. 2: One dimension may be extended provided that the total width plus length does not exceed 300 ft (91 m) and provided that travel distance from a room to a smoke barrier door or horizontal exit is no more than 150 ft (45 m).*

**13-3.7.2** For purposes of this section, the number of health care occupants shall be determined by actual count of patient bed capacity.

**13-3.7.3** Any required smoke barrier shall be constructed in accordance with Section 6-3 and shall have a fire resistance rating of at least ½ hour.

*Exception: Where an atrium is used, smoke barriers may terminate at an atrium wall constructed in accordance with Exception No. 2 to 6-2.4.5(g). A minimum of two separate smoke compartments shall be provided on each floor.*

**13-3.7.4** At least 30 net sq ft (2.8 sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 sq m) per resident in a limited care facility shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas, and other low hazard areas on each side of the smoke barrier. On stories not housing bed or litter patients, at least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the smoke barrier for the total number of occupants in adjoining compartments.

**13-3.7.5** Openings in smoke barriers shall be protected by wired glass panels in steel frames, by doors of 20-minute fire protection rating, or by 1 ¾-in. (4.4-cm) solid bonded wood core doors as a minimum.

*Exception: Doors may have wired glass vision panels, installed in steel or other approved metal frames, not exceeding 1,296 sq in. (.84 sq m).*

**13-3.7.6** Doors in smoke barriers shall comply with Section 6-3 and shall be self-closing. Such doors in smoke barriers shall not be required to swing with exit travel. Positive latching hardware is not required.

*Exception: Doors may be held open only if they meet the requirements of 13-2.2.2.6.*

**13-3.7.7** Door openings in smoke barriers shall be protected by a swinging door, a minimum of 34 in. (86 cm) in width, or by a horizontal sliding door complying with 5-2.1.14 and providing a clear opening of at least 34 in. (86 cm).

**13-3.8 Special Features.**

**13-3.8.1** Every patient sleeping room shall have an outside window or outside door with light. The maximum allowable sill height shall not exceed 44 in. (112 cm) above the floor.

*Exception No. 1: The window sill in special nursing care areas such as those housing ICU, CCU, hemodialysis, and neonatal patients may be up to 60 in. (152 cm) above the floor.*

*Exception No. 2: Rooms intended for occupancy of less than 24 hours, such as those housing obstetrical labor beds, recovery beds, and observation beds in the emergency department; and newborn nurseries, need not comply with this requirement.*

*Exception No. 3: Windows opening into atriums where the atrium has a smoke removal system are, for the purposes of this requirement, considered outside windows.*

## SECTION 13-4 SPECIAL PROVISIONS

**13-4.1 Windowless Buildings.** See Section 30-7 for requirements for windowless buildings.

**13-4.2 High Rise Buildings.** (Reserved)

**13-4.3 Operating Features.** (*See Chapter 31.*)

## SECTION 13-5 BUILDING SERVICES

**13-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**13-5.2 Heating, Ventilating, and Air Conditioning.**

**13-5.2.1** Heating, ventilating, and air conditioning shall comply with the provisions of Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

*Exception: As modified in 13-5.2.2 following.*

**13-5.2.2** Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from the outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. Any heating device shall have safety features to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperature or ignition failure.

*Exception No. 1: Approved suspended unit heaters may be used in locations other than means of egress and patient sleeping areas, provided such heaters are located high enough to be out of the reach of persons using the area, and provided they are equipped with the safety features called for above.*

*Exception No. 2: Fireplaces may be installed and used only in areas other than patient sleeping areas, provided that these areas are separated from patient sleeping spaces by construction having a 1-hour fire resistance rating and they comply with NFPA 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances. In addition thereto, the fireplace shall be equipped with a fireplace enclosure guaranteed against breakage up to a temperature of 650°F (343°C) and constructed of heat tempered glass or other approved material. If, in the opinion of the authority having jurisdiction, special hazards are present, a lock on the enclosure and other safety precautions may be required.*

**13-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**13-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.**

**13-5.4.1** Any existing linen and trash chute, including pneumatic rubbish and linen systems, that opens directly onto any corridor shall be sealed by fire-resistive construction to prevent further use or shall be provided with a fire door assembly suitable for a Class B location and having a fire protection rating of 1½ hours. All new chutes shall comply with Section 7-5.

**13-5.4.2** Any rubbish chute or linen chute, including pneumatic rubbish and linen systems, shall be provided with automatic extinguishing protection installed in accordance with Section 7-7. (*See Section 7-5.*)

**13-5.4.3** Any trash chute shall discharge into a trash collecting room used for no other purpose and protected in accordance with Section 6-4.

**13-5.4.4** Existing flue-fed incinerators shall be sealed by fire-resistive construction to prevent further use.

## SECTION 13-6 EXISTING AMBULATORY HEALTH CARE CENTERS

**13-6.1 General Requirements.**

**13-6.1.1 Application.**

**13-6.1.1.1** Existing ambulatory health care centers shall comply with the provisions of both Chapter 27 and (this) Section 13-6, as may be more stringent.

**13-6.1.1.2** This section establishes life safety requirements, in addition to those required in Chapter 27, for all ambulatory health care centers and outpatient surgical centers that meet the requirements of 13-1.3(d).

**13-6.1.1.3 Modification of Retroactive Provisions.** The requirements of this section may be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction and if the resulting arrangement could be considered as presenting minimum hazard to the life safety of the occupants. The requirements may be modified by the authority having jurisdiction to allow alternative arrangements that will secure as nearly equivalent safety to life from fire as practical.

**13-6.1.2 Reserved.**

**13-6.1.3 Special Definitions.** (*See 13-1.3.*)

**13-6.1.4 Classification of Occupancy.** (*See 13-1.3.*)

**13-6.1.5 Reserved.**

**13-6.1.6 Minimum Construction Requirements.**

**13-6.1.6.1** For purposes of 13-6.1.6, stories shall be counted starting at the primary level of exit discharge and ending at the highest occupiable level. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade of this exterior wall line for 50 percent or more of its perimeter.

**13-6.1.6.2** Buildings of one story in height housing ambulatory health care centers may be of Type I, II, III, IV, or V construction. (*See 6-2.1.*)

**13-6.1.6.3** Buildings of two or more stories in height housing ambulatory health care centers may be of Type I (443), I (332), or II (222), Type II (111), Type III (211), Type IV (2HH), or Type V (111) construction. (*See 6-2.1.*)

*Exception: Such buildings may be constructed of Type II (000), III (200), or V (000) if protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**13-6.1.6.4** Any level below the level of exit discharge shall be separated from the level of exit discharge by at least Type II (111), Type III (211), or Type V (111) construction. (*See 6-2.1.*)

*Exception: Such separation is not required for such levels if they are under the control of the ambulatory health care center and any hazardous spaces are protected in accordance with Section 6-4.*

**13-6.1.6.5** In existing buildings, the authority having jurisdiction may accept construction systems of lesser fire resistance than required above if it can be demonstrated to the authority's satisfaction that in case of fire prompt evacuation of the center can be made, or that the exposing occupancies and materials of construction present no threat of either fire penetration from such occupancy into the ambulatory health care center or collapse of the structure.

**13-6.1.7 Occupant Load.**

**13-6.2 Means of Egress Requirements.**

**13-6.2.1 General.** Every aisle, passageway, corridor, exit discharge, exit location, and access shall be in accordance with Chapter 5.

*Exception: As modified in the following paragraphs.*

**13-6.2.2 Means of Egress Components.**

**13-6.2.2.1** Components of means of egress shall be limited to the types described in 27-2.2.

**13-6.2.2.2** Special locking arrangements complying with 5-2.1.6 are permitted on exterior doors.

**13-6.2.2.3** Any door in an exit passageway, horizontal exit, smoke barrier, stairway enclosure, or hazardous area enclosure may be held open only by an automatic release device that complies with 5-2.1.8. The required manual fire alarm system and the systems required by 5-2.1.8(c) shall be arranged so as to initiate the closing action of all such doors by zone or throughout the entire facility.

**13-6.2.2.4** Where doors in a stair enclosure are held open by an automatic device as permitted in 13-6.2.2.3, initiation of a door closing action on any level shall cause all doors at all levels in the stair enclosure to close.

**13-6.2.3 Capacity of Means of Egress.**

**13-6.2.3.1** The capacity of any required means of egress shall be determined in accordance with the provisions of 27-2.3 and shall be based on its width as defined in Section 5-3.

**13-6.2.3.2** The minimum width of any corridor or passageway required for exit access shall be 44 in. (112 cm) clear.

**13-6.2.3.3** Doors in the means of egress from diagnostic or treatment areas, such as X-ray, surgical, or physical therapy shall be at least 34 in. (86 cm) wide.

**13-6.2.4 Number of Exits.**

**13-6.2.4.1** At least two exits of the types described in 27-2.2 remotely located from each other shall be provided for each floor or fire section of the building.

**13-6.2.4.2** Any room and any suite of rooms of more than 1,000 sq ft (93 sq m) shall have at least two exit access doors remotely located from each other.

**13-6.2.5 Arrangement of Means of Egress.** (*See 27-2.5.*)

**13-6.2.6 Travel Distance to Exits.**

**13-6.2.6.1** Travel distance shall be measured in accordance with Section 5-6.

**13-6.2.6.2** Travel distance:

(a) Between any room door required as exit access and an exit shall not exceed 100 ft (30 m); and

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m).

*Exception: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system.*

**13-6.2.7 Discharge from Exits.** (*See 27-2.7.*)

**13-6.2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**13-6.2.9 Emergency Lighting and Essential Electrical Systems.**

**13-6.2.9.1** Emergency lighting shall be provided in accordance with Section 5-9.

**13-6.2.9.2** Where general anesthesia or life support equipment is used, each ambulatory health care center shall be provided with an essential electrical system in accordance with NFPA 99, *Standard for Health Care Facilities.*

*Exception: Where battery operated equipment is provided and acceptable to the authority having jurisdiction.*

**13-6.2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**13-6.2.11 Special Features.**

**13-6.3 Protection.**

**13-6.3.1 Protection of Vertical Openings.** (*See 27-3.1.*)

**13-6.3.2 Protection from Hazards.** (*See 27-3.2.*)

**13-6.3.2.1** Laboratories employing quantities of flammable, combustible, or hazardous materials that are considered as severe hazard shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**13-6.3.2.2** Anesthetizing locations shall be protected in accordance with NFPA 99, *Standard for Health Care Facilities.*

**13-6.3.3 Interior Finish.** (*See 27-3.3.*)

**13-6.3.4 Detection, Alarm, and Communications Systems.**

**13-6.3.4.1 General.** Centers shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

**13-6.3.4.2 Initiation.** Initiation of the required fire alarm systems shall be by manual means in accordance with 7-6.2 and by means of any detection devices or detection systems required.

**13-6.3.4.3 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm activating device by means of an internal audible alarm in accordance with 7-6.3.

*Exception: The presignal system allowed by 7-6.3.2 Exception No. 2 shall not be permitted.*

**13-6.3.4.4 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

**13-6.3.4.5 Emergency Control.** Operation of any activating device in the required fire alarm system shall be arranged to automatically accomplish, without delay, any control functions required to be performed by that device. (*See 7-6.5.*)

**13-6.3.5 Extinguishment Requirements.** (*See 27-3.5.*)

**13-6.3.5.1** Isolated hazardous areas may be protected in accordance with 7-7.1.2 if the additional requirements of this paragraph are met. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply. For new installations in existing buildings where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the building fire alarm, or notify by a signal any constantly attended location, such as PBX, security, or emergency room, whereby necessary corrective action shall be directed.

**13-6.3.5.2** Portable fire extinguishers shall be provided in ambulatory health care occupancies in accordance with 7-7.4.1.

**13-6.3.6 Corridors.**

**13-6.3.7 Subdivision of Building Space.**

**13-6.3.7.1** Ambulatory health care occupancies shall be separated from other tenants and occupancies by walls having at least a 1-hour fire resistance rating. Such walls shall extend from the floor slab below to the floor or roof slab above. Doors shall be constructed of at least 1¾-in. (4.4-cm) solid bonded wood core or the equivalent and equipped with positive latches. These doors shall be self-closing and normally kept in the closed position except when in use. Any vision panels shall be of fixed wired glass, set in steel or other approved metal frames, and limited in size to 1,296 sq in. (.84 sq m).

**13-6.3.7.2** The ambulatory health care facility shall be divided into at least two smoke compartments.

*Exception: Facilities of less than 2,000 sq ft (185 sq m) and protected by an approved automatic smoke detection system need not be divided.*

**13-6.3.7.3** Any required smoke barrier shall be constructed in accordance with Section 6-3 and shall have a fire resistance rating of at least 1 hour.

**13-6.3.7.4** Vision panels in the smoke barrier shall be of fixed wired glass, set in steel or other approved metal frames, and shall be limited in size to 1,296 sq in. (.84 sq m).

**13-6.3.7.5 Reserved.**

**13-6.3.7.6** Doors in smoke barriers shall be constructed of at least 1¾-in. (4.4-cm) solid bonded wood core or the equivalent and shall be self-closing. A vision panel is required.

**13-6.3.7.7** Doors in smoke barriers shall normally be kept closed, or if held open, they shall be equipped with automatic devices that will release the doors upon activation of:

(a) The fire alarm system, and either

(b) A local smoke detector, or

(c) A complete automatic fire extinguishing system or complete automatic fire detection system.

**13-6.4 Special Provisions.** (*See Section 27-4.*)

**13-6.5 Building Services.**

**13-6.5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**13-6.5.2 Heating, Ventilating, and Air Conditioning.**

**13-6.5.2.1** Heating, ventilating, and air conditioning shall comply with the provisions of Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

*Exception: As modified in 13-6.5.2.2 following.*

**13-6.5.2.2** Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from the outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. Any heating device shall have safety features to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperature or ignition failure.

*Exception: Approved suspended unit heaters may be used in locations other than means of egress and patient treatment areas, provided such heaters are located high enough to be out of the reach of persons using the area and provided they are equipped with the safety features called for above.*

**13-6.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**13-6.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 14 NEW DETENTION AND CORRECTIONAL OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 14-1 GENERAL

**14-1.1 Application.**

**14-1.1.1** New detention and correctional facilities shall comply with the provisions of this chapter. They shall also comply with the applicable requirements of Chapter 31.

**14-1.1.2** This chapter establishes life safety requirements for the design of all new detention and correctional facilities.

*Exception No. 1: Use Condition I requirements are those stated in the applicable requirements of Chapters 16, 18, or 20.*

*Exception No. 2*: Facilities determined to have equivalent safety provided in accordance with Section 1-5.*

**14-1.1.3** Detention and correctional occupancies are those used for purposes such as jails, detention centers, correctional institutions, reformatories, houses of correction, pre-release centers, and other residential-restrained care facilities where occupants are confined or housed under some degree of restraint or security.

**14-1.1.4** Detention and correctional occupancies provide sleeping facilities for four or more residents and are occupied by persons who are generally prevented from taking self-preservation action because of security measures not under the occupants' control.

**14-1.1.5 Total Concept.** All detention and correctional facilities shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency.

Because the safety of all occupants in detention and correctional facilities cannot be adequately assured solely by a dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate trained staff, and careful development of operating, security, and maintenance procedures composed of the following:

(a) Proper design, construction, and compartmentation,

(b) Provision for detection, alarm, and extinguishment,

(c) Fire prevention and planning, training, and drilling in programs for the isolation of fire and transfer of occupants to areas of refuge or evacuation of the building, or protection of the occupants in place,

(d) Provision of security to the degree necessary for the safety of the public and the occupants of the facility.

**14-1.1.6 Additions.** Additions shall be separated from any existing structure not conforming with the provisions within Chapter 15 by a fire barrier having at least a 2-hour fire resistance rating constructed to the standards of the addition. Doors in these partitions shall normally be kept closed.

*Exception: Doors may be held open if they meet the requirements of the Exception to 5-2.1.8.*

**14-1.2* Mixed Occupancies.**

**14-1.2.1** Egress provisions for areas of detention and correctional facilities that correspond to other occupancies shall meet the corresponding requirements of this *Code* for such occupancies. Where security operations necessitate the locking of required means of egress, necessary staff shall be provided for the supervised release of occupants during all times of use.

**14-1.2.2** Sections of detention and correctional facilities may be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve residents for purpose of housing, customary access, or means of egress.

(b) They are adequately separated from areas of detention or correctional occupancies by construction having a fire resistance rating of at least 2 hours.

**14-1.2.3** Detention and correctional occupancies in buildings housing other occupancies shall be completely separated from the other occupancies by construction having a fire resistance rating of at least 2 hours, as provided for additions in 14-1.1.6.

**14-1.2.4** All means of egress from detention and correctional occupancies that traverse other use areas shall, as a minimum, conform to requirements of this *Code* for detention and correctional occupancies.

*Exception: It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to detention and correctional occupancy egress provisions but that do comply with requirements set forth in the appropriate occupancy chapter of this Code, as long as the occupancy does not have high hazard contents. The horizontal exit shall comply with the requirements of 14-2.2.5.*

**14-1.2.5** Any area with a hazard of contents classified higher than that of the detention or correctional occupancy and located in the same building shall be protected, as required in 14-3.2.

**14-1.2.6** Non-detention or non-correctional related occupancies classified as containing high hazard contents shall not be permitted in buildings housing detention or correctional occupancies.

**14-1.3 Special Definitions.**

(a) *Direct exit.* A direct exit is an exit that serves only one area or level, and the direct exit has no openings to *other* areas or levels.

(b) *Fire Barrier.* See Chapter 6.

(c) *Fire Compartment.* See Chapter 6.

(d) *Residential Housing Area.* Includes sleeping areas and any contiguous day room, group activity space, or other common spaces for customary access of residents.

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

(f) *Smoke Barrier.* See Chapter 6.

(g) *Smoke Compartment.* See Chapter 6.

**14-1.4 Classification of Occupancy.**

**14-1.4.1*** Users and occupants of detention and correctional facilities at various times can be expected to include staff, visitors, and residents. The extent and nature of facility utilization by members of each of these groups will vary according to type of facility, its function, and programs. For applications of the life safety requirements that follow, the resident user category is divided into five groups:

**Use Condition I — Free Egress**

Free movement is allowed from sleeping areas, and other spaces where access or occupancy is permitted, to the exterior via means of egress meeting the requirements of the *Code*.

**Use Condition II — Zoned Egress**

Free movement is allowed from sleeping areas and any other occupied smoke compartment to one or more other smoke compartments.

**Use Condition III — Zoned Impeded Egress**

Free movement is allowed within individual smoke compartments, such as within a residential unit comprised of individual sleeping rooms and group activity space, with egress impeded by remote control release of means of egress from such smoke compartment to another smoke compartment.

**Use Condition IV — Impeded Egress**

Free movement is restricted from an occupied space. Remote controlled release is provided to permit movement from all sleeping rooms, activity spaces, and other occupied areas within the smoke compartment to other smoke compartment(s).

**Use Condition V — Contained**

Free movement is restricted from an occupied space. Staff controlled manual release at each door is provided to permit movement from all sleeping rooms, activity spaces, and other occupied areas within the smoke compartment to other smoke compartment(s).

**14-1.4.2*** To classify as Use Condition III or IV, the arrangement, accessibility, and security of the release mechanism(s) used for emergency egress shall be such that the minimum available staff, at any time, can promptly release the locks.

**14-1.4.3** Areas housing occupancies corresponding to Use Condition I -- Free Egress shall conform to the requirements of residential occupancies under this *Code*.

**14-1.5 Classification of Hazard of Contents.** The classification of hazard of contents shall be as defined in Section 4-2.

**14-1.6 Minimum Construction Requirements.**

**14-1.6.1** For the purpose of 14-1.6, stories shall be counted starting at the primary level of exit discharge. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade on the exterior wall line for 50 percent or more of its perimeter. Building levels below the primary level shall not be counted as a story in determining the height of the building.

**14-1.6.2** A residential housing area complying with 14-3.1.2 shall be considered as a one story building for purposes of applying 14-1.6.3.

**14-1.6.3** Detention and correctional occupancies shall be limited to the following types of building construction (*see 6-2.1*):

**Table 14-1.6.3**

| Type of Construction | 1 story with Basement | 1 story without Basement | 2 story | 3 story | 4 story and Higher |
|---|---|---|---|---|---|
| I (443)<br>I (332)<br>II (222) | X | X | X | X | X |
| II (111) | X†† | X | X†† | N.P. | N.P. |
| III (211)<br>IV (2HH)<br>V (111) | X†† | X†† | X†† | N.P. | N.P. |
| II (000)<br>III (200)<br>V (000) | X† | X† | X† | N.P. | N.P. |

X: Permitted types of construction
X†: Permitted if the entire building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.
X††: X† applies in buildings where Use Condition V is used.
N.P.: Not Permitted

**14-1.6.4** All interior walls and partitions in Type I or Type II construction shall be of noncombustible or limited-combustible construction.

**14-1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor, but not less than one person for each 120 sq ft (11.1 sq m) gross floor area.

## SECTION 14-2 MEANS OF EGRESS

**14-2.1 General.** Means of egress shall comply with Chapter 5.

*Exception: As otherwise provided or modified in this section.*

**14-2.2 Means of Egress Components.**

**14-2.2.1** Components of means of egress shall be limited to the types described in 14-2.2.2 through 14-2.2.7.

**14-2.2.2 Doors.** Doors shall comply with 5-2.1.

*Exception: As provided in 14-2.11.*

**14-2.2.3 Stairs.**

**14-2.2.3.1** Stairs shall comply with 5-2.2.

*Exception: The provisions of 5-2.2.6.5(f) and 5-2.2.6.6(c) do not apply.*

**14-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted for access to and between staff locations.

**14-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**14-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4, modified as follows:

(a) At least 6 sq ft (.56 sq m) of accessible space per occupant shall be provided on each side of the horizontal exit for the total number of people in adjoining compartments.

(b) Horizontal exits may comprise 100 percent of the exits required provided that an exit, other than a horizontal exit, is accessible in some other (not necessarily adjacent) fire compartment without requiring return through the compartment of fire origin.

**14-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**14-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**14-2.3 Capacity of Means of Egress.**

**14-2.3.1** The capacity of any required means of egress shall be in accordance with Section 5-3.

**14-2.3.2** Aisles, corridors, and ramps required for access or exit shall be at least 4 ft (122 cm) in width.

**14-2.3.3** For residents' sleeping room door widths, see 14-2.11.3.

**14-2.4 Number of Exits.** (*See also Section 5-4.*)

**14-2.4.1** At least two exits of the types permitted in 14-2.2, remotely located from each other, shall be provided for each occupied story of the building.

**14-2.4.2** At least two exits of the types permitted in 14-2.2, remotely located from each other, shall be accessible from each fire or smoke compartment.

**14-2.4.3*** At least one approved exit shall be accessible from each fire compartment and each required smoke compartment into which residents may be moved in a fire emergency with the exits so arranged that egress shall not require return through the zone of fire origin.

**14-2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**14-2.5.1** Every sleeping room shall have a door leading directly to an exit access corridor.

*Exception No. 1: If there is an exit door opening directly to the outside from the room at the ground level.*

*Exception No. 2: One adjacent room, such as a dayroom, group activity space, or other common spaces may intervene. Where individual occupant sleeping rooms adjoin a dayroom or group activity space that is utilized for access to an exitway, such sleeping rooms may open directly to the dayroom or space and may be separated in elevation by a one-half or full-story height (see 14-3.1.2).*

**14-2.5.2** No exit or exit access shall contain a corridor, hallway, or aisle having a pocket or dead end exceeding 50 ft (15 m) for Use Conditions II, III, or IV and 20 ft (6.1 m) for Use Condition V.

**14-2.5.3** No common path of travel shall exceed 50 ft (15 m).

*Exception: A common path of travel may be permitted for the first 100 ft (30 m) in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**14-2.5.4** A sallyport may be permitted in a means of egress where there are provisions for continuous and unobstructed passage through the sallyport during an emergency exit condition.

**14-2.6 Travel Distance to Exits.**

**14-2.6.1** Travel distance:

(a) Between any room door required as exit access and an exit shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit shall not exceed 150 ft (45 m); and

(c) Between any point in a sleeping room to the door of that room shall not exceed 50 ft (15 m).

*Exception No. 1: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system or smoke control system.*

*Exception No. 2: The travel distance in (c) above may be increased to 100 ft (30 m) in open dormitories where the enclosing walls of the dormitory space are at least of smoketight construction. Where travel distance to the exit access door from any point within the dormitory exceeds 50 ft (15 m), at least two exit access doors remotely located from each other shall be provided.*

**14-2.7 Discharge from Exits.**

**14-2.7.1** Exits may discharge into a fenced or walled courtyard, provided that not more than two walls of the courtyard are the building walls from which exit is being made. Enclosed yards or courts shall be of sufficient size to accommodate all occupants at a minimum distance of 50 ft (15 m) from the building with a net area of 15 sq ft (1.4 sq m) per person.

**14-2.7.2** All exits may discharge through the level of exit discharge. The requirements of 5-7.2 may be waived provided that not more than 50 percent of the exits discharges into a single fire compartment.

**14-2.8 Illumination of Means of Egress.** Illumination shall be in accordance with Section 5-8.

**14-2.9 Emergency Lighting.** Emergency lighting shall be in accordance with Section 5-9.

**14-2.10 Marking of Means of Egress.** Exit marking shall be provided in areas accessible to the public in accordance with Section 5-10.

*Exception: Exit signs may be omitted in sleeping room areas.*

**14-2.11 Special Features.**

**14-2.11.1** Doors within means of egress shall be as required in Chapter 5.

*Exception: As provided in 14-2.11.2 through 14-2.11.10.*

**14-2.11.2** Doors may be locked in accordance with the applicable Use Condition.

**14-2.11.3*** Doors to resident sleeping rooms shall be at least 28 in. (71 cm) in clear width.

**14-2.11.4** Doors in a means of egress may be of the horizontal sliding type, provided the force to slide the door to its fully open position does not exceed 50 lb (222 N) with a perpendicular force against the door of 50 lb (222 N).

**14-2.11.5** Doors from areas of refuge to the exterior may be locked with key lock in lieu of locking methods described in

14-2.11.6. The keys to unlock such doors shall be maintained and available at the facility at all times, and the locks shall be operable from the outside.

**14-2.11.6*** Any remote release used in a means of egress shall be provided with reliable means of operation, remote from the resident living areas, to release locks on all doors.

*Exception: Provisions for remote locking and unlocking of occupied rooms in Use Condition IV may be waived provided not more than ten locks are necessary to be unlocked in order to move all occupants from one smoke compartment to an area of refuge as promptly as required for remote unlocking. The opening of all necessary locks shall be accomplished with no more than two separate keys. (See 14-3.7.6 for smoke barrier doors.)*

**14-2.11.7** All remote release operated doors shall be provided with a redundant means of operation as follows:

(a) Power-operated sliding doors or power-operated locks shall be so constructed that in the event of power failure, a manual mechanical means to release and open the doors is provided at each door, and either emergency power in accordance with 5-9.2.3 is provided for the power operation, or a remote manual mechanical release is provided.

(b) Mechanically operated sliding doors or mechanically operated locks shall be provided with a manual mechanical means at each door to release and open the door.

**14-2.11.8** Doors remotely unlocked under emergency conditions shall not automatically relock when closed unless specific action is taken at the remote location to enable doors to relock.

**14-2.11.9** Standby emergency power shall be provided for all electrically power-operated sliding doors and power-operated locks. Power shall be arranged to automatically operate within 10 seconds upon failure of normal power and to maintain the necessary power source for at least 1½ hours.

*Exception: This provision is not applicable for facilities with ten locks or less complying with the exception in 14-2.11.6.*

**14-2.11.10** The provisions of 5-2.1.5.2 for stairway reentry do not apply.

## SECTION 14-3 PROTECTION

### 14-3.1 Protection of Vertical Openings.

**14-3.1.1** Any stairway, ramp, elevator, hoistway, light or ventilation shaft, chute or other vertical opening between stories shall be enclosed in accordance with Section 6-2.

*Exception No. 1: Stairs that do not connect a corridor, do not connect more than two levels, and do not serve as a means of egresss need not comply with these regulations.*

*Exception No. 2: Multilevel residential housing areas in accordance with 14-3.1.2.*

*Exception No. 3: In residential housing areas protected throughout by an approved automatic sprinkler system, unprotected vertical openings are permitted in accordance with the conditions of 6-2.4.4, provided that the height between the lowest and highest finished floor levels does not exceed 23 ft (7.0 m). The number of levels is not restricted.*

*Exception No. 4: Atriums in accordance with 6-2.4.5 are permitted.*

**14-3.1.2** Multilevel residential housing areas are permitted without enclosure protection between levels, provided all the following conditions are met:

(a)* The entire normally occupied area, including all communicating floor levels, is sufficiently open and unobstructed so that it may be assumed that a fire or other dangerous condition in any part will be readily obvious to the occupants or supervisory personnel in the area.

(b) Exit capacity is sufficient to provide simultaneously for all the occupants of all communicating levels and areas, with all communicating levels in the same fire area being considered as a single floor area for purposes of determination of required exit capacity.

(c)* The height between the highest and lowest finished floor levels does not exceed 13 ft (4.0 m). The number of levels is not restricted.

### 14-3.2 Protection from Hazards.

**14-3.2.1*** An area used for general storage, boiler or furnace rooms, fuel storage, janitor's closets, maintenance shops including woodworking and painting areas, laundries and kitchens shall be separated from other parts of the building with construction having not less than a 1-hour fire resistance rating, and all openings shall be protected with self-closing fire doors, or such area shall be provided with automatic sprinkler protection. Where the hazard is severe, both the 1-hour fire resistance rated separation and automatic sprinklers shall be provided. The automatic extinguishing may be in accordance with 7-7.1.2.

*Exception No. 1: Where cooking facilities are protected per 7-2.3, kitchens need not be provided with room-wide protection.*

*Exception No. 2: When, in the opinion of the authority having jurisdiction, such areas are no longer incidental to residents' housing, they shall be separated by 2-hour fire barriers in conjunction with automatic sprinkler protection.*

**14-3.2.2*** Padded cells are severe hazard areas. Doors to padded cells shall be ¾-hour self-closing and self-latching fire door assemblies.

**14-3.2.3** Cooking facilities shall be protected in accordance with 7-2.3.

### 14-3.3 Interior Finish.

**14-3.3.1** Interior wall and ceiling finish in corridors, exits, and any space not separated from corridors and exits by a partition capable of retarding the passage of smoke shall be Class A. In all other areas, interior wall and ceiling finish shall be Class A, B, or C in accordance with Section 6-5.

**14-3.3.2** Interior floor finish material in corridors and exits shall be Class I in accordance with Section 6-5.

### 14-3.4 Detection, Alarm, and Communications Systems.

#### 14-3.4.1 General.

**14-3.4.1.1** Detention and correctional occupancies shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

**14-3.4.1.2** All required fire alarm systems shall be electrically supervised.

**14-3.4.1.3** All fire alarm systems and detection systems required in this section shall be provided with a secondary power supply, and the installation shall be in accordance with NFPA 72A, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service.*

**14-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means, in accordance with 7-6.2, and by means of any detection devices or detection systems required.

*Exception No. 1: Manual fire alarm boxes may be locked provided that staff is present within the subject area when occupied and have keys readily available to unlock the boxes.*

*Exception No. 2: Manual fire alarm boxes may be located in a staff location, provided that the staff location is manned when the building is occupied and has direct supervision of the sleeping area.*

**14-3.4.3 Notification.**

**14-3.4.3.1 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm initiating device in accordance with 7-6.3. Presignal systems are prohibited.

*Exception*: Any smoke detectors required by this chapter may be arranged to alarm at a constantly attended location only and are not required to accomplish general alarm indication.*

**14-3.4.3.2 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Any smoke detectors required by this chapter are not required to transmit an alarm to the fire department.*

**14-3.4.4 Detection.** An approved automatic smoke detection system shall be installed, in accordance with Section 7-6, throughout all resident housing areas.

*Exception No. 1: Smoke detectors may be omitted from sleeping rooms with 4 or fewer occupants in Use Condition II or III.*

*Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with Section 7-7, smoke detectors may be omitted from all but corridors, common spaces, and sleeping rooms with more than four occupants.*

*Exception No. 3: Other arrangements and positioning of smoke detectors may be used to prevent damage or tampering, or for other purposes, provided the function of detecting any fire is fulfilled and the siting of detectors is such that the speed of detection will be equivalent to that provided by the spacing and arrangements described in Section 7-6. This may include the location of detectors in exhaust ducts from cells, behind grilles, or in other locations. The equivalent performance of the design, however, must be acceptable to the authority having jurisdiction in accordance with the equivalency concepts specified in Section 1-5 of this Code.*

**14-3.5 Extinguishment Requirements.**

**14-3.5.1*** High rise buildings shall comply with the automatic sprinkler requirements of 30-8.2.

**14-3.5.2** Where required by 14-1.6, facilities shall be protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

**14-3.5.3** Where this *Code* permits exceptions for fully sprinklered detention and correctional occupancies, the sprinkler system shall be:

(a) In complete accordance with Section 7-7,

(b) Electrically connected to the fire alarm system, and

(c) Fully supervised.

**14-3.5.4** Portable fire extinguishers shall be provided in accordance with 7-7.4.1.

*Exception No. 1*: Access to portable fire extinguishers may be locked.*

*Exception No. 2: Portable fire extinguishers may be located at staff locations only.*

**14-3.5.5** Standpipe and hose systems shall be provided in accordance with 7-7.4.2 as follows:

(a) Class I standpipe systems shall be provided for any building over two stories in height, and

(b) Class III standpipe and hose systems shall be provided for all unsprinklered buildings over two stories in height.

*Exception No. 1: One-inch (2.5-cm) diameter formed hose on hose reels may be used to provide Class II service.*

*Exception No. 2: Separate Class I and Class II systems may be used in lieu of Class III.*

**14-3.6 Corridors.** [*See 14-3.8, Special Features (Subdivision of Resident Housing Spaces).*]

**14-3.7 Subdivision of Building Spaces.**

**14-3.7.1** Smoke barriers shall be provided, regardless of building construction type, so as to divide every story used by residents for sleeping or any other story having an occupant load of 50 or more persons, into at least two compartments.

*Exception No. 1: Protection may be accomplished with horizontal exits (see 5-2.4).*

*Exception No. 2*: Spaces having direct exit to (a) a public way, (b) a building separated from the resident housing area by a two-hour fire resistance rating or 50 ft. (15 m) of open space, or (c) a secured open area having a holding space 50 ft. (15 m) from the housing area that provides 15 sq. ft. (1.4 sq. m) or more of refuge area per person (resident, staff, visitors) that may be present at the time of the fire fulfills the requirements for subdivision of such spaces, provided the locking arrangement of doors involved meets the requirements for doors at the compartment barrier for the use condition involved.*

**14-3.7.2** Where smoke barriers are required by 14-3.7.1, smoke barriers shall be provided so as:

(a) to limit the housing to a maximum of 200 residents in any smoke compartment, and

(b) to limit the travel distance to a door in a smoke barrier:

1. From any room door required as exit access to 100 ft. (30 m),

2. From any point in a room to 150 ft. (45 m).

*Exception to (b): The travel distance may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system or smoke control system.*

**14-3.7.3*** Any required smoke barrier shall be constructed in accordance with Section 6-3. Barriers shall be of substantial

construction and shall have structural fire resistance. Fixed wire glass or minimum 45-minute fire rated glazing vision panels shall be permitted in such barriers, provided they do not individually exceed 1,296 sq in. (.84 sq m) in area and are mounted in approved steel frames. There is no restriction on the total number of such vision panels in any barrier (e.g., a smoke barrier may consist of wire glass or minimum 45-minute fire rated glazing panels mounted in a security grille arrangement).

**14-3.7.4** At least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the smoke barrier for the total number of occupants in adjoining compartments. This space shall be readily available whenever the occupants are moved across the smoke barrier in a fire emergency.

**14-3.7.5** Doors in smoke barriers shall be self-closing or automatic-closing as required in 5-2.1.8 and shall provide resistance to the passage of smoke. Swinging doors shall be self-latching.

**14-3.7.6** Doors in smoke barriers shall conform with the requirements for doors in means of egress as specified in Section 14-2 and shall have locking and release arrangements according to the Use Condition. The provisions of the Exception to 14-2.11.6 shall not be used for smoke barrier doors serving a smoke compartment containing more than 20 persons.

**14-3.7.7** Vision panels of approved transparent wire glass or minimum 45-minute fire rated glazing, in steel frames, and not exceeding 1,296 sq in. (.84 sq m) in area shall be provided in each door in a smoke barrier.

**14-3.7.8** Smoke dampers shall be provided in accordance with 6-3.5.

*Exception: Other arrangements and positioning of smoke detectors may be used to prevent damage or tampering or may be used for other purposes, provided the function of detecting any fire is fulfilled, and the siting of detectors is such that the speed of detection will be equivalent to that provided by the required spacing and arrangement.*

**14-3.8 Special Features.** (Subdivision of Resident Housing Spaces.)

**14-3.8.1*** Subdivision of facility spaces shall comply with Table 14-3.8.1.

## SECTION 14-4 SPECIAL PROVISIONS

**14-4.1 Windowless Areas.**

**14-4.1.1*** For the purposes of this chapter, a windowless area is a smoke compartment that does not contain operable windows or fixed windows that can be readily broken by impact.

**14-4.1.2** Windowless areas shall be provided with vent openings, smoke shafts, or an engineered smoke control system to provide ventilation (mechanical or natural).

**14-4.2 Underground Buildings.**

**14-4.2.1** See Chapter 30 for requirements for underground buildings.

**14-4.3 High Rise Buildings.** (*See 14-3.5.1.*)

**14-4.4 Operating Features.** (*See Chapter 31.*)

**Table 14-3.8.1**

| USE CONDITION | II | | III | | | | IV | | | | V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feature | NS | AS | NS | | AS | | NS | AS | | | NS | AS |
| Room to Room Separation | NR | NR | NR | | NR | | ST | NR | | | FR(½) | ST |
| Room Face to Corridor Separation | ST | NR | ST | | NR | | ST | NR | | | FR | ST |
| Room Face to Common Space Separation | NR | NR | NR <50 ft* (15 m) | ST >50 ft* (15 m) | NR <50 ft* (15 m) | ST >50 ft* (15 m) | ST | NR <50 ft* (15 m) | ST >50 ft* (15 m) | | FR | ST |
| Common Space to Corridor Separation | FR | NR | FR | | NR | | FR | NR | | | FR | ST |
| Total Openings in Solid Room Face | 120 sq in. (.08 sq m) | | 120 sq in. (.08 sq m) | | | | 120 sq in. (.08 sq m) | | | | 120 sq in. (.08 sq m) Closable from inside or 120 sq in. (.08 sq m) w/smoke control | |

AS — Protected by automatic sprinklers
NS — Not protected by automatic sprinklers
NR — No requirement
ST — Smoketight
FR — Fire Rated — 1 hour
FR(½) — Fire Rated — ½ hour

*This is the travel distance through the common space to the exit access corridor.

NOTE 1: Doors in openings in partitions required to be fire resistive by this chart in other than required enclosures of exits or hazardous areas shall be substantial doors, of construction that will resist fire for at least 20 minutes. Wire glass or minimum 45-minute fire rated glazing vision panels are permitted. Latches and door closers are not required on cell doors.

NOTE 2: *Doors in openings in partitions required to be smoketight by the chart shall be substantial doors, of construction that will resist the passage of smoke.* Latches and door closers are not required on cell doors.

NOTE 3: "Total Openings in Solid Room Face" includes all openings (undercuts, food passes, grilles, etc.), the total of which will not exceed 120 sq in. (.08 sq m). All openings shall be 36 in. (91 cm) or less above the floor.

NOTE 4: Under Use Condition II, III, or IV, a space housing not more than 16 persons and subdivided by open construction (any combination of grating doors and grating walls or solid walls) may be considered one room. The perimeter walls of such space shall be of smoketight construction. Smoke detection shall be provided in such space. Under Use Condition IV, common walls between sleeping areas within the space shall be smoketight and grating doors and fronts may be used.

## SECTION 14-5 BUILDING SERVICES

**14-5.1 Utilities.**

**14-5.1.1** Utilities shall comply with the provisions of Section 7-1.

**14-5.1.2** Alarms, emergency communication systems, and the illumination of generator set locations shall be provided with emergency power in accordance with NFPA 70, *National Electrical Code.*

**14-5.2 Heating, Ventilating, and Air Conditioning.**

**14-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2 and shall be installed in accordance with manufacturer's specifications.

*Exception: As modified in 14-5.2.2 following.*

**14-5.2.2** Portable space heating devices are prohibited. Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel-fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. The heating system shall have safety devices to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperatures or ignition failure.

*Exception: Approved suspended unit heaters may be used in locations other than means of egress and sleeping areas, provided such heaters are located high enough to be out of the reach of persons using the area, and provided they are vent connected and equipped with the safety devices called for above.*

**14-5.2.3** Combustion and ventilation air for boiler, incinerator, or heater rooms shall be taken directly from and discharged directly to the outside air.

**14-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**14-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.**

**14-5.4.1** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

**14-5.4.2** Any rubbish chute or linen chute, including pneumatic rubbish and linen systems, shall be provided with automatic extinguishing protection installed in accordance with Section 7-7.

**14-5.4.3** Any trash chute shall discharge into a trash collecting room used for no other purpose and protected in accordance with Section 6-4.

**14-5.4.4** Any incinerator shall not be directly flue-fed, nor shall any floor chute directly connect with the combustion chamber.

# CHAPTER 15 EXISTING DETENTION AND CORRECTIONAL OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 15-1 GENERAL

**15-1.1 Application.**

**15-1.1.1** Existing detention and correctional facilities shall comply with the provisions of this chapter. Provisions of Chapter 14 do not apply to existing detention and correctional facilities. Existing facilities shall also comply with the applicable requirements of Chapter 31.

**15-1.1.2** This chapter establishes life safety requirements for all existing detention and correctional facilities.

*Exception No. 1: Use Condition I requirements are those stated in the applicable requirements for existing buildings of Chapters 17, 19, or 20.*

*Exception No. 2*: Facilities determined to have equivalent safety provided in accordance with Section 1-5.*

**15-1.1.3** Detention and correctional occupancies are those used for purposes such as jails, detention centers, correctional institutions, reformatories, houses of correction, pre-release centers, and other residential-restrained care facilities where occupants are confined or housed under some degree of restraint or security.

**15-1.1.4** Detention and correctional occupancies provide sleeping facilities for four or more residents and are occupied by persons who are generally prevented from taking self-preservation action because of security measures not under the occupants' control.

**15-1.1.5 Total Concept.** All detention and correctional facilities shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency.

Because the safety of all occupants in detention and correctional facilities cannot be adequately assured solely by a dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate trained staff, and careful development of operating, security, and maintenance procedures composed of the following:

(a) Proper design, construction, and compartmentation,

(b) Provision for detection, alarm, and extinguishment,

(c) Fire prevention and planning, training, and drilling in programs for the isolation of fire and transfer of occupants to areas of refuge or evacuation of the building, or protection of the occupants in place,

(d) Provision of security to the degree necessary for the safety of the public and the occupants of the facility.

**15-1.1.6 Additions.** Additions shall be separated from any existing structure not conforming with the provisions within Chapter 15 by a fire barrier having at least a 2-hour fire resistance rating constructed to the standards of the addition. Doors in these partitions shall normally be kept closed.

*Exception: Doors may be held open if they meet the requirements of the Exception to 5-2.1.8.*

**15-1.2* Mixed Occupancies.**

**15-1.2.1** Egress provisions for areas of detention and correctional facilities that correspond to other occupancies shall meet the corresponding requirements of this *Code* for such occupancies. Where security operations necessitate the locking of required means of egress, necessary staff shall be provided for the supervised release of occupants during all times of use.

**15-1.2.2** Sections of detention and correctional facilities may be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve residents for purpose of housing, customary access, or means of egress.

(b) They are adequately separated from areas of detention or correctional occupancies by construction having a fire resistance rating of at least 2 hours.

**15-1.2.3** Detention and correctional occupancies in buildings housing other occupancies shall be completely separated from the other occupancies by construction having a fire resistance rating of at least 2 hours as provided for additions in 15-1.1.6.

**15-1.2.4** All means of egress from detention and correctional occupancies that traverse other use areas shall, as a minimum, conform to requirements of this *Code* for detention and correctional occupancies.

*Exception: It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to detention and correctional occupancy egress provisions but that do comply with requirements set forth in the appropriate occupancy chapter of this Code, as long as the occupancy does not have high hazard contents. The horizontal exit shall comply with the requirements of 15-2.2.5.*

**15-1.2.5** Any area with a hazard of contents classified higher than that of the detention or correctional occupancy and located in the same building shall be protected, as required in 15-3.2.

**15-1.2.6** Non-detention or non-correctional related occupancies classified as containing high hazard contents shall not be permitted in buildings housing detention or correctional occupancies.

**15-1.3 Special Definitions.**

(a) *Direct exit.* A direct exit is an exit that serves only one area or level, and the direct exit has no openings to *other* areas or levels.

(b) *Fire Barrier.* See Chapter 6.

(c) *Fire Compartment.* See Chapter 6.

(d) *Residential Housing Area.* Includes sleeping areas and any contiguous day room, group activity space, or other common spaces for customary access of residents.

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

(f) *Smoke Barrier.* See Chapter 6.

(g) *Smoke Compartment.* See Chapter 6.

**15-1.4 Classification of Occupancy.**

**15-1.4.1*** Users and occupants of detention and correctional facilities at various times can be expected to include staff, visi-

tors, and residents. The extent and nature of facility utilization by members of each of these groups will vary according to type of facility, its function, and programs. For applications of the life safety requirements that follow, the resident user category is divided into five groups:

**Use Condition I — Free Egress**

Free movement is allowed from sleeping areas, and other spaces where access or occupancy is permitted, to the exterior via means of egress meeting the requirements of the *Code*.

**Use Condition II — Zoned Egress**

Free movement is allowed from sleeping areas and any other occupied smoke compartment to one or more other smoke compartments.

**Use Condition III — Zoned Impeded Egress**

Free movement is allowed within individual smoke compartments, such as within a residential unit comprised of individual sleeping rooms and group activity space, with egress impeded by remote control release of means of egress from such smoke compartment to another smoke compartment.

**Use Condition IV — Impeded Egress**

Free movement is restricted from an occupied space. Remote controlled release is provided to permit movement from all sleeping rooms, activity spaces, and other occupied areas within the smoke compartment to other smoke compartment(s).

**Use Condition V — Contained**

Free movement is restricted from an occupied space. Staff controlled manual release at each door is provided to permit movement from all sleeping rooms, activity spaces, and other occupied areas within the smoke compartment to other smoke compartment(s).

**15-1.4.2*** To classify as Use Condition III or IV, the arrangement, accessibility, and security of the release mechanism(s) used for emergency egress shall be such that the minimum available staff, at any time, can promptly release the locks.

**15-1.4.3** Areas housing occupancies corresponding to Use Condition I Free Egress shall conform to the requirements of residential occupancies under this *Code*.

**15-1.5 Classification of Hazard of Contents.** The classification of hazard of contents shall be as defined in Section 4-2.

**15-1.6 Minimum Construction Requirement.**

**15-1.6.1** For the purpose of 15-1.6, stories shall be counted starting at the primary level of exit discharge. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade on the exterior wall line for 50 percent or more of its perimeter. Building levels below the primary level shall not be counted as a story in determining the height of the building.

**15-1.6.2** A residential housing area complying with 15-3.1.2 shall be considered as a one story building for purposes of applying 15-1.6.3

**15-1.6.3** Detention and correctional occupancies shall be limited to the types of building construction shown in the next column. (*See 6-2.1.*)

*Exception No. 1: Any building of Type I or Type II (222 or 111) construction may include roofing systems involving combustible or steel supports, decking or roofing provided:*

*(a) The roof covering at least meets Class C requirements in accordance with NFPA 256, Standard Methods of Fire Tests of Roof Coverings, and*

*(b) The roof is separated from all occupied portions of the building by a noncombustible floor assembly that includes at least 2½ in. (6.4 cm) of concrete or gypsum fill. To qualify for this exception, the attic or other space so developed shall either be unoccupied or protected throughout by an approved automatic sprinkler system.*

*Exception No. 2: In determining building construction type, exposed steel roof members located 16 ft (4.9 m) or more above the floor of the highest cell may be disregarded.*

**Table 15-1.6.3**

| Type of Construction | 1 story with Basement | 1 story without Basement | 2 story | 3 story | 4 story and Higher |
|---|---|---|---|---|---|
| I (443)<br>I (332)<br>II (222) | X | X | X | X | X |
| II (111) | X†† | X | X†† | X† | X† |
| III (211)<br>IV (2HH)<br>V (111) | X†† | X | X†† | X† | X† |
| II (000)<br>III (200)<br>V (000) | X†† | X†† | X† | X† | X† |

X: Permitted types of construction
X†: Permitted if the entire building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.
X††: X† applies in buildings where Use Condition V is used.

**15-1.7 Occupant Load.** The occupant load for which means of egress shall be provided for any floor shall be the maximum number of persons intended to occupy that floor, but not less than one person for each 120 sq ft (11.1 sq m) gross floor area.

## SECTION 15-2 MEANS OF EGRESS

**15-2.1 General.** Means of egress shall comply with Chapter 5.

*Exception: As otherwise provided or modified in this section.*

**15-2.2 Means of Egress Components.**

**15-2.2.1** Components of means of egress shall be limited to the types described in 15-2.2.2 through 15-2.2.8.

**15-2.2.2 Doors.** Doors shall comply with 5-2.1.

*Exception: As provided in 15-2.11.*

**15-2.2.3 Stairs.**

**15-2.2.3.1** Stairs shall comply with 5-2.2.

*Exception: The provisions of 5-2.2.6.5(f) and 5-2.2.6.6(c) do not apply.*

**15-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted for access to and between staff locations.

**15-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**15-2.2.5* Horizontal Exits.** Horizontal exits shall comply with 5-2.4, modified as follows:

(a) At least 6 sq ft (.56 sq m) of accessible space per occupant shall be provided on each side of the horizontal exit for the total number of people in adjoining compartments.

(b) Horizontal exits may comprise 100 percent of the exits required provided that an exit, other than a horizontal exit, is accessible in some other (not necessarily adjacent) fire compartment without requiring return through the compartment of fire origin.

(c) A door in a horizontal exit is not required to swing with travel as specified in 5-2.4.3.4.

**15-2.2.6. Ramps.** Ramps shall comply with 5-2.5.

**15-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**15-2.2.8 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**15-2.3 Capacity of Means of Egress.**

**15-2.3.1** The capacity of any required means of egress shall be in accordance with Section 5-3.

**15-2.3.2** Aisles, corridors, and ramps required for access or exit shall be at least 3 ft (91 cm) wide.

**15-2.3.3** For residents' sleeping room door widths, see 15-2.11.3.

**15-2.4 Number of Exits.** (*See also Section 5-4.*)

**15-2.4.1** At least two exits of the types permitted in 15-2.2, remotely located from each other, shall be provided for each occupied story of the building.

**15-2.4.2** At least two exits of the types permitted in 15-2.2, remotely located from each other, shall be accessible from each fire or smoke compartment.

**15-2.4.3*** At least one approved exit shall be accessible from each fire compartment and each required smoke compartment into which residents may be moved in a fire emergency with the exits so arranged that egress shall not require return through the zone of fire origin.

**15-2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**15-2.5.1** Every sleeping room shall have a door leading directly to an exit access corridor.

*Exception No. 1: If there is an exit door opening directly to the outside from the room at the ground level.*

*Exception No. 2: One adjacent room, such as a dayroom, group activity space, or other common spaces may intervene. Where individual occupant sleeping rooms adjoin a dayroom or group activity space that is utilized for access to an exitway, such sleeping room may open directly to the dayroom or space and may be separated in elevation by a one-half or full-story height (also see 15-3.1.2).*

**15-2.5.2*** Existing dead-end corridors are undesirable and shall be altered wherever possible so that exits will be accessible in at least two different directions from all points in aisles, passageways, and corridors.

**15-2.5.3** No common path of travel shall exceed 50 ft (15 m).

*Exception No. 1: A common path of travel may be permitted for the first 100 ft (30 m) in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: Multilevel residential housing units in which each floor level, considered separately, has at least one-half of its individual required exit capacity accessible by exit access leading directly out of that level without traversing another communicating floor level.*

*Exception No. 3: Existing excessive common paths of travel may be continued in use subject to the approval of the authority having jurisdiction and the travel distance requirements of 15-2.6.*

**15-2.5.4** A sallyport may be permitted in a means of egress where there are provisions for continuous and unobstructed travel through the sallyport during an emergency exit condition.

**15-2.6 Travel Distance to Exits.**

**15-2.6.1** Travel distance:

(a) Between any room door required as exit access and an exit or smoke barrier shall not exceed 100 ft (30 m);

(b) Between any point in a room and an exit or smoke barrier shall not exceed 150 ft (45 m); and

(c) Between any point in a sleeping room to the door of that room shall not exceed 50 ft (15 m).

*Exception No. 1: The travel distance in (a) or (b) above may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler system or smoke control system.*

*Exception No. 2: The travel distance in (c) above may be increased to 100 ft (30 m) in open dormitories where the enclosing walls of the dormitory space are at least of smoketight construction. Where travel distance to the exit access door from any point within the dormitory exceeds 50 ft (15 m), at least two exit access doors remotely located from each other shall be provided.*

**15-2.7 Discharge from Exits.**

**15-2.7.1** Exits may discharge into a fenced or walled courtyard, provided that not more than two walls of the courtyard are the building walls from which exit is being made. Enclosed yards or courts shall be of sufficient size to accommodate all occupants at a minimum distance of 50 ft (15 m) from the building with a net area of 15 sq ft (1.4 sq m) per person.

**15-2.7.2** All exits may discharge through the level of exit discharge. The requirements of 5-7.2 may be waived provided that not more than 50 percent of the exits discharge into a single fire compartment.

*Exception: Where all exits discharge through areas on the level of discharge, a smoke barrier shall be provided to divide that level into at least two compartments with at least one exit discharging into each compartment, and each smoke compartment shall have an exit discharge to the building exterior. The level of discharge shall be provided with automatic sprinkler protection, and any other portion of the level of discharge area with access to the discharge area shall be provided with automatic sprinkler protection or separated from it in accordance with the requirements for the enclosure of exits (see 5-1.3.1).*

**15-2.8 Illumination of Means of Egress.** Illumination shall be in accordance with Section 5-8.

**15-2.9 Emergency Lighting.** Emergency lighting shall be in accordance with Section 5-9.

*Exception: Emergency lighting of at least 1-hour duration may be provided.*

**15-2.10 Marking of Means of Egress.** Exit marking shall be provided in areas accessible to the public in accordance with Section 5-10.

*Exception: Exit signs may be omitted in sleeping areas.*

**15-2.11 Special Features.**

**15-2.11.1** Doors within means of egress shall be as required in Chapter 5.

*Exception: As noted in 15-2.11.2 through 15-2.11.8.*

**15-2.11.2** Doors may be locked in accordance with the applicable Use Condition.

**15-2.11.3*** Doors to resident sleeping rooms shall be at least 28 in. (71 cm) in clear width.

*Exception: Existing doors to resident sleeping rooms housing four or less residents may be 19 in. (48.3 cm) in clear width.*

**15-2.11.4** Doors in a means of egress may be of the horizontal sliding type, provided the force to slide the door to its fully open position does not exceed 50 lb (222 N) with a perpendicular force against the door of 50 lb (222 N).

**15-2.11.5** Doors from areas of refuge to the exterior may be locked with key lock in lieu of locking methods described in 15-2.11.6. The keys to unlock such doors shall be maintained and available at the facility at all times, and the locks shall be operable from the outside.

**15-2.11.6*** Any remote release used in means of egress shall be provided with a reliable means of operation, remote from the resident living area, to release locks on all doors.

*Exception: Provisions for remote locking and unlocking of occupied rooms in Use Condition IV may be waived provided not more than ten locks are necessary to be unlocked in order to move all occupants from one smoke compartment to an area of refuge as promptly as required for remote unlocking. The opening of all necessary locks shall be accomplished with no more than two separate keys. (See 15-3.7.6 for smoke barrier doors.)*

**15-2.11.7** All remote release operated doors shall be provided with a redundant means of operation as follows:

(a) Power-operated sliding doors or power-operated locks shall be so constructed that in the event of power failure, a manual mechanical means to release and open the doors is provided at each door, and either emergency power in accordance with 5-9.2.3 is provided for the power operation, or a remote manual mechanical release is provided.

(b) Mechanically operated sliding doors or mechanically operated locks shall be provided with a manual mechanical means at each door to release and open the door.

**15-2.11.8** The provisions of 5-2.1.5.2 for stairway reentry do not apply.

## SECTION 15-3 PROTECTION

**15-3.1 Protection of Vertical Openings.**

**15-3.1.1** Any stairway, ramp, elevator, hoistway, light or ventilation shaft, chute or other vertical opening between stories shall be enclosed in accordance with Section 6-2.

*Exception No. 1: Stairs that do not connect a corridor, do not connect more than two levels, and do not serve as a means of egress need not comply with these regulations.*

*Exception No. 2: Multilevel residential housing areas in accordance with 15-3.1.2.*

*Exception No. 3: In residential housing areas protected thoughout by an approved automatic sprinkler system, unprotected vertical openings are permitted in accordance with the conditions of 6-2.4.4, provided that the height between the lowest and highest finished floor levels does not exceed 23 ft (7.0 m). The number of levels is not restricted.*

*Exception No. 4: Atriums in accordance with 6-2.4.5 are permitted.*

*Exception No. 5: Where full enclosure is impractical, the required enclosure may be limited to that necessary to prevent a fire originating in any story from spreading to any other story.*

*Exception No. 6: The fire resistance rating of enclosures in detention and correctional occupancies protected throughout by an approved automatic sprinkler system may be reduced to one hour.*

**15-3.1.2** Multilevel residential housing areas are permitted without enclosure protection between levels, provided all the following conditions are met:

(a)* The entire normally occupied area, including all communicating floor levels, is sufficiently open and unobstructed so that it may be assumed that a fire or other dangerous condition in any part will be readily obvious to the occupants or supervisory personnel in the area.

(b) Exit capacity is sufficient to provide simultaneously for all the occupants of all communicating levels and areas, with all communicating levels in the same fire area being considered as a single floor area for purposes of determination of required exit capacity.

(c)* The height between the highest and lowest finished floor levels does not exceed 13 ft (4.0 m). The number of levels is not restricted.

**15-3.1.3*** A multitiered open cell block may be considered as a single-story building provided that either:

1. A smoke control system is provided (*see recommended design criteria in A-15-3.1.3*) to maintain the level of smoke filling from potential cell fires at least 5 ft (152 cm) above the floor level of any occupied tier involving space that is:

(a) Use Condition IV or V.

(b) Use Condition III unless all persons housed in such space can pass through a free access smoke barrier or freely pass below the calculated smoke level with not more than 50 ft (15 m) of travel from their cell, or

2. The entire building, including cells, is provided with complete automatic sprinkler protection in accordance with 15-3.5.

**15-3.2 Protection from Hazards.**

**15-3.2.1** An area used for general storage, boiler or furnace rooms, fuel storage, janitor's closets, maintenance shops including woodworking and painting areas, laundries and kitchens shall be separated from other parts of the building with construction having not less than a 1-hour fire resistance rating,

and all openings shall be protected with self-closing fire doors, or such area shall be provided with automatic sprinkler protection. Where the hazard is severe, both the 1-hour fire resistance rated separation and automatic sprinklers shall be provided. The automatic extinguishing may be in accordance with 7-7.1.2.

*Exception No. 1: Where cooking facilities are protected per 7-2.3, kitchens need not be provided with room-wide protection.*

*Exception No. 2: When, in the opinion of the authority having jurisdiction, such areas are no longer incidental to residents' housing, they shall be separated by 2-hour fire barriers in conjunction with automatic sprinkler protection.*

**15-3.2.2*** Padded cells are severe hazard areas. Doors to padded cells shall be ¾-hour self-closing and self-latching fire door assemblies.

**15-3.2.3** Cooking facilities shall be protected in accordance with 7-2.3.

**15-3.3 Interior Finish.**

**15-3.3.1** Interior wall and ceiling finish in corridors and exits and any space not separated from the corridors and exits by a partition capable of retarding the passage of smoke shall be Class A or B. In all other areas, interior wall and ceiling finish shall be Class A, B, or C in accordance with Section 6-5.

**15-3.3.2** Interior floor finish material in corridors and exits shall be Class II in accordance with Section 6-5.

*Exception: Existing floor finish material of Class A or B in nonsprinklered buildings and Class A, B, or C in sprinklered buildings may be continued in use provided that they have been evaluated based upon tests in accordance with 6-5.3.1.*

**15-3.4 Detection, Alarm, and Communications Systems.**

**15-3.4.1 General.**

**15-3.4.1.1** Detection and correctional occupancies shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

**15-3.4.1.2** All required fire alarm systems shall be electrically supervised.

*Exception: Existing nonelectrically supervised systems may be allowed in buildings protected by a complete automatic extinguishing system.*

**15-3.4.1.3** All fire alarm systems and detection systems required in this section shall be provided with a secondary power supply, and the installation shall be in accordance with NFPA 72A, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service.*

**15-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means, in accordance with 7-6.2, and by means of any detection devices or detection systems required.

*Exception No. 1: Manual fire alarm boxes may be locked provided that staff is present within the subject area when occupied and have keys readily available to unlock the boxes.*

*Exception No. 2: Manual fire alarm boxes may be located in a staff location, provided that the staff location is manned when the building is occupied and has direct supervision of the sleeping area.*

**15-3.4.3 Notification.**

**15-3.4.3.1 Occupant Notification.** Occupant notification shall be accomplished automatically, without delay, upon operation of any fire alarm initiating device in accordance with 7-6.3. Presignal systems are prohibited.

*Exception*: Any smoke detectors required by this chapter may be arranged to alarm at a constantly attended location only and are not required to accomplish general alarm indication.*

**15-3.4.3.2 Emergency Forces Notification.** Fire department notification shall be accomplished in accordance with 7-6.4.

*Exception: Any smoke detectors required by this chapter are not required to transmit an alarm to the fire department.*

**15-3.4.4 Detection.** An approved automatic smoke detection system shall be installed, in accordance with Section 7-6, throughout all resident housing areas.

*Exception No. 1: Smoke detectors may be omitted from sleeping rooms with 4 or fewer occupants in Use Condition II or III.*

*Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with Section 7-7, smoke detectors may be omitted from all but corridors, common spaces, and sleeping rooms with more than four occupants.*

*Exception No. 3: Other arrangements and positioning of smoke detectors may be used to prevent damage or tampering, or for other purposes, provided the function of detecting any fire is fulfilled and the siting of detectors is such that the speed of detection will be equivalent to that provided by the spacing and arrangements described in Section 7-6. This may include the location of detectors in exhaust ducts from cells, behind grilles, or in other locations. The equivalent performance of the design, however, must be acceptable to the authority having jurisdiction in accordance with the equivalency concepts specified in Section 1-5 of this Code.*

**15-3.5 Extinguishment Requirements.**

**15-3.5.1 Reserved.**

**15-3.5.2*** Where required by 15-1.6, facilities shall be protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

**15-3.5.3** Where this *Code* permits exceptions for fully sprinklered detention and correctional occupancies, the sprinkler system shall be:

(a) In complete accordance with Section 7-7,

(b) Electrically connected to the fire alarm system, and

(c) Fully supervised.

**15-3.5.4** Portable fire extinguishers shall be provided in accordance with 7-7.4.1.

*Exception No. 1*: Access to portable fire extinguishers may be locked.*

*Exception No. 2: Portable fire extinguishers may be located at staff locations only.*

**15-3.5.5** Standpipe and hose systems shall be provided in accordance with 7-7.4.2 as follows:

(a) Class I standpipe systems shall be provided for any building over two stories in height, and

(b) Class III standpipe and hose systems shall be provided for all unsprinklered buildings over two stories in height.

*Exception No. 1: One-inch (2.5-cm) diameter formed hose on hose reels may be used to provide Class II service.*

*Exception No. 2: Separate Class I and Class II systems may be used in lieu of Class III.*

**15-3.6 Corridors.** [*See 15-3.8, Special Features (Subdivision of Resident Housing Spaces).*]

**15-3.7 Subdivision of Building Spaces.**

**15-3.7.1*** Smoke barriers shall be provided, regardless of building construction type, so as to divide every story used by residents for sleeping by ten or more persons, or any other story having an occupant load of 50 or more persons, into at least two compartments.

*Exception No. 1: Protection may be accomplished with horizontal exits (see 5-2.4).*

*Exception No. 2: Spaces having direct exit to (a) a public way, (b) a building separated from the resident housing area by a two-hour fire resistance rating or 50 ft. (15 m) of open space, or (c) a secured open area having a holding space 50 ft. (15 m) from the housing area that provides 15 sq. ft. (1.4 sq. m) or more of refuge area per person (resident, staff, visitors) that may be present at the time of the fire fulfills the requirements for subdivision of such spaces, provided the locking arrangement of doors involved meets the requirements for doors at the compartment barrier for the use condition involved.*

**15-3.7.2** Where smoke barriers are required by 15-3.7.1, smoke barriers shall be provided so as:

(a) to limit the housing to a maximum of 200 residents in any smoke compartment, and

(b)* to limit the travel distance to a door in a smoke barrier:

1. From any room door required as exit access to 100 ft. (30 m),

2. From any point in a room to 150 ft. (45 m).

*Exception to (b): The travel distance may be increased by 50 ft (15 m) in buildings protected throughout by an approved automatic sprinkler or smoke control system.*

**15-3.7.3*** Any required smoke barrier shall be constructed in accordance with Section 6-3. Barriers shall be of substantial construction and shall have a structural fire resistance. Fixed wire glass or minimum 45-minute fire rated glazing vision panels shall be permitted in such barriers, provided they do not individually exceed 1,296 sq in. (.84 sq m) in area and are mounted in approved steel frames. There is no restriction on the total number of such vision panels in any barrier, (e.g., a smoke barrier may consist of wire glass or minimum 45-minute fire rated glazing panels mounted in a security grille arrangement).

**15-3.7.4** At least 6 net sq ft (.56 sq m) per occupant shall be provided on each side of the smoke barrier for the total number of occupants in adjoining compartments. This space shall be readily available whenever the occupants are moved across the smoke barrier in a fire emergency.

**15-3.7.5** Doors in smoke barriers shall be self-closing or automatic-closing as required in 5-2.1.8 and shall provide resistance to the passage of smoke. Swinging doors shall be self-latching. Such doors are not required to swing with exit travel.

**15-3.7.6** Doors in smoke barriers shall conform with the requirements for doors in means of egress as specified in Section 15-2 and shall have locking and release arrangements according to the Use Condition. The provisions of the Exception to 15-2.11.6 shall not be used for smoke barrier doors serving a smoke compartment containing more than 20 persons.

**15-3.7.7** Vision panels of approved transparent wire glass or minimum 45-minute fire rated glazing, or other material approved by the authority having jurisdiction, in steel frames, and not exceeding 1,296 sq in. (.84 sq m) in area shall be provided in each door in a smoke barrier.

**15-3.7.8** Smoke dampers shall be provided in accordance with 6-3.5.

*Exception: Other arrangements and positioning of smoke detectors may be used to prevent damage or tampering or may be used for other purposes, provided the function of detecting any fire is fulfilled, and the siting of detectors is such that the speed of detection will be equivalent to that provided by the required spacing and arrangement.*

**15-3.8 Special Features.** (Subdivision of Resident Housing Spaces.)

**15-3.8.1*** Subdivision of facility spaces shall comply with Table 15-3.8.1.

## SECTION 15-4 SPECIAL PROVISIONS

**15-4.1 Windowless Areas.**

**15-4.1.1*** For purposes of this chapter, a windowless area is a smoke compartment that does not contain operable windows or fixed windows that can be readily broken by impact.

**15-4.1.2** Windowless areas shall be provided with vent openings, smoke shafts, or an engineered smoke control system to provide ventilation (mechanical or natural).

**15-4.2 Underground Buildings.**

**15-4.2.1** See Chapter 30 for requirements for underground buildings.

**15-4.3 High Rise Buildings.** (Reserved)

**15-4.4 Operating Features.** (*See Chapter 31.*)

## SECTION 15-5 BUILDING SERVICES

**15-5.1 Utilities.**

**15-5.1.1** Utilities shall comply with the provisions of Section 7-1.

**15-5.1.2** Alarms, emergency communication systems, and the illumination of generator set installations shall be provided with emergency power in accordance with NFPA 70, *National Electrical Code.*

*Exception: Systems complying with earlier editions of NFPA 70 and not presenting a life safety hazard may be continued in use.*

**Table 15-3.8.1**

| USE CONDITION | II | | III | | | | IV | | | | V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feature | NS | AS | NS | | AS | | NS | AS | | | NS | AS |
| Room to Room Separation | NR | NR | NR | | NR | | ST | NR | | | ST | ST** |
| Room Face to Corridor Separation | NR | NR | ST*** | | NR | | ST*** | NR | | | FR*** | ST** |
| Room Face to Common Space Separation | NR | NR | NR <50 ft* (15 m) | ST*** >50 ft* (15 m) | NR <50 ft* (15 m) | ST** >50 ft* (15 m) | ST*** | NR <50 ft* (15 m) | ST** >50 ft* (15 m) | | ST*** | ST** |
| Common Space to Corridor Separation | ST | NR | ST | | NR | | ST | NR | | | FR | ST** |
| Total Openings in Solid Room Face | 120 sq in. (.08 sq m) | | 120 sq in. (.08 sq m) | | | | 120 sq in. (.08 sq m) | | | | 120 sq in. (.08 sq m) Closable from inside or 120 sq in. (.08 sq m) w/smoke control | |

AS — Protected by automatic sprinklers
NS — Not protected by automatic sprinklers
NR — No requirement
ST — Smoketight
FR — Fire Rated — 1 hour

*This is the travel distance through the common space to the exit access corridor.
**May be NR where there is either
(a) an approved automatic smoke detection system installed in all corridors and common spaces, or,
(b) multi-tiered cell blocks meeting the requirements of 15-3.1.3.
***May be NR in multi-tiered open cell blocks meeting the requirements of 15-3.1.3.

NOTE 1: Doors in openings in partitions required to be fire resistive by this chart in other than required enclosures of exits or hazardous areas shall be substantial doors, of construction that will resist fire for at least 20 minutes. Wire glass or minimum 45-minute fire rated glazing vision panels are permitted. Latches and door closers are not required on cell doors.

NOTE 2: Doors in openings in partitions required to be smoketight by the chart shall be substantial doors, of construction that will resist the passage of smoke. Latches and door closers are not required on cell doors.

NOTE 3: "Total Openings in Solid Room Face" includes all openings (undercuts, food passes, grilles, etc.), the total of which will not exceed 120 sq in. (.08 sq m).

NOTE 4: Under Use Condition II, III, or IV, a space housing not more than 16 persons and subdivided by open construction (any combination of grating doors and grating walls or solid walls) may be considered one room. The perimeter walls of such space shall be of smoketight construction. Smoke detection shall be provided in such space. Under Use Condition IV, common walls between sleeping areas within the space shall be smoketight and grating doors and fronts may be used.

**15-5.2 Heating, Ventilating, and Air Conditioning.**

**15-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

*Exception No. 1: As modified in 15-5.2.2 following.*

*Exception No. 2: Systems complying with earlier editions of the applicable codes and not presenting a life safety hazard may be continued in use.*

**15-5.2.2** Portable space heating devices are prohibited. Any heating device other than a central heating plant shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel-fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from outside, and shall be so designed and installed to provide for complete separation of the combustion system from the atmosphere of the occupied area. The heating system shall have safety devices to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperatures or ignition failure.

*Exception: Approved suspended unit heaters may be used in locations other than means of egress and sleeping areas, provided such heaters are located high enough to be out of reach of persons using the area, and provided they are vent connected and equipped with the safety devices called for above.*

**15-5.2.3** Combustion and ventilation air for boiler, incinerator, or heater rooms shall be taken directly from and discharged directly to the outside air.

**15-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**15-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.**

**15-5.4.1** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

**15-5.4.2** Any rubbish chute or linen chute, including pneumatic rubbish and linen systems, shall be provided with automatic extinguishing protection installed in accordance with Section 7-7.

**15-5.4.3** Any trash chute shall discharge into a trash collecting room used for no other purpose and protected in accordance with Section 6-4.

**15-5.4.4** Any incinerator shall not be directly flue-fed, nor shall any floor chute directly connect with the combustion chamber.

# CHAPTER 16 NEW HOTELS AND DORMITORIES

*(See also Chapter 31.)*

## SECTION 16-1 GENERAL REQUIREMENTS

**16-1.1 Application.**

**16-1.1.1** This chapter establishes life safety requirements for all new hotels and for modified buildings according to the provisions of Section 1-4. (*See Chapter 31 for operating features.*)

**16-1.1.2** New dormitories shall comply with the requirements for new hotels.

*Exception: Any dormitory divided into suites of rooms, with one or more bedrooms opening into a living room or study that has a door opening into a common corridor serving a number of suites, shall be classified as an apartment building.*

**16-1.2 Mixed Occupancies.**

**16-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**16-1.2.2** For requirements on mixed mercantile and residential occupancies, see 24-1.2.

**16-1.2.3** Any ballroom, assembly or exhibition hall, and other space used for purposes of public assembly shall be in accordance with Chapter 8. Any dining area having a capacity of 50 or more persons shall be treated as an assembly occupancy.

**16-1.3 Definitions.**

**16-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**Dormitories.** Includes buildings or spaces in buildings where group sleeping accommodations are provided for more than 16 persons not members of the same family group in one room or in a series of closely associated rooms under joint occupancy and single management, as in college dormitories, fraternity houses, military barracks; with or without meals, but without individual cooking facilities.

**Hotels.** Includes buildings or groups of buildings under the same management in which there are more than 16 sleeping accommodations for hire, primarily used by transients who are lodged with or without meals, whether designated as a hotel, inn, club, motel, or by any other name. So-called apartment hotels shall be classified as hotels because they are potentially subject to transient occupancy like that of hotels.

**16-1.4 Classification of Occupancy.** (*See 16-1.3.*)

**16-1.5 Classification of Hazard of Contents.**

**16-1.5.1** The contents of residential occupancies shall be classified as ordinary hazard in accordance with Section 4-2. For the design of automatic sprinkler systems, the classification of contents in NFPA 13, *Standard for the Installation of Sprinkler Systems*, shall apply.

**16-1.6 Minimum Construction Requirements.** No Special Requirements.

**16-1.7 Occupant Load.**

**16-1.7.1*** The occupant load in numbers of persons for whom exits are to be provided shall be determined on the basis of one person per 200 sq ft (18.6 sq m) gross floor area, or the maximum probable population of any room or section under consideration, whichever is greater. The occupant load of any open mezzanine or balcony shall be added to the occupant load of the floor below for the purpose of determining exit capacity.

## SECTION 16-2 MEANS OF EGRESS REQUIREMENTS

**16-2.1 General.**

**16-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**16-2.2 Means of Egress Components.**

**16-2.2.1 General.**

**16-2.2.1.1** Components of means of egress shall be limited to the types described in 16-2.2.2 through 16-2.2.7.

**16-2.2.1.2** In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1, exit enclosures may have a fire resistance rating of not less than one hour, and the fire protection rating of doors may be one hour.

**16-2.2.2 Doors.**

**16-2.2.2.1** Doors shall comply with 5-2.1.

**16-2.2.2.2*** No door in any means of egress shall be locked against egress when the building is occupied.

*Exception: Special locking arrangements complying with 5-2.1.6 are permitted.*

**16-2.2.2.3*** Every stairwell door shall allow reentry from the stairwell to the interior of the building, or an automatic release shall be provided to unlock all stairwell doors to allow reentry. Such automatic release shall be actuated with the initiation of the building fire alarm system. Also, stairwell doors shall unlock upon loss of power controlling the lock or locking mechanism.

**16-2.2.2.4** Revolving doors complying with 5-2.1.10 are permitted.

**16-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**16-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**16-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**16-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**16-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**16-2.3 Capacity of Means of Egress.**

**16-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**16-2.3.2** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

**16-2.3.3** The minimum corridor width shall be sufficient to accommodate the required occupant load, but not less than 44 in. (112 cm).

*Exception*: Corridors within individual guest rooms or individual guest suites.*

**16-2.4 Number of Exits.** (*See also Section 5-4.*)

**16-2.4.1** Not less than two exits shall be accessible from every floor, including floors below the level of exit discharge and occupied for public purposes.

**16-2.5 Arrangement of Exits.**

**16-2.5.1** Access to all required exits shall be in accordance with Section 5-5.

**16-2.5.2** No common path of travel shall exceed 35 ft (10.7 m). Travel within a guest room or suite shall not be included when calculating common path of travel.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, common path of travel shall not exceed 50 ft (15 m).*

**16-2.5.3** No dead-end corridor shall exceed 35 ft (10.7 m).

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, dead-end corridors shall not exceed 50 ft (15 m).*

**16-2.5.4** Any room, or any suite of rooms, in excess of 2,000 sq ft (185 sq m) shall be provided with at least two exit access doors remote from each other.

**16-2.6 Travel Distance to Exits.**

**16-2.6.1** Any exit as indicated in 16-2.4.1 shall be such that it will not be necessary to travel more than 100 ft (30 m) from the door of any room to reach the nearest exit. Travel distance to exits shall be measured in accordance with Section 5-6.

*Exception No. 1: Travel distance to exits may be increased to 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 2: Travel distance to exits may be increased to 200 ft (60 m) if the exit access and any portion of the building that is tributary to the exit access are protected throughout by an approved supervised automatic sprinkler system in accordance with 16-3.5.1. In addition, the portion of the building in which the 200-ft (60-m) travel distance is permitted shall be separated from the remainder of the building by construction having a fire resistance rating of not less than 1 hour for buildings not more than three stories in height, and 2 hours for buildings more than three stories in height.*

**16-2.6.2** Travel distance within a room or suite to a corridor door shall not exceed 75 ft (23 m).

*Exception: One hundred twenty-five ft (38-m) travel distance is allowed in buildings protected by an approved supervised automatic sprinkler system in accordance with 16-3.5.1.*

**16-2.7 Discharge from Exits.**

**16-2.7.1** Exit discharge shall comply with Section 5-7.

**16-2.7.2*** Any required exit stair that is so located that it is necessary to pass through the lobby or other open space to reach the outside of the building shall be continuously enclosed down to a level of exit discharge, or to a mezzanine within a lobby at a level of exit discharge.

**16-2.7.3** The distance of travel from the termination of the exit enclosure to an exterior door leading to a public way shall not exceed 100 ft (30 m).

**16-2.8 Illumination of Means of Egress.**

**16-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**16-2.9 Emergency Lighting.**

**16-2.9.1** Emergency lighting in accordance with Section 5-9 shall be provided in all buildings with more than 25 rooms.

*Exception: Where each guest room has a direct exit to the outside of the building at grade level (as in motels).*

**16-2.10 Marking of Means of Egress.**

**16-2.10.1** Means of egress shall have signs in accordance with Section 5-10.

**16-2.10.2** An approved luminescent or self luminous exit sign shall be placed on each door to an exit stair from an interior corridor. Such sign shall have appropriate wording in plainly legible letters not less than 4½ in. (11.4 cm) nor more than 6 in. (15.2 cm) high with the principal strokes of letters not less than ¾ in. (1.9 cm) wide. The bottom of the sign shall be not less than 6 in. (15.2 cm) nor more than 8 in. (20.3 cm) above the floor.

**16-2.11 Special Features.**

## SECTION 16-3 PROTECTION

**16-3.1 Protection of Vertical Openings.**

**16-3.1.1** Every stairway, elevator shaft, and other vertical opening shall be enclosed or protected in accordance with 6-2.4.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: Stairway enclosures shall not be required where a one-story stair connects two levels within a single dwelling unit, guest room, or suite.*

*Exception No. 4: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1, fire resistance of walls may be one hour and fire protection rating of doors may be one hour.*

**16-3.1.2** No floor below the level of exit discharge used only for storage, heating equipment, or purposes other than residential occupancy shall have unprotected openings to floors used for residential purposes.

**16-3.2 Protection from Hazards.**

**16-3.2.1** Any room containing high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or directly adjacent to exits. All such rooms shall be effectively cut off from other parts of the building as specified in Section 6-4.

**16-3.2.2** Every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least 1 hour, and communicating openings shall be protected by approved self-closing fire doors, or such area shall be equipped with an automatic fire extinguishing system. Hazardous areas include, but are not limited to:

| | |
|---|---|
| Boiler and heater rooms | Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. |
| Laundries | |
| Repair shops | |

**16-3.3 Interior Finish.**

**16-3.3.1** Interior finish on walls and ceilings, in accordance with Section 6-5, shall be as follows:

(a) Exit enclosures — Class A.

(b) Corridors and lobbies — Class A or B.

(c) All other spaces — Class A, B, or C.

**16-3.3.2** Interior floor finish in corridors and exits shall be Class I or Class II in accordance with Section 6-5.

**16-3.4 Detection, Alarm, and Communications Systems.**

**16-3.4.1 General.** A fire alarm system in accordance with Section 7-6 shall be provided.

**16-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by:

(a) Manual means in accordance with 7-6.2, and

(b) A manual fire alarm station located at the hotel desk or other convenient central control point under continuous supervision by responsible employees, and

(c) Any automatic sprinkler system, and

(d) Any required automatic detection system.

*Exception to (d): Sleeping room smoke detectors are not required to initiate the building fire alarm system.*

**16-3.4.3 Notification.**

**16-3.4.3.1** Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3.

*Exception: A presignal system (see 7-6.3.2 Exception No. 1) may be used only in buildings protected throughout by an approved automatic sprinkler system and then only where permitted by the authority having jurisdiction.*

**16-3.4.3.2** An annunciator panel connected with the fire alarm system shall be provided. The location of the annunciator shall be approved by the authority having jurisdiction.

*Exception: Buildings not greater than two stories in height and with not more than 50 rooms.*

**16-3.4.3.3** In high rise buildings, occupant notification shall be provided by an approved means of voice communication in accordance with 7-6.3.

**16-3.4.3.4*** Provisions shall be made for the immediate notification of the public fire department by either telephone or other means in case of fire. Where there is no public fire department, this notification shall go to the private fire brigade.

**16-3.4.4 Detection.**

**16-3.4.4.1** A corridor smoke detection system in accordance with Section 7-6 shall be provided.

*Exception: Buildings protected throughout by an approved automatic sprinkler system installed in accordance with 16-3.5.1.*

**16-3.4.4.2** Each sleeping room shall be provided with an approved single station smoke detector, in accordance with 7-6.2.9, powered from the building electrical service.

*Exception: Single station smoke detection shall not be required when sleeping rooms contain smoke detectors connected to a central alarm system which also alarm locally.*

**16-3.5 Extinguishment Requirements.**

**16-3.5.1*** Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be installed in accordance with Section 7-7.

*Exception: In guest rooms and in guest room suites, sprinkler installations may be omitted in closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m).*

**16-3.5.2** All high rise buildings shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1.

**16-3.5.3** Open air parking structures complying with NFPA 88A, *Standard for Parking Structures*, need not be sprinklered under this *Code*.

**16-3.5.4** Portable fire extinguishers shall be provided in hazardous areas. Where provided, portable fire extinguishers shall be installed and maintained in accordance with 7-7.4.1.

**16-3.6 Minimum Fire Resistance Requirements for Protection of Guest Rooms (Corridors).**

**16-3.6.1** Interior corridor walls shall consist of fire barriers having at least a 1-hour fire resistance rating.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1, corridor walls shall have at least a ½-hour fire resistance rating.*

**16-3.6.2** Each guest room door that opens onto an interior corridor shall have a fire protection rating of at least 20 minutes. Openings shall resist the passage of smoke.

**16-3.6.3** Each guest room door that opens onto an interior corridor shall be self-closing and shall meet the requirements of 16-3.6.2.

**16-3.6.4** Unprotected openings shall be prohibited in partitions of corridors serving as exit access from guest rooms.

**16-3.6.5** No transom or transfer grille shall be installed in partitions separating the corridors from guest rooms.

**16-3.7 Subdivision of Building Spaces.**

**16-3.7.1** Every guest room floor shall be divided into at least two smoke compartments of approximately the same size, with

smoke barriers in accordance with Section 6-3. Smoke dampers are not required.

Additional smoke barriers shall be provided such that the maximum travel distance from a guest room corridor door to a smoke barrier shall not exceed 150 ft (45 m).

*Exception No. 1: Buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1.*

*Exception No. 2: Where each guest room is provided with exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 3: Smoke barriers are not required where the aggregate corridor length on each floor is not more than 150 ft (45 m).*

**16-3.8 Special Features.**

## SECTION 16-4 SPECIAL PROVISIONS

**16-4.1* Operable Windows.** Each guest room shall be provided with at least one outside window. Such windows shall be openable from the inside, without the use of tools, and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall not be more than 44 in. (112 cm) above the floor. In rooms located greater than six stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: Buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1.*

*Exception No. 2: Where a guest room has a door leading directly to the outside of building.*

*Exception No. 3: Buildings provided with an approved engineered smoke control system in accordance with Section 7-3.*

**16-4.2 High Rise Buildings.** (*See 16-3.5.2.*)

**16-4.3 Operating Features.** (*See Chapter 31.*)

## SECTION 16-5 BUILDING SERVICES

**16-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**16-5.2 Heating, Ventilating, and Air Conditioning.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2, except as otherwise required in this chapter.

**16-5.3* Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4. In high rise buildings, one elevator shall be provided with a protected power supply and be available for use by the fire department in case of emergency.

**16-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 17 EXISTING HOTELS AND DORMITORIES

*(See also Chapter 31.)*

## SECTION 17-1 GENERAL REQUIREMENTS

**17-1.1 Application.**

**17-1.1.1** This chapter establishes life safety requirements for all existing hotels. (*See Chapter 31 for operating features.*)

**17-1.1.2** Existing dormitories shall comply with the requirements for existing hotels.

*Exception: Any dormitory divided into suites of rooms, with one or more bedrooms opening into a living room or study that has a door opening into a common corridor serving a number of suites, shall be classified as an apartment building.*

**17-1.2 Mixed Occupancies.**

**17-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**17-1.2.2** For requirements on mixed mercantile and residential occupancies, see 25-1.2.

**17-1.2.3** Any ballroom, assembly or exhibition hall, and other space used for purposes of public assembly shall be in accordance with Chapter 9. Any dining area having a capacity of 50 or more persons shall be treated as an assembly occupancy.

**17-1.3 Definitions.**

**17-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**Dormitories.** Includes buildings or spaces in buildings where group sleeping accommodations are provided for more than 16 persons not members of the same family group in one room or in a series of closely associated rooms under joint occupancy and single management, as in college dormitories, fraternity houses, military barracks; with or without meals, but without individual cooking facilities.

**Hotels.** Includes buildings or groups of buildings under the same management in which there are more than 16 sleeping accommodations for hire, primarily used by transients who are lodged with or without meals, whether designated as a hotel, inn, club, motel, or by any other name. So-called apartment hotels shall be classified as hotels because they are potentially subject to transient occupancy like that of hotels.

**17-1.4 Classification of Occupancy.** (*See 17-1.3.*)

**17-1.5 Classification of Hazard of Contents.**

**17-1.5.1** The contents of residential occupancies shall be classified as ordinary hazard in accordance with Section 4-2. For the design of automatic sprinkler systems, the classification of contents in NFPA 13, *Standard for the Installation of Sprinkler Systems*, shall apply.

**17-1.6 Minimum Construction Requirements.** No Special Requirements.

**17-1.7 Occupant Load.**

**17-1.7.1*** The occupant load in numbers of persons for whom exits are to be provided shall be determined on the basis of one person per 200 sq ft (18.6 sq m) gross floor area, or the maximum probable population of any room or section under consideration, whichever is greater. The occupant load of any open mezzanine or balcony shall be added to the occupant load of the floor below for the purpose of determining exit capacity..

## SECTION 17-2 MEANS OF EGRESS REQUIREMENTS

**17-2.1 General.**

**17-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**17-2.2 Means of Egress Components.**

**17-2.2.1 General.**

**17-2.2.1.1** Components of means of egress shall be limited to the types described in 17-2.2.2 through 17-2.2.9.

**17-2.2.1.2** In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 17-3.5.1, exit enclosures may have a fire resistance rating of not less than one hour, and the fire protection rating of doors may be one hour.

**17-2.2.2 Doors.**

**17-2.2.2.1** Doors shall comply with 5-2.1.

**17-2.2.2.2*** No door in any means of egress shall be locked against egress when the building is occupied.

*Exception: Special locking arrangements complying with 5-2.1.6 are permitted.*

**17-2.2.2.3*** Every stairwell door shall allow reentry from the stairwell to the interior of the building, or an automatic release shall be provided to unlock all stairwell doors to allow reentry. Such automatic release shall be actuated with the initiation of the building fire alarm system. Also, stairwell doors shall unlock upon loss of power controlling the lock or locking mechanism.

**17-2.2.2.4** Revolving doors complying with 5-2.1.10 are permitted.

**17-2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**17-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**17-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**17-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**17-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**17-2.2.8* Escalators.** Escalators previously approved as a component in the means of egress may continue to be given credit.

**17-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**17-2.3 Capacity of Means of Egress.**

**17-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**17-2.3.2** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

**17-2.4 Number of Exits.** *(See also Section 5-4.)*

**17-2.4.1** Not less than two exits shall be accessible from every floor, including floors below the level of exit discharge and occupied for public purposes.

**17-2.5 Arrangement of Exits.**

**17-2.5.1** Access to all required exits shall be in accordance with Section 5-5.

**17-2.5.2** No common path of travel shall exceed 35 ft (10.7 m). Travel within a guest room or suite shall not be included when calculating common path of travel.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 17-3.5.1, common path of travel shall not exceed 50 ft (15 m).*

**17-2.5.3** No dead-end corridor shall exceed 50 ft (15 m).

**17-2.6 Travel Distance to Exits.**

**17-2.6.1** Any exit as indicated in 17-2.4.1 shall be such that it will not be necessary to travel more than 100 ft (30 m) from the door of any room to reach the nearest exit. Travel distance to exits shall be measured in accordance with Section 5-6.

*Exception No. 1: Travel distance to exits may be increased to 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 2: Travel distance to exits may be increased to 200 ft (60 m) if the exit access and any portion of the building that is tributary to the exit access are protected throughout by an approved automatic sprinkler system in accordance with 17-3.5.1. In addition, the portion of the building in which the 200-ft (60-m) travel distance is permitted shall be separated from the remainder of the building by construction having a fire resistance rating of not less than 1 hour for buildings not more than three stories in height, and 2 hours for buildings more than three stories in height.*

**17-2.6.2** Travel distance within a room or suite to a corridor door shall not exceed 75 ft (23 m).

*Exception: One hundred twenty-five ft (38-m) travel distance is allowed in buildings protected by an automatic sprinkler system in accordance with 17-3.5.1.*

**17-2.7 Discharge from Exits.**

**17-2.7.1** Exit discharge shall comply with Section 5-7.

**17-2.7.2*** Any required exit stair that is so located that it is necessary to pass through the lobby or other open space to reach the outside of the building shall be continuously enclosed down to a level of exit discharge or to a mezzanine within a lobby at a level of exit discharge.

**17-2.7.3** The distance of travel from the termination of the exit enclosure to an exterior door leading to a public way shall not exceed 150 ft (45 m) in buildings protected throughout by an approved automatic sprinkler system and shall not exceed 100 ft (30 m) in all other buildings.

**17-2.8 Illumination of Means of Egress.**

**17-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**17-2.9 Emergency Lighting.**

**17-2.9.1** Emergency lighting in accordance with Section 5-9 shall be provided in all buildings with more than 25 rooms.

*Exception: Where each guest room has a direct exit to the outside of the building at grade level (as in motels).*

**17-2.10 Marking of Means of Egress.**

**17-2.10.1** Means of egress shall have signs in accordance with Section 5-10.

**17-2.11 Special Features.**

## SECTION 17-3 PROTECTION

**17-3.1 Protection of Vertical Openings.**

**17-3.1.1** Every stairway, elevator shaft, and other vertical opening shall be enclosed or protected in accordance with 6-2.4 or provide means of satisfying the requirements of Section 2-9.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: Stairway enclosures shall not be required where a one-story stair connects two levels within a single dwelling unit, guest room, or suite.*

*Exception No. 4: In any building protected throughout by an approved automatic sprinkler system in accordance with 17-3.5.1, and where exits and required ways of travel thereto are adequately safeguarded against fire and smoke within the building or where every individual room has direct access to an exterior exit without passing through any public corridor, the protection of vertical openings not part of required exits may be waived by the authority having jurisdiction to such extent as such openings do not endanger required means of egress.*

*Exception No. 5: In existing buildings not more than two stories in height, unprotected openings may be permitted by the authority having jurisdiction if the building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**17-3.1.2** No floor below the level of exit discharge used only for storage, heating equipment, or purposes other than residential occupancy shall have unprotected openings to floors used for residential purposes.

**17-3.2 Protection from Hazards.**

**17-3.2.1** Any room containing high pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or directly adjacent to exits. All such rooms shall be effectively cut off from other parts of the building as specified in Section 6-4.

**17-3.2.2** Every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least 1 hour, and communicating openings shall be protected by approved self-closing fire doors, or such area shall be equipped with an automatic fire extinguishing system. Hazardous areas include, but are not limited to:

| | |
|---|---|
| Boiler and heater rooms<br>Laundries<br>Repair shops | Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. |

**17-3.3 Interior Finish.**

**17-3.3.1** Interior finish on walls and ceilings, in accordance with Section 6-5, shall be as follows:

(a) Exit enclosures — Class A or B.

(b) Corridors and lobbies that are part of an exit access — Class A or B.

(c) All other spaces — Class A, B, or C.

**17-3.3.2** Interior floor finish in corridors and exits shall be Class I or Class II in accordance with Section 6-5.

*Exception: Previously installed floor coverings may be continued in use, subject to the approval of the authority having jurisdiction.*

**17-3.4 Detection, Alarm, and Communications Systems.**

**17-3.4.1 General.** A fire alarm system in accordance with Section 7-6, except as modified below, shall be provided.

*Exception: Buildings where each guest room has exterior exit access in accordance with 5-5.3 and the building is not greater than 3 stories in height.*

**17-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by:

(a) Manual means in accordance with 7-6.2, and

*Exception to (a): Manual means as specified in 7-6.2, in excess of the alarm station at the hotel desk per (b) below, may be waived where there are other effective means (such as complete automatic sprinkler or automatic detection systems) for notification of fire as required.*

(b) A manual fire alarm station located at the hotel desk or other convenient central control point under continuous supervision by responsible employees, and

(c) Any required automatic sprinkler system, and

(d) Any required detection system.

*Exception to (d): Sleeping room smoke detectors are not required to initiate the building fire alarm system.*

**17-3.4.3 Notification.**

**17-3.4.3.1** Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3.

*Exception: A presignal system (see 7-6.3.2 Exception No. 1) may be used only where permitted by the authority having jurisdiction.*

**17-3.4.3.2*** Provisions shall be made for the immediate notification of the public fire department by either telephone or other means in case of fire. Where there is no public fire department, this notification shall go to the private fire brigade.

**17-3.4.4 Detection.** Each sleeping room shall be provided with an approved single station smoke detector, in accordance with 7-6.2.9, powered from the building electrical service.

*Exception: Buildings having an existing corridor smoke detection system in accordance with Section 7-6, connected to the building fire alarm system.*

**17-3.5 Extinguishment Requirements.**

**17-3.5.1*** Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be installed in accordance with Section 7-7.

*Exception: In guest rooms and in guest room suites, sprinkler installations may be omitted in closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m).*

**17-3.5.2** Portable fire extinguishers shall be provided in hazardous areas. Where provided, portable fire extinguishers shall be installed and maintained in accordance with 7-7.4.1.

**17-3.6 Minimum Fire Resistance Requirements for Protection of Guest Rooms (Corridors).**

**17-3.6.1** Interior corridor walls shall consist of fire barriers having at least a thirty-minute fire resistance rating.

*Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with 17-3.5.1, no fire resistance rating shall be required, but the walls and all openings therein shall resist the passage of smoke.*

*Exception No. 2: Where interior corridor walls have openings from transfer grilles, see 17-3.6.6.*

**17-3.6.2** Each guest room door that opens onto an interior corridor shall have a fire protection rating of at least 20 minutes.

*Exception No. 1: Previously approved 1¾-in. (4.4-cm) solid bonded wood core doors may remain in use.*

*Exception No. 2: Where automatic sprinkler protection is provided in the corridor in accordance with 19-3.5.2 through 19-3.5.4, doors shall not be required to have a fire protection rating but shall resist the passage of smoke. Doors shall be equipped with latches for keeping doors tightly closed.*

**17-3.6.3** Each guest room door that opens onto an interior corridor shall be self-closing and shall meet the requirements of 17-3.6.2.

**17-3.6.4** Unprotected openings shall be prohibited in partitions of interior corridors serving as exit access from guest rooms.

**17-3.6.5** Existing transoms installed in corridor partitions of sleeping rooms shall be fixed in the closed position and shall be covered or otherwise protected to provide a fire resistance rating at least equivalent to that of the wall in which they are installed.

**17-3.6.6** Transfer grilles, whether protected by fusible link operated dampers or not, shall not be used in these walls or doors.

*Exception No. 1: Where a corridor smoke detection system is provided that, when sensing smoke, will sound the building alarm and shut down return or exhaust fans that draw air into*

*the corridor from the guest rooms. The grilles shall be located in the lower one-third of the wall or door height.*

*Exception No. 2: Where automatic sprinkler protection is provided in the corridor in accordance with 19-3.5.2 through 19-3.5.4, and where the transfer grille is located in the lower one-third of the wall or door height.*

**17-3.7 Subdivision of Building Spaces.**

**17-3.7.1** Every guest room floor shall be divided into at least two smoke compartments of approximately the same size with smoke barriers in accordance with Section 6-3. Smoke dampers are not required.

Additional smoke barriers shall be provided such that the maximum travel distance from a guest room corridor door to a smoke barrier shall not exceed 150 ft (45 m).

*Exception No. 1: Buildings protected throughout by an approved automatic sprinkler system installed in accordance with 17-3.5.1 or a sprinkler system conforming to 19-3.5.2 through 19-3.5.4.*

*Exception No. 2: Where each guest room is provided with exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 3: Smoke barriers are not required where the aggregate corridor length on each floor is not more than 150 ft (45 m).*

**17-3.8 Special Features.**

## SECTION 17-4 SPECIAL PROVISIONS

**17-4.1 Operating Features.** (*See Chapter 31.*)

**17-4.2 High Rise Buildings.** (Reserved)

## SECTION 17-5 BUILDING SERVICES

**17-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**17-5.2 Heating, Ventilating, and Air Conditioning.**

**17-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2, except as otherwise required in this chapter.

**17-5.2.2** Unvented fuel-fired heaters shall not be used.

**17-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**17-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 18 NEW APARTMENT BUILDINGS

*(See also Chapter 31.)*

## SECTION 18-1 GENERAL REQUIREMENTS

**18-1.1 Application.**

**18-1.1.1** All new buildings classified as apartment buildings by 18-1.3.1 shall conform to the provisions of this chapter and shall meet the requirements of one of the following options (*see Table 18-1*):

Option 1: Buildings without fire suppression or detection systems;

Option 2: Buildings provided with a complete automatic fire detection and notification system;

Option 3: Buildings provided with automatic sprinkler protection in selected areas;

Option 4: Buildings protected throughout by an approved automatic sprinkler system.

**18-1.1.2 High Rise Buildings.** High rise buildings shall comply with Option 4.

**18-1.1.3** Every individual living unit covered by this chapter shall comply with the minimum provisions of Section 22-2 for one- and two-family dwellings.

**18-1.2 Mixed Occupancies.**

**18-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**18-1.2.2** For requirements on mixed mercantile and residential occupancies, see 24-1.2.

**18-1.3 Definitions.**

**18-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**Apartment Buildings.** Includes buildings containing three or more living units with independent cooking and bathroom facilities, whether designated as apartment house, tenement, garden apartment, or by any other name.

**18-1.4 Classification of Occupancy.** (*See 18-1.3.1.*)

**18-1.5 Classification of Hazard of Contents.**

**18-1.5.1** The contents of residential occupancies shall be classified as ordinary hazard in accordance with Section 4-2.

**18-1.6 Minimum Construction Requirements.** No Special Requirements.

**18-1.7 Occupant Load.**

**18-1.7.1*** The occupant load in numbers of persons for whom exits are to be provided shall be determined on the basis of one person per 200 sq ft (18.6 sq m) gross floor area, or the maximum probable population of any room or section under consideration, whichever is greater. The occupant load of any open mezzanine or balcony shall be added to the occupant load of the floor below for the purpose of determining exit capacity.

## SECTION 18-2 MEANS OF EGRESS REQUIREMENTS

**18-2.1 General.**

**18-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**18-2.2 Means of Egress Components.**

**18-2.2.1 General.**

**18-2.2.1.1** Components of means of egress shall be limited to the types described in 18-2.2.2 through 18-2.2.7.

**18-2.2.1.2** In buildings utilizing Option 4, exit enclosures shall have a fire resistance rating of not less than one hour with a fire protection rating of doors of one hour.

**18-2.2.2 Doors.**

**18-2.2.2.1** Doors shall comply with 5-2.1.

**18-2.2.2.2*** No door in any means of egress shall be locked against egress when the building is occupied.

*Exception No. 1: Special locking arrangements complying with 5-2.1.6 are permitted.*

*Exception No. 2: Doors serving a single dwelling unit may be provided with a lock complying with 5-2.1.5.1 Exception No. 3.*

**18-2.2.2.3** Revolving doors complying with 5-2.1.10 are permitted.

**18-2.2.3 Stairs.**

**18-2.2.3.1** Stairs shall comply with 5-2.2.

**18-2.2.3.2** Within any individual living unit, stairs more than one story above or below the entrance floor level of the living unit shall not be permitted.

**18-2.2.3.3** Spiral stairs complying with 5-2.2.2.7 are permitted within a single living unit.

**18-2.2.3.4** Winders complying with 5-2.2.2.8 are permitted within a single living unit.

**18-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**18-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**18-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**18-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**18-2.3 Capacity of Means of Egress.**

**18-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**18-2.3.2** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

**18-2.3.3** The minimum corridor width shall be sufficient to accommodate the required occupant load, but not less than 44 in. (112 cm).

*Exception: Corridors with a required capacity not greater than 50, as defined in Section 5-3, shall be not less than 36 in. (91 cm) in width.*

**18-2.4 Number of Exits.** (*See also Section 5-4.*)

**18-2.4.1** Every living unit shall have access to at least two separate exits remote from each other as required by 5-5.1.

*Exception No. 1: Any living unit may have a single exit provided:*

*(a) That living unit has an exit door directly to the street or yard at ground level, or*

*(b) That living unit has direct access to an outside stair complying with 5-2.2, serving a maximum of two units both located on the same floor, or*

*(c) That living unit has direct access to an interior stair serving that unit only and separated from all other portions of the building with fire barriers having a one-hour fire resistance rating with no opening therein.*

*Exception No. 2: Any building of three stories or less with not more than 4 living units per floor may have a single exit under the following conditions:*

*(a) The stairway is completely enclosed by barriers having a fire resistance rating of at least 1 hour with self-closing 1-hour fire protection rated doors protecting all openings between the stairway enclosure and the building.*

*(b) The stairway does not serve more than ½ story below the level of exit discharge.*

*(c) All corridors serving as access to exits have at least a 1-hour fire resistance rating.*

*(d) There is not more than 35 ft (10.7 m) of travel distance from the entrance door of any living unit to an exit.*

*(e) Three-quarter hour fire rated horizontal and vertical separation between living units is provided.*

**18-2.5 Arrangement of Exits.**

**18-2.5.1** Access to all required exits shall be in accordance with Section 5-5.

**18-2.5.2** No common path of travel shall exceed 35 ft (10.7 m). Travel within a dwelling unit shall not be included when calculating common path of travel.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, common path of travel shall not exceed 50 ft (15 m).*

**18-2.5.3** No dead-end corridor shall exceed 35 ft (10.7 m)

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, dead-end corridors shall not exceed 50 ft (15 m).*

**18-2.6 Travel Distance to Exits.**

**18-2.6.1** Travel distance within a living unit (apartment) to a corridor door shall not exceed the following limits:

(a) For buildings using Options 1, 2, or 3 — 75 ft (23 m).

(b) For buildings using Option 4 — 125 ft (38 m).

**18-2.6.2** The travel distance from a living unit (apartment) entrance door to the nearest exit shall not exceed the following limits:

(a) For buildings using Option 1, 2, or 3 — 100 ft (30 m).

(b) For buildings using Option 4 — 200 ft (60 m).

*Exception: Travel distance to exits may be increased to 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.*

**18-2.7 Discharge from Exits.**

**18-2.7.1** Exit discharge shall comply with Section 5-7.

**18-2.8 Illumination of Means of Egress.**

**18-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**18-2.9 Emergency Lighting.**

**18-2.9.1** Emergency lighting in accordance with Section 5-9 shall be provided in all buildings with greater than 12 living units or greater than three stories in height.

*Exception: Where every living unit has a direct exit to the outside of the building at grade level.*

**18-2.10 Marking of Means of Egress.**

**18-2.10.1** Means of egress shall have signs in accordance with Section 5-10 in all buildings requiring more than one exit.

**18-2.11 Special Features.**

## SECTION 18-3 PROTECTION

**18-3.1 Protection of Vertical Openings.**

**18-3.1.1** Every stairway, elevator shaft, and other vertical opening shall be enclosed or protected in accordance with 6-2.4.

*Exception No. 1: Stairway enclosures shall not be required where a one-story stair connects two levels within a single dwelling unit, guest room, or suite.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: In buildings using Option 4, fire resistance of walls may be 1 hour and fire protection rating of doors may be 1 hour.*

*Exception No. 4: There shall be no unprotected vertical opening in any building or fire section with only one exit.*

**18-3.1.2** No floor below the level of exit discharge used only for storage, heating equipment, or purposes other than residential occupancy open to the public shall have unprotected openings to floors used for residential purposes.

**18-3.2 Protection from Hazards.**

**18-3.2.1** In buildings using Option 1, 2, or 3, every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least 1 hour, and communicating openings shall be protected by approved smoke-actuated automatic, or self-closing fire doors with a fire protection rating of ¾ hour, or such area shall be equipped with an automatic extinguishing system. Hazardous areas include, but are not limited to:

| | |
|---|---|
| Boiler and heater rooms | Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. |
| Laundries | |
| Repair shops | |

**18-3.2.2** In buildings using Option 4, the enclosure for hazardous areas shall be of smoke-resisting construction with or without a fire resistance rating.

**18-3.3 Interior Finish.**

**18-3.3.1** Interior finish on walls and ceilings, in accordance with Section 6-5, shall be as follows:

(a) Exit enclosures — Class A

(b) Lobbies and corridors — Class A or B

(c) All other spaces — Class A, B, or C

**18-3.3.2 Interior Floor Finish.** In buildings using Option 1 or 2, interior floor finish in corridors and exits shall be Class I or Class II in accordance with Section 6-5.

**18-3.4 Detection, Alarm, and Communications Systems.**

**18-3.4.1 General.** Apartment buildings with more than three stories or with more than 11 living units shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception: Where each living unit is separated from other contiguous living units by fire barriers (see Section 6-2) having a fire resistance rating not less than ¾ hour and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.*

**18-3.4.2 Initiation.**

**18-3.4.2.1** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.

**18-3.4.2.2** In buildings using Option 2, the required fire alarm system shall be initiated by the automatic fire detection system, in addition to the manual initiation means of 18-3.4.2.1.

**18-3.4.2.3** In buildings using Option 3, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system, in addition to the manual initiation means of 18-3.4.2.1.

**18-3.4.2.4** In buildings using Option 4, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system, in addition to the manual initiation means of 18-3.4.2.1.

**18-3.4.3 Notification.**

**18-3.4.3.1** An annunciator panel connected with the required fire alarm system shall be provided. The location of the annunciator panel shall be approved by the authority having jurisdiction.

*Exception: Buildings not greater than two stories in height and with not more than 50 living units.*

**18-3.4.3.2** Occupant notification shall be accomplished automatically, without delay, by an internal audible alarm signal in accordance with 7-6.3. Presignal systems are prohibited.

**18-3.4.4 Detection.**

**18-3.4.4.1*** Approved single station or multiple station smoke detectors continuously powered by house electrical service shall be installed in accordance with 7-6.2.9 in every living unit within the apartment building regardless of the number of stories or number of apartments. When activated, the detector shall initiate an alarm that is audible in the sleeping rooms of that unit. This individual unit detector shall be in addition to any sprinkler system or other detection system that may be installed in the building.

**18-3.4.4.2** In buildings using Option 2, a total automatic fire detection system is required. An automatic fire detection system is one that is designed to give complete coverage with fire detectors in accordance with the spacings and layouts given in NFPA 72E, *Standard on Automatic Fire Detectors*, and laboratory test data, and is one in which the detectors are tied together to initiate the alarm and other automatic fire protection devices.

**18-3.5 Extinguishment Requirements.**

**18-3.5.1*** Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be installed in accordance with Section 7-7.

*Exception: In individual living units, sprinkler installation may be omitted in closets not over 12 sq ft (1.1 sq m) and bathrooms not over 55 sq ft (5.1 sq m). Closets that contain equipment such as washers, dryers, furnaces, or water heaters shall be sprinklered regardless of size.*

**18-3.5.2** In buildings using Option 3, automatic sprinklers shall be installed in corridors along the corridor ceiling, and one sprinkler head shall be opposite the center of and inside any living unit door opening onto the corridor.

**18-3.5.3** The sprinkler installation required in 18-3.5.2 shall meet the requirements of Section 7-7 in terms of workmanship and materials.

**18-3.5.4** The installation of the corridor sprinklers required by 18-3.5.2 shall meet the spacing and protection area requirements of Section 7-7.

**18-3.5.5** Buildings using Option 4 shall be protected throughout by an approved supervised automatic sprinkler system complying with 18-3.5.1.

**18-3.5.6** Portable fire extinguishers shall be provided in hazardous areas. Where provided, portable fire extinguishers shall be installed and maintained as specified 7-7.4.1.

**18-3.5.7** All high rise buildings shall comply with Option 4 (total automatic sprinkler protection).

**18-3.5.8** Open air parking structures complying with NFPA 88A, *Standard for Parking Structures*, need not be sprinklered under this *Code*.

**18-3.6 Corridors.**

**18-3.6.1** Exit access corridors shall be protected as follows:

(a) In buildings using Option 1 or 2, corridor walls shall have a fire resistance rating of not less than 1 hour.

(b) In buildings using Option 3, corridor walls shall have a fire resistance rating of not less than ¾ hour.

(c) In buildings using Option 4, corridor walls shall have a fire resistance rating of not less than ½ hour.

**18-3.6.2** Doors between apartments and corridors shall be self-closing.

**18-3.6.3*** The fire protection rating of doors from living units to corridors shall be not less than 20 minutes.

**18-3.7 Subdivisions of Building Spaces.**

**18-3.7.1 Horizontal Exits.** Sufficient horizontal exits are required to limit the maximum gross area per story between horizontal exits to that specified below:

(a) The gross area per story between horizontal exits shall not be limited for the purposes of this *Code* for buildings not greater than three stories in height.

(b) In buildings using Option 1 or 2, the gross area per story between horizontal exits shall be a maximum of 20,000 sq ft (1900 sq m).

**18-3.7.2 Smoke Barriers.** Smoke barriers in accordance with Section 6-3 shall be provided in exit access corridors to establish at least two compartments approximately equal in size. The maximum length of each smoke compartment measured along the corridor shall not exceed 200 ft (60 m). Smoke dampers are not required.

*Exception No. 1: Buildings using Option 4.*

*Exception No. 2: Exterior exit access in accordance with 5-5.3 that provides access to two exits.*

*Exception No. 3: Buildings allowed to comply with 18-2.4.1 Exceptions No. 1 or 2.*

*Exception No. 4: Buildings with exits not more than 50 ft (15 m) apart.*

*Exception No. 5: Where each dwelling unit has direct access to the exterior at grade.*

**18-3.8 Special Features.**

## SECTION 18-4 SPECIAL PROVISIONS

**18-4.1 Windows for Rescue and Ventilation.** (*See 18-1.1.3.*)
*Exception: Buildings using Option 4.*

**18-4.2 High Rise Buildings.** (*See 18-1.1.1, 18-3.5.7.*)

**18-4.3 Operating Features.** (*See Chapter 31.*)

## SECTION 18-5 BUILDING SERVICES

**18-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**18-5.2 Heating, Ventilating, and Air Conditioning.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**18-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**18-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

**Table 18-1**
**Alternate Requirements for New Apartment Buildings According to Protection Provided**
*(See actual Code provisions for details.)*

| | No Suppression or Detection System Option No. 1 | Total Automatic Detection Option No. 2 | Sprink. Prot. in Select. Areas Option No. 3 | Auto Ext. NFPA 13 (with exceptions) Option No. 4 |
|---|---|---|---|---|
| **Max. Gross Area per Story Between Horizontal Exits** | | | | |
| 1-3 Stories | NR | NR | NR | NR |
| ≥4 Stories <HR | 20,000 sq ft (1,900 sq m) | 20,000 sq ft (1,900 sq m) | NR | NR |
| HR | NP | NP | NP | NR |
| **Exit Access** | | | | |
| Travel Distance | 100 ft (30 m) | 100 ft (30 m) | 100 ft (30 m) | 200 ft (60 m) |
| Smoke Barrier Req. (*See 18-3.7.2.*) | Req. | Req. | Req. | NR |
| Max. Common Path of Travel (Mod) | 35 ft (10.7 m) | 35 ft (10.7 m) | 35 ft (10.7 m) | 50 ft (15 m) |
| Max. Dead End | 35 ft (10.7 m) | 35 ft (10.7 m) | 35 ft (10.7 m) | 50 ft (15 m) |
| Fire Resistance | | | | |
| Walls | 1 hr | 1 hr | ¾ hr | ½ hr |
| Doors (Fire Protection Rating) | 20 min | 20 min | 20 min | 20 min |
| Flame Spread | | | | |
| Walls & Ceilings | A or B | A or B | A or B | A, B, or C |
| Floors | I or II | I or II | NR | NR |
| **Exits—Vertical** | | | | |
| Fire Resistance Walls | | | | |
| 1-3 Stories | 1 hr | 1 hr | 1 hr | 1 hr |
| >3 Stories | 2 hr | 2 hr | 2 hr | 1 hr |
| Smokeproof Enclosures | | | | |
| ≥1 Story <HR | NR | NR | NR | NR |
| HR | NP | NP | NP | NR |
| Doors | | | | |
| 1-3 Stories | 1 hr | 1 hr | 1 hr | 1 hr |
| >3 Stories | 1½ hr | 1½ hr | 1½ hr | 1 hr |
| Flame Spread | | | | |
| Walls & Ceilings | A | A | A | A or B |
| Floors | I or II | I or II | NR | NR |
| **Exits—Horizontal** | | | | |
| Fire Resistance | | | | |
| Walls | 2 hr | 2 hr | 2 hr | NA |
| Doors | 1½ hr | 1½ hr | 1½ hr | NA |
| **Habitable Spaces** | | | | |
| Max. Distance to Corridor Door | 75 ft (23 m)* | 75 ft (23 m) | 75 ft (23 m) | 125 ft (38 m) |
| Flamespread Walls & Ceilings | A, B, or C | A, B, or C | A, B, or C | A, B, or C |
| Smoke Detector in Unit | Req. | Req. | Req. | Req. |
| Door to Corridor Self-Closing | Req. | Req. | Req. | Req. |
| Bedroom Windows, per Section 22-2 (*See 18-1.1.2.*) | Req. | Req. | Req. | NR |
| **Alarm System** | | | | |
| >3 Stories or >11 Units | manual annunciator panel | manual & auto annunciator panel | manual & auto annunciator panel | manual & auto annunciator panel |
| >2 Stories or >50 Units | | | | |
| HR | NP | NP | NP | |
| **HVAC** | | | | |
| HR; Pressurized Corridor, 0.01 in. Water (2.5 Pa), min. | NP | NP | NP | NR |
| **Elevator** | | | | |
| ANSI | A17.1 | A17.1 | A17.1 | A17.1 |

Req.=Required (*See Code for details and Exceptions.*)

NR=No Requirements
NA=Not Applicable
NP=Option Not Permitted For High Rise Buildings
HR=High Rise Buildings

# CHAPTER 19 EXISTING APARTMENT BUILDINGS

*(See also Chapter 31.)*

## SECTION 19-1 GENERAL REQUIREMENTS

**19-1.1 Application.**

**19-1.1.1** All existing buildings classified as apartment buildings by 19-1.3 shall conform to the provisions of this chapter and shall meet the requirements of one of the following options:

Option 1: Buildings without fire suppression or detection systems;

Option 2: Buildings provided with a complete automatic fire detection and notification system;

Option 3: Buildings provided with automatic sprinkler protection in selected areas;

Option 4: Buildings protected throughout by an approved automatic sprinkler system.

**19-1.1.2 Reserved.**

**19-1.1.3** Every individual living unit covered by this chapter shall comply with the minimum provisions of Section 22-2 for one- and two-family dwellings.

**19-1.2 Mixed Occupancies.**

**19-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**19-1.2.2** For requirements on mixed mercantile and residential occupancies, see 25-1.2.

**19-1.3 Definitions.**

**19-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**Apartment Buildings.** Includes buildings containing three or more living units with independent cooking and bathroom facilities, whether designated as apartment house, tenement, garden apartment, or by any other name.

**19-1.4 Classification of Occupancy.** (*See 19-1.3.1.*)

**19-1.5 Classification of Hazard of Contents.**

**19-1.5.1** The contents of residential occupancies shall be classified as ordinary hazard in accordance with Section 4-2.

**19-1.6 Minimum Construction Requirements.** No Special Requirements.

**19-1.7 Occupant Load.**

**19-1.7.1*** The occupant load in numbers of persons for whom exits are to be provided shall be determined on the basis of one person per 200 sq ft (18.6 sq m) gross floor area, or the maximum probable population of any room or section under consideration, whichever is greater. The occupant load of any open mezzanine or balcony shall be added to the occupant load of the floor below for the purpose of determining exit capacity.

## SECTION 19-2 MEANS OF EGRESS REQUIREMENTS

**19-2.1 General.**

**19-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**19-2.2 Means of Egress Components.**

**19-2.2.1 General.**

**19-2.2.1.1** Components of means of egress shall be limited to the types described in 19-2.2.2 through 19-2.2.9.

**19-2.2.1.2** In buildings utilizing Option 4, exit enclosures shall have a fire resistance rating of not less than one hour with a fire protection rating of doors of one hour.

**19-2.2.2 Doors.**

**19-2.2.2.1** Doors shall comply with 5-2.1.

**19-2.2.2.2*** No door in any means of egress shall be locked against egress when the building is occupied.

*Exception No. 1: Special locking arrangements complying with 5-2.1.6 are permitted.*

*Exception No. 2: Doors serving a single dwelling unit may be provided with a lock complying with 5-2.1.5.1 Exception No. 3.*

**19-2.2.2.3** Revolving doors complying with 5-2.1.10 are permitted.

**19-2.2.3 Stairs.**

**19-2.2.3.1** Stairs shall comply with 5-2.2.

**19-2.2.3.2** Within any individual living unit, stairs more than one story above or below the entrance floor level of the living unit shall not be permitted.

**19-2.2.3.3** Spiral stairs complying with 5-2.2.2.7 are permitted within a single living unit.

**19-2.2.3.4** Winders complying with 5-2.2.2.8 are permitted.

**19-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3. (*See also 19-2.11.1.*)

**19-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**19-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**19-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**19-2.2.8* Escalators.** Escalators previously approved as a component in the means of egress may continue to be given credit.

**19-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**19-2.3 Capacity of Means of Egress.**

**19-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**19-2.3.2** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

**19-2.4 Number of Exits.** (*See also Section 5-4.*)

**19-2.4.1** Every living unit shall have access to at least two separate exits remote from each other as required by 5-5.1.

*Exception No. 1: Any living unit may have a single exit provided:*

*(a) That living unit has an exit door directly to the street or yard at ground level, or*

*(b) That living unit has direct access to an outside stair complying with 5-2.2, serving a maximum of two units both located on the same floor, or*

*(c) That living unit has direct access to an interior stair serving that unit only and separated from all other portions of the building with fire barriers having a one-hour fire resistance rating with no opening therein.*

*Exception No. 2: Any building of three stories or less may have a single exit under the following conditions:*

*(a) The stairway is completely enclosed by barriers having a fire resistance rating of at least 1 hour with self-closing 1-hour fire protection rated doors protecting all openings between the stairway enclosure and the building.*

*(b) The stairway does not serve more than one-half story below the level of exit discharge.*

*(c) All corridors serving as access to exits have at least a 1-hour fire resistance rating.*

*(d) There is not more than 35 ft (10.7 m) of travel distance from the entrance door of any living unit to an exit.*

*(e) Three-quarter hour fire rated horizontal and vertical separation between living units is provided.*

*Exception No. 3: A building of any height with not more than four living units per floor, with a smokeproof enclosure or outside stair in accordance with the requirements of 5-2.3 as the exit, immediately accessible to all living units served thereby, may have a single exit. ("Immediately accessible" means there is not more than 20 ft (6.1 m) of travel distance from the entrance door of any living unit to an exit.)*

**19-2.5 Arrangement of Exits.**

**19-2.5.1** Access to all required exits shall be in accordance with Section 5-5.

**19-2.5.2** No common path of travel shall exceed 35 ft (10.7 m). Travel within a dwelling unit shall not be included when calculating common path of travel.

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, common path of travel shall not exceed 50 ft (15 m).*

**19-2.5.3** No dead-end corridor shall exceed 50 ft (15 m).

**19-2.6 Travel Distance to Exits.**

**19-2.6.1** Travel distance within a living unit (apartment) to a corridor door shall not exceed the following limits:

(a) For buildings using Option 1 or 3 — 75 ft (23 m).

(b) For buildings using Option 2 or 4 — 125 ft (38 m).

**19-2.6.2** The travel distance from a living unit (apartment) entrance door to the nearest exit shall not exceed the following limits:

(a) For buildings using Option 1 — 100 ft (30 m).

(b) For buildings using Option 2, or 3 — 150 ft (45 m).

(c) For buildings using Option 4 — 200 ft (60 m).

*Exception: Travel distance to exits may be increased to 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.*

**19-2.7 Discharge from Exits.**

**19-2.7.1** Exit discharge shall comply with Section 5-7.

**19-2.7.2** Any required exit stair that is located so that it is necessary to pass through the lobby or other open space to reach the outside of the building shall be continuously enclosed down to a level of exit discharge or to a mezzanine within a lobby at a level of exit discharge.

**19-2.7.3** The distance of travel from the termination of the exit enclosure to an exterior door leading to a public way shall not exceed 150 ft (45 m) in buildings protected throughout by an approved automatic sprinkler system and shall not exceed 100 ft (30 m) in all other buildings.

**19-2.8 Illumination of Means of Egress.**

**19-2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**19-2.9 Emergency Lighting.**

**19-2.9.1** Emergency lighting in accordance with Section 5-9 shall be provided in all buildings with greater than 12 living units or greater than three stories in height.

*Exception: Where every living unit has a direct exit to the outside of the building at grade level.*

**19-2.10 Marking of Means of Egress.**

**19-2.10.1** Means of egress shall have signs in accordance with Section 5-10 in all buildings requiring more than one exit.

**19-2.11 Special Features.**

**19-2.11.1*** In high rise buildings using Option 1, 2, or 3, smokeproof enclosures shall be provided in accordance with 5-2.3.

## SECTION 19-3 PROTECTION

**19-3.1 Protection of Vertical Openings.**

**19-3.1.1** Every stairway, elevator shaft, and other vertical opening shall be enclosed or protected in accordance with 6-2.4 or provide means of satisfying the requirements of Section 2-9.

*Exception No. 1: Stairway enclosures shall not be required where a one-story stair connects two levels within a single dwelling unit, guest room, or suite.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: In buildings using Option 4, fire resistance of walls may be ¾ hour for buildings of one to three stories, and 1 hour for buildings greater than three stories; and fire*

*protection rating of doors may be ¾ hour for buildings up to three stories and 1 hour for buildings greater than three stories.*

*Exception No. 4: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 5: In any building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and where exits and required ways of travel thereto are adequately safeguarded against fire and smoke within the building, or where every individual room has direct access to an exterior exit without passing through any public corridor, the protection of vertical openings not part of required exits may be waived by the authority having jurisdiction to such extent as such openings do not endanger required means of egress.*

**19-3.1.2** No floor below the level of exit discharge used only for storage, heating equipment, or purpose other than residential occupancy open to the public shall have unprotected openings to floors used for residential purposes.

**19-3.2 Protection from Hazards.**

**19-3.2.1** In buildings using Option 1, 2, or 3, every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least 1 hour, and communicating openings shall be protected by approved smoke-actuated automatic, or self-closing fire doors with a fire protection rating of ¾ hour, or such area shall be equipped with an automatic extinguishing system. Hazardous areas include, but are not limited to:

| | |
|---|---|
| Boiler and heater rooms<br>Laundries<br>Repair shops | Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. |

**19-3.2.2** In buildings using Option 4, the enclosure for hazardous areas shall be of smoke-resisting construction with or without a fire resistance rating.

**19-3.3 Interior Finish.**

**19-3.3.1** Interior finish on walls and ceilings, in accordance with Section 6-5, shall be as follows:

(a) Exit enclosures — Class A or B

(b) Lobbies and corridors — Class A or B

(c) All other spaces — Class A, B, or C

**19-3.3.2 Interior Floor Finish.** In buildings using Option 1 or 2, interior floor finish in corridors and exits shall be Class I or Class II in accordance with Section 6-5.

*Exception: Previously installed floor coverings may be continued in use, subject to the approval of the authority having jurisdiction.*

**19-3.4 Detection, Alarm, and Communication Systems.**

**19-3.4.1 General.** Apartment buildings with more than three stories or with more than 11 living units shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception: Where each living unit is separated from other contiguous living units by fire barriers (see Section 6-2) having a fire resistance rating not less than ¾ hour, and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.*

**19-3.4.2 Initiation.**

**19-3.4.2.1** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.

**19-3.4.2.2** In buildings using Option 2, the required fire alarm system shall be initiated by the automatic fire detection system, in addition to the manual initiation means of 19-3.4.2.1.

**19-3.4.2.3** In buildings using Option 3, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system, in addition to the manual initiation means of 19-3.4.2.1.

**19-3.4.2.4** In buildings using Option 4, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system, in addition to the manual initiation means of 19-3.4.2.1.

**19-3.4.3 Notification.**

**19-3.4.3.1** An annunciator panel connected with the required fire alarm system shall be provided. The location of the annunciator panel shall be approved by the authority having jurisdiction.

*Exception: Buildings not greater than two stories in height and with not more than 50 living units.*

**19-3.4.3.2** Occupant notification shall be by an internal audible alarm signal in accordance with 7-6.3.

**19-3.4.4 Detection.**

**19-3.4.4.1** Approved single station or multiple station smoke detectors, continuously powered by the house electrical service, shall be installed in accordance with 7-6.2.9 in every living unit within the apartment building regardless of the number of stories or number of apartments. When activated, the detector shall initiate an alarm that is audible in the sleeping rooms of that unit. This individual unit detector shall be in addition to any sprinkler system or other detection system that may be installed in the building.

*Exception: The single station smoke detector is not required where the building is equipped with a total automatic smoke detection system throughout.*

**19-3.4.4.2** In buildings using Option 2, a total automatic fire detection system is required. An automatic fire detection system is one that is designed to give complete coverage with fire detectors in accordance with the spacings and layouts given in NFPA 72E, *Standard on Automatic Fire Detectors*, and laboratory test data, and is one in which the detectors are tied together to initiate the alarm and other automatic fire protection devices.

**19-3.5 Extinguishment Requirements.**

**19-3.5.1*** Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be installed in accordance with Section 7-7.

*Exception: In individual living units, sprinkler installations may be omitted in closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m). Closets that contain equipment such as washers, dryers, furnaces or water heaters shall be sprinklered regardless of size.*

**19-3.5.2** In buildings using Option 3, automatic sprinklers shall be installed in corridors along the corridor ceiling, and one

sprinkler head shall be opposite the center of and inside any living unit door opening into the corridor.

*Exception: The sprinkler head inside living units may be omitted if the door to the living unit has a fire protection rating of at least 20 minutes and is self-closing.*

**19-3.5.3** The sprinkler installation required in 19-3.5.2 shall meet the requirements of Section 7-7 in terms of workmanship and materials.

**19-3.5.4** The installation of the corridor sprinklers required in 19-3.5.2 shall not exceed the maximum spacing and protection area requirements of Section 7-7.

**19-3.5.5** Buildings using Option 4 shall be protected throughout by an approved automatic sprinkler system complying with 19-3.5.1. The automatic sprinkler system shall meet the requirements of Section 7-7 for supervision for buildings greater than six stories in height.

**19-3.5.6** Portable fire extinguishers shall be provided in hazardous areas. Where provided, portable fire extinguishers shall be installed and maintained as specified in 7-7.4.1.

**19-3.6 Corridors.**

**19-3.6.1*** Exit access corridors shall be protected as follows:

(a) In buildings using Option 1 or 2, corridor walls shall have a fire resistance rating of not less than 30 minutes.

(b) In buildings using Option 3 or 4, corridor walls shall have a fire resistance rating of not less than ½ hour.

**19-3.6.2** Doors between living units and corridors shall be self-closing. Doors shall be equipped with latches for keeping doors tightly closed.

**19-3.6.3*** The fire protection rating of doors from living units to corridors shall be not less than 20 minutes.

*Exception No. 1: Previously approved 1¾-in. (4.4-cm) solid bonded wood core doors may continue in use.*

*Exception No. 2: In buildings using Option 3 or 4, doors shall be so constructed as to resist the passage of smoke.*

**19-3.6.4** Transfer grilles, whether protected by fusible link operated dampers or not, shall not be permitted in these walls or doors.

**19-3.7 Subdivision of Building Spaces.**

**19-3.7.1 Smoke Barriers.** Smoke barriers in accordance with Section 6-3 shall be provided in exit access corridors to establish at least two compartments approximately equal in size. The maximum length of each smoke compartment measured along the corridor shall not exceed 200 ft (60 m). Smoke dampers are not required.

*Exception No. 1: Buildings using Option 4.*

*Exception No. 2: Exterior exit access in accordance with 5-5.3 that provides access to two exits.*

*Exception No. 3: Buildings allowed to comply with 19-2.4.1 Exceptions No. 1, 2, or 3.*

*Exception No. 4: Buildings with exits not more than 50 ft (15 m) apart.*

*Exception No. 5: Where each dwelling unit has direct access to the exterior at grade.*

**19-3.8 Special Features.**

## SECTION 19-4 SPECIAL PROVISIONS

**19-4.1 Windows for Rescue and Ventilation.** (*See 19-1.1.3.*)

*Exception: Buildings using Option 4.*

**19-4.2 High Rise Buildings.** (*See 19-2.11.1.*)

**19-4.3 Operating Features.** (*See Chapter 31.*)

## SECTION 19-5 BUILDING SERVICES

**19-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**19-5.2 Heating, Ventilating, and Air Conditioning.**

**19-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**19-5.2.2** Unvented fuel-fired heaters shall not be used.

**19-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**19-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

**Table 19-1**
**Alternate Requirements for Existing Apartment Buildings According to Protection Provided**
*(See actual Code provisions for details.)*

| | No Suppression or Detection System Option No. 1 | Total Automatic Detection Option No. 2 | Sprink. Prot. in Select. Areas Option No. 3 | Auto Ext. NFPA 13 (with exceptions) Option No. 4 |
|---|---|---|---|---|
| **Max. Gross Area per Story Between Horizontal Exits** | | | | |
| 1-3 Stories | NR | NR | NR | NR |
| ≥4 Stories <HR | NR | NR | NR | NR |
| HR | NR | NR | NR | NR |
| **Exit Access** | | | | |
| Travel Distance | 100 ft (30 m) | 150 ft (45 m) | 150 ft (45 m) | 200 ft (60 m) |
| Smoke Barrier Req. (*See 19-3.7.1.*) | Req. | Req. | Req. | NR |
| Max. Common Path of Travel (Mod) | 35 ft (10.7 m) | 35 ft (10.7 m) | 35 ft (10.7 m) | 50 ft (15 m) |
| Max. Dead End | 50 ft (15 m) | 50 ft (15 m) | 50 ft (15 m) | 50 ft (15 m) |
| Fire Resistance | | | | |
| Walls | ½ hr | ½ hr | ½ hr | ½ hr |
| Doors (Fire Protection Rating) | 20 min | 20 min | N/A | N/A |
| Flame Spread | | | | |
| Walls & Ceilings | A or B | A or B | A or B | A, B, or C |
| Floors | I or II | I or II | NR | NR |
| **Exits—Vertical** | | | | |
| Fire Resistance Walls | | | | |
| 1-3 Stories | 1 hr | 1 hr | 1 hr | ¾ hr |
| >3 Stories | 2 hr | 2 hr | 2 hr | 1 hr |
| Smokeproof Enclosures | | | | |
| ≥1 Story <HR | NR | NR | NR | NR |
| HR | Req. | Req. | Req. | NR |
| Doors | | | | |
| 1-3 Stories | 1 hr | 1 hr | 1 hr | ¾ hr |
| >3 Stories | 1½ hr | 1½ hr | 1½ hr | 1 hr |
| Flame Spread | | | | |
| Walls & Ceilings | A or B | A or B | A or B | A, B, or C |
| Floors | I or II | I or II | NR | NR |
| **Exits—Horizontal** | | | | |
| Fire Resistance | | | | |
| Walls | 2 hr | 2 hr | 2 hr | NA |
| Doors | 1½ hr | 1½ hr | 1½ hr | NA |
| **Habitable Spaces** | | | | |
| Max. Distance to Corridor Door | 75 ft (23 m) | 125 ft (38 m) | 75 ft (23 m) | 125 ft (38 m) |
| Flame Spread Walls & Ceilings | A, B, or C | A, B, or C | A, B, or C | A, B, or C |
| Smoke Detector in Unit | Req. | Req. | Req. | Req. |
| Door to Corridor Self-Closing | Req. | Req. | Req. | Req. |
| Bedroom Windows, per Section 22-2 (*See 19-1.1.2.*) | Req. | Req. | Req. | NR |
| **Alarm System** | | | | |
| >3 Stories or >11 Units | manual annunciator panel | manual & auto annunciator panel | manual & auto annunciator panel | manual & auto annunciator panel |
| >2 Stories or >50 Units | | | | |
| **HVAC** | | | | |
| HR; Pressurized Corridor, 0.01 in. Water (2.5 Pa), min. | NR | NR | NR | NR |
| **Elevator** | | | | |
| ANSI | A17.1 | A17.1 | A17.1 | A17.1 |

Req.=Required (*See Code for details and Exceptions.*)
NR=No Requirements
NA=Not Applicable
HR=High Rise Buildings

# CHAPTER 20 LODGING OR ROOMING HOUSES

## SECTION 20-1 GENERAL REQUIREMENTS

**20-1.1 Application.**

**20-1.1.1** This chapter applies only to lodging or rooming houses providing sleeping accommodations for 16 or fewer persons. Lodging or rooming houses include buildings in which separate sleeping rooms are rented providing sleeping accommodations for a total of 16 or fewer persons on either a transient or permanent basis, with or without meals but without separate cooking facilities for individual occupants, except as provided in Chapter 22.

**20-1.1.2** The requirements of this chapter are applicable to new buildings, and to existing or modified buildings according to the provisions of Section 1-4 of this *Code*.

**20-1.2 Mixed Occupancies.**

**20-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**20-1.2.2** For requirements on mixed mercantile and residential occupancies, see 24-1.2 or 25-1.2.

**20-1.3 Definitions.**

**20-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**20-1.4 Classification of Occupancy.** (*See 20-1.1.1.*)

**20-1.5 Classification of Hazard of Contents.**

**20-1.5.1*** The contents of residential occupancies shall be classified as ordinary hazard in accordance with Section 4-2.

**20-1.6 Minimum Construction Requirements.** No Special Requirements.

**20-1.7 Occupant Load.** (*See 20-1.1.1.*)

## SECTION 20-2 MEANS OF ESCAPE

**20-2.1 Number and Means of Escape.**

**20-2.1.1** Every sleeping room shall have access to a primary means of escape so located as to provide a safe path of travel to the outside of the building without traversing any corridor or space exposed to an unprotected vertical opening. Where the sleeping room is above or below the level of exit discharge, the primary means shall be an enclosed interior stair, an exterior stair, a horizontal exit, or an existing fire escape stair.

**20-2.1.2** In addition to the primary route each sleeping room and living area shall have a second means of escape in accordance with 22-2.1.2.

*Exception: If the sleeping room or living area has a door leading directly outside the building with access to grade or to a stairway that meets the requirements for exterior stairs in 20-2.1.1, that exit shall be considered as meeting all of the exit requirements for that sleeping room or living area.*

**20-2.1.3** Every story of every lodging or rooming house that is greater than 2,000 sq ft (185 sq m) or where the travel distance to the primary means of escape is greater than 75 ft (23 m) shall be provided with two primary means of escape remote from each other.

*Exception No. 1: Existing buildings.*

*Exception No. 2: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 20-3.5.*

**20-2.2** Interior stairways shall be enclosed with 20-minute fire barriers with all openings protected with smoke-actuated automatic or self-closing doors having a fire resistance comparable to that required for the enclosure. The stairway shall comply with 5-2.2.3.5.

*Exception No. 1: Stairs connecting two levels only may be open to other than the street floor.*

*Exception No. 2: Stairways may be unprotected in accordance with the Exception to 20-3.1.1.*

**20-2.3** No door or path of travel to a means of egress shall be less than 28 in. (71 cm) wide.

*Exception: Bathroom doors may be 24 in. (61 cm) wide.*

**20-2.4** Every closet door latch shall be such that it can be readily opened from the inside in case of emergency.

**20-2.5** Every bathroom door shall be designed to permit the opening of the locked door from the outside in an emergency.

**20-2.6** Winders in accordance with 5-2.2.2.8 are permitted.

**20-2.7*** No door in any means of egress shall be locked against egress when the building is occupied.

*Exception: Special locking arrangements complying with 5-2.1.6 are permitted.*

**20-2.8** Doors serving a single dwelling unit may be provided with a lock in accordance with 5-2.1.5.1 Exception No. 3.

## SECTION 20-3 PROTECTION

**20-3.1 Protection of Vertical Openings.**

**20-3.1.1** Vertical openings shall be protected so that no primary exit route is exposed to an unprotected vertical opening. The vertical opening is considered protected if the opening is cut off and enclosed in a manner that provides a smoke and fire resisting capability of not less than 20 minutes. Any doors or openings shall have fire and smoke resisting capability equivalent to the enclosure and shall be automatic-closing on detection of smoke or shall be self-closing.

*Exception: In buildings three stories or less in height, protected throughout by an approved automatic sprinkler system installed in accordance with Section 20-3.5.1, unprotected vertical openings are permitted. However, in such case, there shall still remain a primary means of exit from each sleeping area that does not require occupants to pass through a portion of a lower floor, unless that route is separated from all spaces on that floor by construction having a 20-minute fire resistance rating.*

**20-3.1.2** Exterior stairs shall be reasonably protected against blockage by a fire that would simultaneously expose both the

interior and exterior means of escape. This may be accomplished by physical separation distance, arrangement of the stairs, protection of the openings exposing the stairs, or other means acceptable to the authority having jurisdiction.

**20-3.2 Interior Finish.** Interior finish on walls and ceilings of occupied spaces shall be Class A, B, or C as defined in Section 6-5. There are no requirements for interior floor finish.

**20-3.3 Detection, Alarm, and Communications Systems.**

**20-3.3.1 General.** Lodging and rooming houses shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception: Buildings that have a smoke detection system meeting or exceeding the requirements of 20-3.3.4 and have that detection system include at least one manual fire alarm station per floor arranged to initiate the smoke detection alarm.*

**20-3.3.2 Initiation.** Initiation of the required fire alarm system shall be by manual means in accordance with 7-6.2.

*Exception: Buildings protected throughout by an approved automatic sprinkler system installed in accordance with 20-3.5.1, with alarm initiation in accordance with 7-6.2.1(c).*

**20-3.3.3 Notification.** Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3. Presignal systems are prohibited.

**20-3.3.4 Detection.** Approved smoke detectors meeting the requirements of 7-6.2.9 shall be provided.

*Exception: Existing battery powered detectors, rather than house electric service powered detectors, shall be accepted when, in the opinion of the authority having jurisdiction, the facility has demonstrated testing, maintenance, and battery replacement programs that ensure power reliability to the detectors.*

**20-3.4 Separation of Sleeping Rooms.** All sleeping rooms shall be separated from escape route corridors by walls and doors that are smoke resistant. There shall be no louvers or operable transoms or other air passages penetrating the wall except properly installed heating and utility installations other than transfer grilles. Transfer grilles are prohibited. Doors shall be provided with latches or other mechanisms suitable for keeping the doors closed. No doors shall be arranged so as to prevent the occupant from closing the door. Doors shall be self-closing or automatic-closing upon detection of smoke.

*Exception: Door closing devices are not required in buildings protected throughout by an approved automatic sprinkler system installed in accordance with 20-3.5.1.*

**20-3.5 Extinguishment Requirements.**

**20-3.5.1*** Where an automatic sprinkler system is required or is used as an alternative method of protection, either for total or partial building coverage, the system shall be installed in accordance with Section 7-7 and shall activate the fire alarm system in accordance with Section 7-6.

*Exception No. 1: Sprinkler installations may be omitted in closets not over 12 sq ft (1.1 sq m) and bathrooms not over 55 sq ft (5.1 sq m).*

*Exception No. 2: In existing lodging and rooming houses, sprinkler installation may be omitted in closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m).*

## SECTION 20-4 SPECIAL PROVISIONS

**20-4.1 Operating Features.** (*See Chapter 31.*)

## SECTION 20-5 BUILDING SERVICES

**20-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**20-5.2 Heating, Ventilating, and Air Conditioning.**

**20-5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Sections 7-2.1 and 7-2.2.

**20-5.2.2** No stove or combustion heater shall be so located as to block escape in case of fire arising from malfunction of the stove or heater.

**20-5.2.3** Unvented fuel-fired heaters shall not be used.

# CHAPTER 21 RESIDENTIAL BOARD AND CARE OCCUPANCIES

## SECTION 21-1 GENERAL REQUIREMENTS

### 21-1.1 Application.

**21-1.1.1*** All facilities classified as residential board and care occupancies shall conform to the requirements of this chapter. This chapter is divided into four sections as follows:

(a) Section 21-1 — General Requirements.

(b) Section 21-2 — Small Facilities (i.e., Sleeping accommodations for not more than 16 residents).

(c) Section 21-3 — Large Facilities (i.e., Sleeping accommodations for more than 16 residents).

(d) Section 21-4 — Suitability of an Apartment Building to House a Board and Care Occupancy.

### 21-1.2 Mixed Occupancies.

**21-1.2.1** Where another type of occupancy occurs in the same building as a residential board and care occupancy, the requirements of 1-4.7 of this *Code* shall apply.

*Exception No. 1: Occupancies that are completely separated from all portions of the building used for a residential board and care facility and its exit system by construction having a fire resistance rating of at least 2 hours.*

*Exception No. 2: Apartment buildings housing residential board and care occupancies in conformance with Section 21-4. In such facilities, any safeguards required by Section 21-4 that are more restrictive than those for other housed occupancies apply only to the extent prescribed by Section 21-4.*

### 21-1.3 Definitions.

**Residential Board and Care Occupancy.*** A building or part thereof used to provide lodging, boarding, and personal care services for four or more residents unrelated by blood or marriage to its owners or operators.

**Personal Care.** "Personal care" means protective care of a resident who does not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident when in the building. Protective care may include a daily awareness by the management of the resident's functioning and his or her whereabouts, the arrangement of appointments and reminders of appointments for a resident, the ability and readiness to intervene if a crisis arises for a resident, supervision in areas of nutrition and medication, and actual provision of transient medical care.

**Evacuation Capability.*** Evacuation capability is the ability of the occupants, residents, and staff as a group to either evacuate the building or relocate from the point of occupancy to a point of safety. Following are the levels of evacuation capability covered by this chapter:

(a) *Prompt.* Evacuation capability equivalent to the capability of the general population where applying the requirements for residential occupancies covered by Chapters 16, 17, 18, 19, 20 and 22.

(b) *Slow.* Evacuation capability of the group to move to a point of safety in a timely manner, with some of the residents requiring assistance from the staff.

(c) *Impractical.* A group, even with staff assistance, that cannot reliably move to a point of safety in a timely manner.

**Hazardous Area.** A hazardous area is any space that contains storage or other activity having fuel conditions exceeding that of a one- or two-family dwelling and possessing the potential for a fully involved fire. Hazardous areas include, but are not limited to, areas for cartoned storage, food or household maintenance items in wholesale or institutional-type quantities and concentrations, or massed storage of residents' belongings. Areas containing approved, properly installed and maintained furnaces and heating equipment, and furnace rooms, cooking, and laundry facilities are not classed as hazardous areas solely on the basis of such equipment.

**Point of Safety.** A point of safety is a location that meets one of the following conditions:

(a) It is exterior to and away from the building.

(b) It is within a building of any construction protected throughout by an approved automatic sprinkler system 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 6-3 having a fire resistance rating of at least 20 minutes and that has access to a means of escape or exit that does not require return to the area of fire involvement and that conforms to the requirements of this *Code*.

(c) It is within a building of Type I, Type II (222) or (111), Type III (211), Type IV, or Type V (111) construction (*see 6-2.1*) 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 6-3 having a fire resistance rating of at least 20 minutes and that has access to a means of escape or exit that does not require return to the area of fire involvement and that conforms to the requirements of this *Code*.

**Resident.** A person who is receiving personal care and resides in a residential board and care facility.

**Staff.** A person who provides personal care services, supervision, or assistance to residents.

**21-1.4 Acceptability of Means of Egress or Escape.** No means of escape or means of egress shall be considered as complying with the minimum criteria for acceptance unless emergency evacuation drills are regularly conducted using that route in accordance with the requirements of 31-7.3.

## SECTION 21-2 SMALL FACILITIES

### 21-2.1 General.

**21-2.1.1 Scope.** This section applies to residential board and care occupancies providing sleeping accommodations for not more than 16 residents. Where there are sleeping accommodations for more than 16 residents, the occupancy will be classed as a large facility. The requirements for large facilities are in Section 21-3.

**21-2.1.2** The requirements of this section are applicable to new construction and existing buildings according to the provisions of Section 1-4 of this *Code*.

**21-2.1.3 Requirements Based on Evacuation Capability.**

**21-2.1.3.1** Small facilities shall comply with the requirements of Section 21-2 as indicated for the appropriate evacuation capability.

*Exception No. 1*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

*Exception No. 2: Facilities that were previously approved as complying with the requirements for a large facility with the same evacuation capability.*

**21-2.1.4 Minimum Construction Requirements.**

**21-2.1.4.1 Prompt.** No Special Requirements.

**21-2.1.4.2 Slow.** The facility shall be housed in a building where the interior is fully sheathed with lath and plaster or material with a 15-minute finish rating, including all portions of the bearing walls, bearing partitions, floor constructions, and roofs. All columns, beams, girders, and trusses are similarly encased, or otherwise treated to provide a minimum of at least a 20-minute fire resistance rating.

*Exception No. 1: Buildings with the only exposed steel or wood serving as columns and support beams (but not joists) located in the basement area are considered as fully sheathed.*

*Exception No. 2: Buildings of Type I, Type II (111), Type III (211), Type IV, or Type V (111) construction. (See 6-2.1.)*

*Exception No. 3: Buildings where all portions not sheathed are protected by an approved automatic sprinkler system in accordance with 21-2.3.5.*

*Exception No. 4: Unfinished, unused, and essentially inaccessible loft, attic, or crawl spaces.*

*Exception No. 5: Where the facility can demonstrate to the authority having jurisdiction that the group is capable of evacuating the building in eight minutes or less or achieves an E-Score of three or less using NFPA 101M, Alternative Approaches to Life Safety, Chapter 5.*

**21-2.1.4.3 Impractical.** Buildings may be of any type construction in accordance with 6-2.1 other than Type II (000), Type III (200), or Type V (000). (*Also see 21-2.3.5.2.*)

*Exception: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 21-2.3.5 may be of Type II (000), Type III (200), or Type V (000) construction.*

**21-2.2 Means of Escape.**

**21-2.2.1 Number of Means of Escape.** Every facility shall have at least two remotely located means of escape that do not involve windows from each normally occupied story. At least one of these means of escape shall comply with 21-2.2.2.

*Exception No. 1: In prompt facilities, one means of escape may involve windows complying with 21-2.2.3(c).*

*Exception No. 2: A second means of escape from each story is not required where the entire building is protected throughout by an approved automatic sprinkler system complying with 21-2.3.5, and the facility has two means of escape.*

**21-2.2.2 Primary Means of Escape.** Every sleeping room and living area shall have access to a primary means of escape so located as to provide a safe path of travel to the outside of the building without traversing any corridor or other space exposed to unprotected vertical openings. Where sleeping rooms or living areas are above or below the level of exit discharge, the primary means of escape shall be an enclosed interior stair, exterior stair, horizontal exit, or an existing fire escape stair. Also, in slow and impractical facilities, the primary means of escape for each sleeping room shall not be exposed to common living spaces such as living rooms and kitchens.

**21-2.2.3 Secondary Means of Escape.** In addition to the primary route, each sleeping room shall have a second means of escape or alternate protection that consists of one of the following:

(a) A door, stairway, passage, or hall providing a means of unobstructed travel to the outside of the dwelling at street or ground level that is independent of and remote from the primary means of escape.

(b) A passage through an adjacent nonlockable space, independent of and remote from the primary means of escape to any approved means of escape.

(c) An outside window or door operable from the inside without the use of tools and providing a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall not be more than 44 in. (112 cm) off the floor. Such means of escape shall be acceptable if:

(1) the window is within 20 ft (6.1 m) of grade or,

(2) the window is directly accessible to fire department rescue apparatus as approved by the authority having jurisdiction, or

(3) the window or door opens onto an exterior balcony.

(d) The sleeping room shall be separated from all other parts of the facility by construction having a fire resistance rating of at least 20 minutes and shall be equipped with a door that resists passage of fire for at least 20 minutes and is designed and installed to minimize smoke leakage. A means of providing smoke venting and fresh air to the occupants shall be provided.

*Exception No. 1: If the sleeping room has a door leading directly to the outside of the building with access to grade, or to a stairway that meets the requirements for exterior stairs in 21-2.3.1.2, that means of escape shall be considered as meeting all the escape requirements for the sleeping room.*

*Exception No. 2: A second means of escape or alternate protection from each sleeping room is not required where the facility is protected throughout by an approved automatic sprinkler system complying with 21-2.3.5.*

*Exception No. 3: Existing approved means of escape may be continued in service.*

**21-2.2.4 Enclosed Interior Stairs.** Interior stairways shall be enclosed with 20-minute fire barriers with all openings protected with smoke actuated automatic or self-closing doors having a fire resistance comparable to that required for the enclosure. Stairways shall comply with 5-2.2.3.5.

*Exception No. 1: Stairs connecting two levels only may be open to other than the street floor.*

*Exception No. 2: In prompt and slow facilities, stairways may be unprotected in accordance with the Exception to 21-2.3.1.1.*

**21-2.2.5 Doors.**

**21-2.2.5.1** No door or path of travel to a means of egress shall be less than 32 in. (81 cm) wide.

*Exception No. 1: In existing buildings and in conversions, 28-in. (71-cm) doors may be continued in use.*

*Exception No. 2: Bathroom doors may be 24 in. (61 cm) wide.*

**21-2.2.5.2** Every closet door latch shall be such that it can be readily opened from the inside in case of emergency.

**21-2.2.5.3** Every bathroom door shall be designed to permit the opening of the locked door from the outside in an emergency.

**21-2.2.5.4** No door in any means of egress shall be locked against egress when the building is occupied.

**21-2.2.6** The width, risers, and treads of every stair shall comply with the minimum requirements for Class B stairs as described in 5-2.2.

*Exception: Existing noncomplying stairs may be continued in use subject to the approval of the authority having jurisdiction.*

**21-2.2.7** Winders in accordance with 5-2.2.2.8 are permitted.

**21-2.3 Protection.**

**21-2.3.1 Protection of Vertical Openings.**

**21-2.3.1.1** Vertical openings shall be protected so that no primary exit route is exposed to an unprotected vertical opening. The vertical opening is considered protected if the opening is cut off and enclosed in a manner that provides a fire resisting capability of not less than 20 minutes and resists the passage of smoke. Any doors or openings shall have fire and smoke resisting capability equivalent to the enclosure and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

*Exception: In buildings three or fewer stories in height, housing prompt and slow facilities protected throughout by an approved automatic sprinkler system in accordance with 21-2.3.5, unprotected vertical openings are permitted. However, in such case, there shall still remain a primary means of exit from each sleeping area that does not require occupants to pass through a portion of a lower floor, unless that route is separated from all spaces on that floor by construction having a 20-minute fire resistance rating.*

**21-2.3.1.2** Exterior stairs shall be reasonably protected from blockage by a fire that would simultaneously expose both the interior and exterior means of escape. This may be accomplished by physical separation distance, arrangement of the stairs, protection of the openings exposing the stairs, or other means acceptable to the authority having jurisdiction.

**21-2.3.2 Hazardous Areas.** Any hazardous area shall be protected in accordance with the following:

(a) If a hazardous area is on the same floor as, and is in or abuts a primary means of escape or a sleeping room, the hazardous area shall be protected by either:

1. An enclosure with a fire resistance rating of at least 1 hour with a self-closing or automatic-closing fire door in accordance with 5-2.1.8 having a fire protection rating of at least ¾ hour, or

2. Automatic sprinkler protection, in accordance with 21-2.3.5, of the hazardous area and a separation that will resist the passage of smoke between the hazardous area and the exposed sleeping area or primary exit route. Any doors in such separation shall be self-closing or automatic-closing in accordance with 5-2.1.8.

(b) Other hazardous areas shall be protected by either:

1. An enclosure with a fire resistance rating of at least 20 minutes with a self-closing or automatic-closing door in accordance with 5-2.1.8 at least equivalent to a 1¾-in. (4.4-cm) solid bonded wood core construction, or

2. Automatic sprinkler protection, in accordance with 21-2.3.5, of the hazardous area regardless of enclosure.

**21-2.3.3 Interior Finish.** Interior wall and ceiling finish shall be Class A or Class B in accordance with Section 6-5. There are no requirements for interior floor finish.

*Exception: Class C interior wall and ceiling finish is permitted in prompt facilities.*

**21-2.3.4 Detection, Alarm, and Communication Systems.**

**21-2.3.4.1 Fire Alarm Systems.** A manual fire alarm system shall be provided in accordance with Section 7-6.

*Exception No. 1: If there are interconnected smoke detectors meeting the requirements of 21-2.3.4.2, and there is at least one manual fire alarm station per floor arranged to continuously sound the smoke detector alarms.*

*Exception No. 2: Other manually activated continuously sounding alarms acceptable to the authority having jurisdiction.*

**21-2.3.4.2 Smoke Detectors.** Approved smoke detectors shall be installed in accordance with 7-6.2.9. These shall be powered by the house electrical service and, when activated, shall initiate an alarm that is audible in all sleeping areas. Detectors shall be installed on all levels, including basements, but excluding crawl spaces and unfinished attics. Additional detectors shall be installed for living rooms, dens, day rooms, and similar spaces.

*Exception: Detectors may be omitted in buildings protected throughout by an approved automatic sprinkler system in accordance with 21-2.3.5 using quick response or residential sprinklers.*

**21-2.3.5 Automatic Extinguishing Systems.**

**21-2.3.5.1** Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be in accordance with Section 7-7 and shall activate the fire alarm system in accordance with Section 7-6.

*Exception No. 1: In impractical facilities, a sprinkler system complying with NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes, with a 30-minute water supply, may be used provided all habitable areas and closets are sprinklered. Automatic sprinklers may be omitted in bathrooms not over 55 sq ft (5.1 sq m), provided such spaces are finished with lath and plaster, or material with a 15-minute finish rating.*

*Exception No. 2: In prompt and slow facilities, a sprinkler system complying with NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes, may be used. Automatic sprinklers may be omitted in small compartmented areas, such as closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m),*

*provided such spaces are finished with lath and plaster, or materials with a 15-minute finish rating.*

**21-2.3.5.2 Impractical.** All impractical facilities shall be protected throughout by an approved supervised automatic sprinkler system in accordance with 21-2.3.5.1.

**21-2.3.5.3** Sprinkler piping serving not more than six sprinklers for any isolated hazardous area may be installed in accordance with 7-7.1.2.

**21-2.3.6 Construction of Corridor Walls.**

**21-2.3.6.1** The separation walls of sleeping rooms shall be capable of resisting fire for at least 20 minutes. This is considered achieved if the partitioning is finished on both sides with lath and plaster, or material with a 15-minute finish rating. Sleeping room doors shall be substantial doors, such as those of 1¾-in. (4.4-cm) solid bonded wood core construction, or of other construction of equal or greater stability and fire integrity. Any vision panels shall be of wired glass, not exceeding 1296 sq in. (0.84 sq m) in area each, installed in approved frames.

*Exception No. 1: In prompt facilities, all sleeping rooms may be separated from the escape route by walls and doors that are smoke resistant.*

*Exception No. 2: Where the facility can demonstrate to the authority having jurisdiction that the group is capable of evacuating the building in eight minutes or less, or achieves an E-score of three or less using NFPA 101M, Alternative Approaches to Life Safety, Chapter 5, sleeping rooms may be separated from escape routes by walls and doors that are smoke resistant.*

*Exception No. 3: Corridor walls and doors that are capable of resisting the passage of smoke and that are protected by automatic sprinklers in accordance with 21-2.3.5 on both sides of the wall and door. In such instances, there is no limitation on the type or size of glass panels.*

*Exception No. 4: Sleeping arrangements not in bedrooms may be provided for nonresident staff members provided the audibility of the alarm in the sleeping area is sufficient to waken the staff that might be asleep.*

**21-2.3.6.2** There shall be no louvers or operable transoms or other air passages penetrating the wall except properly installed heating and utility installations other than transfer grilles. Transfer grilles are prohibited.

**21-2.3.6.3** Doors shall be provided with latches or other mechanisms suitable for keeping the doors closed. No doors shall be arranged so as to prevent the occupant from closing the door.

**21-2.3.6.4** Doors shall be self-closing or automatic-closing in accordance with 5-2.1.8.

*Exception: Door closing devices are not required in buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**21-2.4 Operating Features.** (*See Chapter 31.*)

**21-2.5 Building services.**

**21-2.5.1 Utilities.** Utilities shall comply with Section 7-1.

**21-2.5.2 Heating, Ventilating, and Air Conditioning Equipment.**

**21-2.5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of 7-2.1 and 7-2.2 except as otherwise required in this chapter.

**21-2.5.2.2** No stove or combustion heater shall be so located as to block escape in case of fire arising from malfunctioning of the stove or heater.

**21-2.5.2.3** Unvented fuel-fired heaters shall not be used in any room used for sleeping purposes.

## SECTION 21-3 LARGE FACILITIES

**21-3.1 General.**

**21-3.1.1 Scope.** This section applies to residential board and care occupancies providing sleeping accommodations for more than 16 residents. Facilities having sleeping accommodations for not more than 16 residents shall be evaluated in accordance with Section 21-2, Small Facilities. However, existing facilities meeting the requirements of this section are considered to meet the requirements of Section 21-2 for prompt evacuation capability or slow evacuation capability.

**21-3.1.2** The requirements of this section are applicable to new construction and existing buildings according to the provisions of Section 1-4 of this *Code*.

**21-3.1.3 Requirements Based on Evacuation Capability.**

**21-3.1.3.1 Prompt and Slow.** Large facilities shall comply with the requirements of Section 21-3 as indicated for the appropriate evacuation capability.

*Exception No. 1*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

*Exception No. 2: Facilities that were previously approved as complying with 21-3.1.3.2.*

**21-3.1.3.2 Impractical.** Facilities housing groups of persons classed as impractical to evacuate shall meet the requirements for limited care facilities, Chapter 12 or 13, as appropriate.

*Exception*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

**21-3.1.4 Minimum Construction Requirements.**

**21-3.1.4.1** Construction requirements for large facilities shall be as required by this section. Where noted as "fully sheathed," the interior shall be covered with lath and plaster, or materials with a 15-minute finish rating.

**21-3.1.4.2** For the purpose of construction requirements, stories shall be counted starting at the primary level of exit discharge and ending at the highest occupied level. For the purposes of this section, the primary level of exit discharge of a building shall be that floor that is level with or above finished grade of the exterior wall line for 50 percent or more of its perimeter. Building levels below the primary level shall not be counted as a story in determining the height of a building.

**21-3.1.4.3** The minimum construction requirements (*see 6-2.1*), based on the highest story normally used by board and care residents, are:

(a) *One- or Two-Story Facilities.* Any construction type that meets the requirements for 1-hour or greater fire resistance

rating, or is Type IV (2HH), or is fully sheathed, or is protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.

*Exception to (a): One-story facilities having 30 or fewer residents, housing groups capable of prompt evacuation, may be of any construction.*

(b) *Three- to Six-Story Facilities.* Type I, II, or III construction that meets the requirements for 1-hour or greater fire resistance rating, and Type IV construction that is protected throughout by an automatic sprinkler system in accordance with 21-3.3.5, or any other type of construction that is both sheathed and protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5, other than Type V (000).

*Exception to (b): Three- or four-story facilities of Type V (000) construction that are both sheathed and protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

(c) *Facilities More Than Six Stories High.* Any Type I or Type II (222) construction. Any Type II (111), Type III (211), or Type IV (2HH) construction that is protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.

*Exception to (a), (b), and (c): Any building of Type I or Type II (222 or 111) construction may include roofing systems involving combustible supports, decking, or roofing provided: (1) the roof covering meets Class A requirements in accordance with NFPA 256, Standard Methods of Fire Tests of Roof Coverings, and (2) the roof is separated from all occupied portions of the building by a noncombustible floor assembly having at least a 2-hour fire resistance rating that includes at least 2½ in. (6.4 cm) of concrete or gypsum fill. To qualify for this Exception, the attic or other space so developed shall either be unused or protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

**21-3.1.5 Occupant Load.** The occupant load in numbers of persons for whom exits are to be provided shall be determined on the basis of one person per 200 sq ft (18.6 sq m) gross floor area, or the maximum probable population of any room or section under consideration, whichever is greater. The occupant load of any open mezzanine or balcony shall be added to the occupant load of the floor below for the purpose of determining exit capability.

**21-3.2 Means of Egress.**

**21-3.2.1** All means of egress shall be in accordance with Chapter 5.

**21-3.2.2 Means of Egress Components.**

**21-3.2.2.1** Components of means of egress shall be limited to the types described in 21-3.2.2.2 through 21-3.2.2.7.

**21-3.2.2.2 Doors.**

(a) Doors shall comply with 5-2.1.

(b) No door in any means of egress shall be locked against egress when the building is occupied.

*Exception: Special locking requirements complying with 5-2.1.6 are permitted.*

(c) Every stairwell door shall allow reentry from the stairwell to the interior of the building or an automatic release shall be provided to unlock all stairwell doors to allow reentry. Such automatic release shall be activated with the initiation of the building fire alarm system. Also, they shall unlock upon loss of the power controlling the lock or locking mechanism.

(d) Revolving doors complying with 5-2.1.10 are permitted.

**21-3.2.2.3 Stairs.** Stairs shall comply with 5-2.2.

**21-3.2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**21-3.2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**21-3.2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**21-3.2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**21-3.2.3 Capacity of Means of Egress.**

**21-3.2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**21-3.2.3.2** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging on the street floor.

**21-3.2.3.3** The width of corridors shall be sufficient for the occupant load served, but not less than 44 in. (112 cm).

*Exception: Corridors serving an occupant load of less than 50 may be 36 in. (91 cm) in width.*

**21-3.2.4 Number of Exits.** Not less than two exits shall be accessible from every floor, including floors below the level of exit discharge and occupied for public purposes. (*See also Section 5-4.*)

**21-3.2.5 Arrangement of Exits.**

**21-3.2.5.1** Access to all required exits shall be in accordance with Section 5-5.

**21-3.2.5.2** Exits shall be so arranged that, from any corridor room door, exits will be accessible in at least two different directions.

*Exception: Up to the first 35 ft (10.7 m) of exit travel from a corridor room door may be along a corridor with exit access in one direction only.*

**21-3.2.5.3** Any room, or any suite of rooms, in excess of 2,000 sq ft (185 sq m) shall be provided with at least two exit access doors remote from each other.

*Exception: Existing buildings.*

**21-3.2.6 Travel Distance to Exits.**

**21-3.2.6.1** Any exit as indicated in 21-3.2.4 shall be such that it will not be necessary to travel more than 100 ft (30 m) from the door of any room to reach the nearest exit. Travel distance to exits shall be measured in accordance with Section 5-6.

*Exception No. 1: Travel distance to exits may be increased to 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 2: Travel distance to exits may be increased to 200 ft (60 m) if the exit access and any portion of the building that is tributary to the exit access are protected throughout by an approved automatic sprinkler system. In addition, the portion of the building in which the 200 ft (60 m) travel distance is*

*permitted shall be separated from the remainder of the building by construction having a fire resistance rating of not less than 1 hour for buildings not greater than three stories in height, and 2 hours for buildings greater than three stories in height.*

**21-3.2.6.2** Travel within a room or suite or living unit to a corridor door shall not exceed 75 ft (23 m).

*Exception: 125 ft (38 m) travel distance is allowed in buildings protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

**21-3.2.7 Discharge from Exits.**

**21-3.2.7.1** Exit discharge shall comply with Section 5-7.

**21-3.2.8 Illumination of Means of Egress.**

**21-3.2.8.1** Means of egress shall be illuminated in accordance with Section 5-8.

**21-3.2.9 Emergency Lighting.**

**21-3.2.9.1** Emergency lighting in accordance with Section 5-9 shall be provided in all buildings with more than 25 rooms.

*Exception: Where each guest room has a direct exit to the outside of the building at ground level, no emergency lighting shall be required.*

**21-3.2.10 Marking of Means of Egress.**

**21-3.2.10.1** Means of egress shall be marked in accordance with Section 5-10.

**21-3.2.11 Special Features.**

**21-3.3 Protection.**

**21-3.3.1 Protection of Vertical Openings.**

**21-3.3.1.1** Every stairway, elevator shaft, and other vertical opening shall be enclosed or protected in accordance with 6-2.4.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: In existing buildings protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5, and where exits and required ways of travel thereto are adequately safeguarded against fire and smoke within the building, or where every individual room has direct access to an exterior exit without passing through any public corridor, the protection of vertical openings not part of required exits may be waived by the authority having jurisdiction to such extent as such openings do not endanger required means of egress.*

*Exception No. 4: In existing buildings not more than two stories in height, unprotected vertical openings may be permitted by the authority having jurisdiction if the building is protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

**21-3.3.1.2** No floor below the level of exit discharge used only for storage, heating equipment, or purposes other than residential occupancy shall have unprotected openings to floors used for residential occupancy.

**21-3.3.2 Protection from Hazards.**

**21-3.3.2.1** Any room containing high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or directly adjacent to exits. All such rooms shall be effectively cut off from other parts of the building as specified in Section 6-4.

**21-3.3.2.2** Every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least 1 hour, and communicating openings shall be protected by approved self-closing fire doors, or such area shall be equipped with automatic fire extinguishing systems. Hazardous areas include, but are not limited to:

| | |
|---|---|
| Boiler and heater rooms | Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. |
| Laundries | |
| Repair shops | |

**21-3.3.3 Interior Finish.** Interior wall and ceiling finish within exit enclosures in new buildings shall be Class A. In all other areas and in existing buildings, interior wall and ceiling finish shall be Class A or Class B in accordance with Section 6-5. Interior floor finish shall be Class I or Class II in corridors and exits.

*Exception: Previously installed floor covering, subject to the approval of the authority having jurisdiction.*

**21-3.3.4 Detection, Alarm, and Communications Systems.**

**21-3.3.4.1 General.** A fire alarm system in accordance with Section 7-6 shall be provided.

*Exception: Existing board and care facilities where each sleeping room has exterior exit access in accordance with 5-5.3, and the building is not greater than 3 stories in height.*

**21-3.3.4.2 Initiation.** Initiation of the required fire alarm system shall be by:

(a) Manual means in accordance with 7-6.2, and

*Exception to (a): In existing board and care facilities, a manual means, as specified in 7-6.2, in excess of the alarm station at a constantly attended location per (b) below, may be waived where there are other effective means (such as complete automatic sprinkler or automatic detection systems) for notification of fire as required.*

(b) A manual fire alarm station located at a convenient central control point under continuous supervision by responsible employees, and

(c) Any automatic sprinkler system, and

*Exception to (c): In existing buildings, automatic sprinkler systems that are not required by another section of this Code need not initiate the fire alarm system.*

(d) Any required detection system.

*Exception to (d): Sleeping room smoke detectors are not required to initiate the building fire alarm system.*

**21-3.3.4.3 Annunciator Panel.** An annunciator panel connected with the fire alarm system shall be provided. The location of the annunciator shall be approved by the authority having jurisdiction.

*Exception No. 1: Buildings not greater than two stories in height and with not more than 50 sleeping rooms.*

*Exception No. 2: Existing Buildings.*

**21-3.3.4.4 Occupant Notification.** Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3.

**21-3.3.4.5** High rise buildings shall be provided with an approved means of voice communication in accordance with 7-6.3.

*Exception No. 1: Buildings equipped with a public address system.*

*Exception No. 2: Existing board and care facilities.*

**21-3.3.4.6* Fire Department Notification.** Provisions shall be made for the immediate notification of the public fire department by either telephone or other means in case of fire. Where there is no public fire department, this notification shall go to the private fire brigade.

**21-3.3.4.7 Smoke Detectors.** Each sleeping room shall be provided with an approved single station smoke detector in accordance with 7-6.2.9, powered from the building electrical service.

*Exception No. 1: Existing battery powered detectors, rather than house electric service powered detectors, shall be accepted where, in the opinion of the authority having jurisdiction, the facility has demonstrated testing, maintenance, and battery replacement programs that insure power reliability to the detectors.*

*Exception No. 2: Existing board and care facilities having an existing corridor smoke detection system in accordance with Section 7-6, connected to the building fire alarm system.*

**21-3.3.4.8 Smoke Detection System.** All corridors and common spaces shall be provided with smoke detectors in accordance with NFPA 72E, *Standard on Automatic Fire Detectors*, arranged to initiate an alarm that is audible in all sleeping areas.

*Exception No. 1: Detectors may be omitted from common spaces in facilities protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

*Exception No. 2: Unenclosed corridors, passageways, balconies, colonnades, or other arrangements where one or more sides along the long dimension is fully or extensively open to the exterior at all times.*

**21-3.3.5 Extinguishment Requirements.**

**21-3.3.5.1* Automatic Extinguishment Systems.** Where an automatic sprinkler system is installed either for total or partial building coverage, the system shall be installed in accordance with Section 7-7 and shall activate the fire alarm system in accordance with Section 7-6.

*Exception: Automatic sprinklers may be omitted in small compartmented areas such as closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m), provided such spaces are finished with lath and plaster, or materials with a 15-minute finish rating.*

**21-3.3.5.2** All new high rise buildings shall be protected throughout by an approved supervised automatic sprinkler system in accordance with 21-3.3.5.

**21-3.3.5.3 Portable Fire Extinguishers.** Portable fire extinguishers in accordance with 7-7.4.1 shall be provided near hazardous areas.

**21-3.3.6 Corridors and Separation of Sleeping Rooms.**

**21-3.3.6.1** Access shall be provided from every resident use area to at least one means of egress that is separated from all other rooms or spaces by fire barriers complying with 21-3.3.6.3 through 21-3.3.6.6.

*Exception No. 1: Rooms or spaces, other than sleeping rooms, if those rooms or spaces are protected throughout by an approved automatic sprinkler system installed in accordance with 21-3.3.5.*

*Exception No. 2: Rooms or spaces, other than sleeping rooms, if those rooms or spaces are provided with a smoke detection and alarm system connected to activate the building evacuation alarm. Furnishings, finishes, and furniture, in combination with all other combustibles within the space, are of such minimum quantity and are so arranged that a fully developed fire is unlikely to occur.*

*Exception No. 3: Facilities housing groups capable of prompt evacuation in buildings not over two stories in height that have at least two remotely located means of escape that do not involve windows. The arrangement shall be such that there is at least one such means of escape from each sleeping room that provides a path of travel to the outside without traversing any corridor or other spaces exposed to unprotected vertical openings or common living spaces, such as living rooms and kitchens.*

**21-3.3.6.2** Sleeping rooms shall be separated from corridors and other common spaces by fire barriers complying with 21-3.3.6.3 through 21-3.3.6.6.

**21-3.3.6.3** Fire barriers required by 21-3.3.6.1 or 21-3.3.6.2 shall have a fire resistance rating of not less than 1 hour.

*Exception No. 1: In existing buildings and conversions such fire barriers shall have a fire resistance rating of not less than 20 minutes.*

*Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 21-3.3.5, such barriers shall have a fire resistance rating of not less than 30 minutes in new construction and in existing buildings, no fire resistance rating is required.*

*Exception No. 3: In buildings not greater than two stories in height, housing groups capable of prompt evacuation, with a maximum of 30 residents, such barriers shall have a fire resistance rating of not less than 30 minutes in new construction, and in existing facilities, no fire resistance rating is required.*

**21-3.3.6.4** Doors in fire barriers required by 21-3.3.6.1 or 21-3.3.6.2 shall have a fire protection rating of not less than 20 minutes.

*Exception No. 1: Existing 1¾-in. (4.4-cm) solid bonded wood core doors.*

*Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 21-3.3.5, existing doors in renovations and conversions, and doors in existing buildings that are nonrated may be continued in use.*

*Exception No. 3: Walls that are required to only resist the passage of smoke, without a fire resistance rating, may have*

*doors that resist the passage of smoke without a fire protection rating.*

**21-3.3.6.5** Walls and doors required by 21-3.3.6.1 and 21-3.3.6.2 shall be constructed to resist the passage of smoke. There shall be no louvers, transfer grilles, operable transoms, or other air passages penetrating such walls or doors except properly installed heating and utility installations.

**21-3.3.6.6** Doors in walls required by 21-3.3.6.1 and 21-3.3.6.2 shall be self-closing or automatic-closing in accordance with 5-2.1.8. Doors in walls separating sleeping rooms from corridors shall be automatic-closing in accordance with 5-2.1.8.

*Exception No. 1: Doors to sleeping rooms that have occupant control locks such that access is normally restricted to the occupants or staff personnel may be self-closing.*

*Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 21-3.3.5, doors, other than doors to hazardous areas, vertical openings, and exit enclosures are not required to be self-closing or automatic-closing.*

**21-3.3.7 Subdivision of Building Spaces.**

**21-3.3.7.1** Every sleeping room floor shall be divided into at least two smoke compartments of approximately the same size, with smoke barriers in accordance with Section 6-3. Smoke dampers are not required.

Additional smoke barriers shall be provided such that the maximum travel distance from a sleeping room corridor door to a smoke barrier shall not exceed 150 ft (45 m).

*Exception No. 1: Buildings protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

*Exception No. 2: Where each sleeping room is provided with exterior ways of exit access arranged in accordance with 5-5.3.*

*Exception No. 3: Smoke barriers are not required where the aggregate corridor length on each floor is not more than 150 ft (45 m).*

**21-3.4 Special Provisions.**

**21-3.4.1* Operable Windows.** Each guest room shall be provided with at least one outside window. Such windows shall be openable from the inside, without the use of tools, and provide a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall not be more than 44 in. (112 cm) above the floor. In rooms located greater than six stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

*Exception No. 1: Buildings protected throughout by an approved automatic sprinkler system in accordance with 21-3.3.5.*

*Exception No. 2: Where a guest room has a door leading directly to the outside of the building.*

*Exception No. 3: Buildings provided with an approved engineered smoke control system in accordance with Section 7-3.*

*Exception No. 4: Existing Buildings.*

**21-3.4.2 Operating Features.** (*See Chapter 31.*)

**21-3.5 Building Services.**

**21-3.5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**21-3.5.2 Heating, Ventilation, and Air Conditioning.**

**21-3.5.2.1** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**21-3.5.2.2** No stove or combustion heater shall be so located as to block escape in case of fire arising from malfunctioning of the stove or heater.

**21-3.5.2.3** Unvented fuel-fired heaters shall not be used in any room used for sleeping purposes.

**21-3.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.**

**21-3.5.3.1** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**21-3.5.3.2*** In new high rise buildings, one elevator shall be provided with a protected power supply and be available for use by the fire department in case of emergency.

**21-3.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 21-4 SUITABILITY OF AN APARTMENT BUILDING TO HOUSE A BOARD AND CARE OCCUPANCY

**21-4.1 General.**

**21-4.1.1 Scope.** This section applies to apartment buildings that have one or more individual apartments used as a board and care occupancy. This section determines the suitability of such buildings to house a residential board and care facility. The suitability of such buildings for apartments not used for board and care occupancies is covered in Chapter 18 or 19, as appropriate.

**21-4.1.2** Requirements for individual apartments used as a residential board and care occupancy are specified in Section 21-2, Small Facilities. Egress from the apartment into the common building corridor shall be considered acceptable egress from the board and care facility.

**21-4.1.3 Requirements Based on Evacuation Capability.**

**21-4.1.3.1** Apartment buildings housing board and care facilities shall comply with requirements of 21-4.

*Exception*: Facilities where the authority having jurisdiction has determined that equivalent safety for housing a residential board and care facility is provided in accordance with Section 1-5.*

**21-4.1.3.2** All facilities shall meet the requirements of Chapter 18 or 19, as appropriate, and the additional requirements of 21-4.

**21-4.1.4 Minimum Construction Requirements.** In addition to the requirements in Chapter 18 or 19, as appropriate, apartment buildings housing residential board and care facilities housing groups classed as prompt or slow shall meet the construction requirements of 21-3.1.4, and those housing groups classed as impractical to evacuate shall meet the construction requirements of 12-1.6 or 13-1.6 as appropriate. In applying the construction requirements, the height shall be determined by the height of the residential board and care facility above the primary level of exit discharge.

**21-4.2 Means of Egress.** The requirements of Section 18-2 or 19-2, as appropriate, apply only to parts of the means of egress serving the apartment(s) used as residential board and care occupancy.

**21-4.3 Protection.**

**21-4.3.1 Interior Finish.** The requirements of 18-3.3 or 19-3.3, as appropriate, apply only to parts of the means of egress serving the apartment(s) used as a residential board and care occupancy.

**21-4.3.2 Construction of Corridor Walls.** The requirements of 18-3.6 or 19-3.6, as appropriate, apply only to corridors serving the residential board and care facility including that portion of the corridor wall separating the residential board and care facility from the common corridor.

**21-4.3.3 Subdivision of Building Spaces.** The requirements of 18-3.7 or 19-3.7, as appropriate, apply to those stories with an apartment(s) used as a residential board and care occupancy.

**21-4.4 Operating Features.** (*See Chapter 31.*)

# CHAPTER 22 ONE- AND TWO-FAMILY DWELLINGS

## SECTION 22-1 GENERAL REQUIREMENTS

**22-1.1 Application.**

**22-1.1.1** This chapter establishes life safety requirements for all one- and two-family private dwellings. One- and two-family dwellings include buildings containing not more than two dwelling units in which each living unit is occupied by members of a single family with no more than three outsiders, if any, accommodated in rented rooms.

**22-1.1.2** The requirements of this chapter are applicable to new buildings and to existing or modified buildings according to the provisions of Section 1-4 of this *Code*.

**22-1.2 Mixed Occupancies.**

**22-1.2.1** Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-4.7 of this *Code* shall be applicable.

**22-1.2.2** For requirements on mixed mercantile and residential occupancies, see 24-1.2 or 25-1.2.

**22-1.3 Definitions.**

**22-1.3.1** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms will be defined in the text as they may occur.

**22-1.4 Classification of Occupancy.** (*See 22-1.1.1.*)

**22-1.5 Classification of Hazard of Contents.**

**22-1.5.1** The contents of residential occupancies shall be classified as ordinary hazard in accordance with 4-2.1.

**22-1.6 Minimum Construction Requirements.** No Special Requirements.

**22-1.7 Occupant Load.** No Requirements.

## SECTION 22-2* MEANS OF ESCAPE REQUIREMENTS

**22-2.1 Number of Means of Escape.**

**22-2.1.1 Primary Means of Escape.** In any dwelling or living unit of two rooms or more, every bedroom and living area shall have at least two means of escape or alternate protection, at least one of which shall be a door or stairway providing a means of unobstructed travel to the outside of the dwelling at street or ground level. No bedroom or living area shall be accessible by only a ladder or folding stairs or through a trap door.

**22-2.1.2* Second Means of Escape.** The second means of escape or alternate protection shall be one of the following:

(a) A door, stairway, passage, or hall providing a way of unobstructed travel to the outside of the dwelling at street or ground level that is independent of and remote from the primary means of escape.

(b) A passage through adjacent nonlockable spaces independent of and remote from the primary means of escape to any approved means of escape.

(c) An outside window or door operable from the inside without the use of tools and providing a clear opening of not less than 20 in. (50.8 cm) in width, 24 in. (61 cm) in height, and 5.7 sq ft (.53 sq m) in area. The bottom of the opening shall not be more than 44 in. (112 cm) off the floor. Such means of escape shall be acceptable if:

1. The window is within 20 ft (6.1 m) of grade, or

2. The window is directly accessible to fire department rescue apparatus as approved by the authority having jurisdiction, or

3. The window or door opens onto an exterior balcony.

(d) The bedroom or living area shall be separated from all other parts of the living unit by construction having a fire resistance rating of at least 20 minutes and shall be equipped with a door that resists passage of fire for at least 20 minutes and is designed and installed to minimize smoke leakage. A means of providing smoke venting and fresh air to the occupants shall be provided.

*Exception No. 1: A second means of escape or alternate protection is not required:*

*(a) If the bedroom or living area has a door leading directly to the outside of the building, at or to grade level; or*

*(b) If the dwelling unit is protected throughout by an approved automatic sprinkler system in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, or NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes, as applicable.*

*Exception No. 2: Existing approved means of escape may be continued in use.*

**22-2.1.3** Every story of every dwelling or living unit that is greater than 2,000 sq ft (185 sq m) or that has a travel distance to the primary means of escape greater than 75 ft (23 m) shall be provided with two primary means of escape remote from each other.

*Exception No. 1: Existing buildings.*

*Exception No. 2: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.*

**22-2.2 Arrangement of Means of Escape.**

**22-2.2.1** No required path of travel from any room to the outside shall be through another room or apartment not under the immediate control of the occupant of the first room or through a bathroom or other space subject to locking.

**22-2.3 Doors.**

**22-2.3.1** No door in the path of travel of a means of escape shall be less than 28 in. (71 cm) wide.

*Exception: Bathroom doors may be 24 in. (61 cm) wide.*

**22-2.3.2** Every closet door latch shall be such that children can open the door from inside the closet.

**22-2.3.3** Every bathroom door lock shall be designed to permit the opening of the locked door from the outside in an emergency.

**22-2.3.4** Doors may be swinging or sliding and are exempt from the requirements of 5-2.1.4.1.

**22-2.3.5*** No door in any means of escape shall be locked against egress when the building is occupied. All locking devices that impede or prohibit egress or that cannot be easily disengaged shall be prohibited.

**22-2.4 Vertical Means of Escape, Stairs.**

**22-2.4.1** The width, risers, and treads of every stair shall comply with the minimum requirements for Class B stairs, as described in 5-2.2. Winders and spiral stairs in accordance with Chapter 5 are permitted within a single living unit.

## SECTION 22-3 PROTECTION

**22-3.1 Protection of Vertical Openings.** No Requirements.

**22-3.2 Interior Finish.**

**22-3.2.1** Interior finish on walls and ceilings of occupied spaces shall be Class A, B, or C as defined in Section 6-5.

**22-3.2.2 Interior Floor Finish.** No Requirements.

**22-3.3 Detection, Alarm, and Communications Systems.**

**22-3.3.1 Detection.** Approved single station or multiple station smoke detectors continuously powered by the house electrical service shall be installed in accordance with 7-6.2.9.

*Exception No. 1: Dwelling units protected by an approved smoke detection system installed in accordance with Section 7-6, having an approved means of occupant notification.*

*Exception No. 2: In existing construction, approved smoke detectors powered by batteries may be used.*

## SECTION 22-4 (RESERVED)

## SECTION 22-5 BUILDING SERVICES

**22-5.1 Heating Equipment.** No stove or combustion heater shall be so located as to block escape in case of fire arising from malfunctioning of the stove or heater.

# CHAPTER 23 RESERVED

# CHAPTER 24 NEW MERCANTILE OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 24-1 GENERAL REQUIREMENTS

**24-1.1 Application.**

**24-1.1.1** New mercantile occupancies shall comply with the provisions of Chapter 24. (*See Chapter 31 for operating features.*)

**24-1.1.2** This chapter establishes life safety requirements for all new mercantile buildings. Specific requirements for suboccupancy groups, such as Class A, B, and C stores and covered malls, are contained in paragraphs pertaining thereto.

**24-1.1.3** Additions to existing buildings shall conform to the requirements for new construction. Existing portions of the structure need not be modified, provided that the new construction has not diminished the fire safety features of the facility.

*Exception: Existing portions shall be upgraded if the addition results in a change of mercantile subclassification (see 24-1.4.2).*

**24-1.2 Mixed Occupancies.**

**24-1.2.1** Mixed occupancies shall comply with 1-4.7.

**24-1.2.2 Combined Mercantile and Residential Occupancies.**

**24-1.2.2.1** No dwelling unit shall have its sole means of egress through any mercantile occupancy in the same building.

**24-1.2.2.2** No multiple dwelling occupancy shall be located above a mercantile occupancy.

*Exception No. 1: Where the dwelling occupancy and exits therefrom are separated from the mercantile occupancy by construction having a fire resistance rating of at least 1 hour.*

*Exception No. 2: Where the mercantile occupancy is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**24-1.3 Special Definitions.**

(a) **Anchor Store.** A department store or major merchandising center having direct access to the covered mall but having all required means of egress independent of the covered mall.

(b) **Class A Stores.** [*See 24-1.4.2.1(a).*]

(c) **Class B Stores.** [*See 24-1.4.2.1(b).*]

(d) **Class C Stores.** [*See 24-1.4.2.1(c).*]

(e) **Covered Mall.** A covered or roofed interior area used as a pedestrian way and connected to a building(s) or portions of a building housing single or multiple tenants.

(f) **Covered Mall Building.** A building, including the covered mall, enclosing a number of tenants and occupancies, such as retail stores, drinking and dining establishments, entertainment and amusement facilities, offices, and other similar uses, wherein two or more tenants have a main entrance into the covered mall.

(g) **Gross Leasable Area.** The total floor area designated for tenant occupancy and exclusive use, expressed in square feet (square meters), measured from centerlines of adjoining partitions and exteriors of outside walls.

(h) **Open-Air Mercantile Operations.** Operations conducted outside of all structures with the operations area devoid of all walls and roofs except for small, individual, weather canopies.

**24-1.4 Classification of Occupancy.**

**24-1.4.1** Mercantile occupancies shall include all buildings and structures or parts thereof with occupancy as described in 4-1.7.

**24-1.4.2 Subclassification of Occupancy.**

**24-1.4.2.1** Mercantile occupancies shall be subclassified as follows:

(a) *Class A.* All stores having aggregate gross area of more than 30,000 sq ft (2,800 sq m) or utilizing more than three levels, excluding mezzanines, for sales purposes.

(b) *Class B.* All stores of more than 3,000 sq ft (280 sq m) but not more than 30,000 sq ft (2,800 sq m) aggregate gross area, or utilizing floors above or below the street floor level for sales purposes. (Mezzanines permitted, *see 24-1.4 2.3.*)

*Exception to (b): If more than three floors, excluding mezzanines, are utilized, the store shall be Class A, regardless of area.*

(c) *Class C.* All stores of not more than 3,000 sq ft (280 sq m) gross area used for sales purposes on one story only, excluding mezzanines.

**24-1.4.2.2** For the purpose of the classification in 24-1.4.2.1, the aggregate gross area shall be the total gross area of all floors used for mercantile purposes and, where a store is divided into sections, regardless of fire separation, shall include the area of all sections used for sales purposes. Areas of floors not used for sales purposes, such as an area used only for storage and not open to the public, shall not be counted for the purposes of the above classifications, but exits shall be provided for such non-sales areas in accordance with their occupancy, as specified by other chapters of this *Code*.

**24-1.4.2.3** The floor area of a mezzanine or the aggregate floor area of multiple mezzanines shall not exceed one third of the floor area of the room or story in which the mezzanines are located. A mezzanine or aggregated mezzanines in excess of the one-third area limitation shall be treated as a story or stories.

**24-1.4.2.4** Where a number of stores under different management are located in the same building or adjoining buildings, the aggregate gross area of all such stores shall be used in determining classification per 24-1.4.2.1.

*Exception No. 1: Where individual stores are separated by fire barriers with a 2-hour fire resistance rating.*

*Exception No. 2: Covered mall buildings. (See 24-4.4.)*

**24-1.5 Classification of Hazard of Contents.** Mercantile occupancies' contents shall be classed as ordinary hazard in accordance with Section 4-2.

*Exception: Mercantile occupancies shall be classified as high hazard if high hazard commodities are displayed or handled without protective wrappings or containers, in which case the following additional provisions shall apply:*

*(a) Exits shall be located so that not more than 75 ft (23 m) of travel from any point is required to reach the nearest exit.*

*(b) From every point there shall be at least two exits accessible by travel in different directions (no common path of travel).*

*(c) All vertical openings shall be enclosed.*

**24-1.6 Minimum Construction Requirements.** No Special Requirements.

**24-1.7 Occupant Load.**

**24-1.7.1*** For purposes of determining required exits, the occupant load of mercantile buildings or parts of buildings used for mercantile purposes shall be not less than the following:

(a) Street floor: one person for each 30 sq ft (2.8 sq m) gross floor area of sales space. In stores with no street floor, as defined in Chapter 3, but with access directly from the street by stairs or escalators, the principal floor at the point of entrance to the store shall be considered the street floor.

*Exception to (a): In stores where, due to differences in grade of streets on different sides, there are two or more floors directly accessible from streets (not including alleys or similar back streets), for the purpose of determining occupant load, each such floor shall be considered a street floor. The occupant load factor shall be one person for each 40 sq ft (3.7 sq m) gross floor area of sales space.*

(b) Sales floors below the street floor: same as street floor.

(c) Upper floors used for sales: one person for each 60 sq ft (5.6 sq m) gross floor area of sales space.

(d) Floors or portions of floors used only for offices: one person for each 100 sq ft (9.3 sq m) gross floor area of office space.

(e) Floors or portions of floors used only for storage, receiving, shipping and not open to the general public: one person per each 300 sq ft (27.9 sq m) gross area of storage, receiving, or shipping space.

(f) Floors or portions of floors used for assembly purposes: occupant load determined in accordance with Chapter 8 for such assembly occupancies.

(g)* Covered mall buildings: determined in accordance with 24-1.7.1(a) through (f).

*Exception: The covered mall, where considered a pedestrian way (see Exception to 24-4.4.1), shall not be assessed an occupant load. However, means of egress from the covered mall shall be provided for an occupant load determined by dividing the gross leasable area (not including anchor stores) by the appropriate occupant load factor listed below:*

| *Gross Leasable Area [See 24-1.3(f).] (sq ft)* | *Occupant Load Factor* |
|---|---|
| *Less than 150,000 (14,000 sq m)* | *30* |
| *Over 150,000 (14,000 sq m) but less than 200,000 (18,500 sq m)* | *35* |
| *Over 200,000 (18,500 sq m) but less than 250,000 (23,000 sq m)* | *40* |
| *Over 250,000 (23,000 sq m) but less than 300,000 (28,000 sq m)* | *45* |
| *Over 300,000 (28,000 sq m) but less than 400,000 (37,000 sq m)* | *50* |
| *Over 400,000 (37,000 sq m)* | *55* |

*Each individual tenant space shall have means of egress to the outside or to the covered mall based on occupant loads figured utilizing 24-1.7.1 (a) through (f).*

*Each individual anchor store shall have means of egress independent of the covered mall.*

**24-1.7.2** Where mezzanines open to the floor below or other unprotected vertical openings between floors as permitted by the Exceptions to 24-3.1, the occupant load (or area) of the mezzanine or other subsidiary floor level shall be added to that of the street floor for the purpose of determining required exits, provided, however, that in no case shall the total exit capacity be less than would be required if all vertical openings were enclosed.

## SECTION 24-2 MEANS OF EGRESS REQUIREMENTS

**24-2.1 General.**

**24-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**24-2.1.2** No inside open stairway or ramp may serve as a component of the required means of egress system for more than one floor.

**24-2.1.3** Where there are two or more floors below the street floor, the same stair or other exit may serve all floors, but all required exits from such areas shall be independent of any open stairways between the street floor and the floor below it.

**24-2.1.4** Where a level, outside exit from upper floors is possible owing to hills, such outside exits may serve instead of horizontal exits. If, however, such outside exits from the upper floor also serve as an entrance from a principal street, the upper floor shall be classed as a street floor in accordance with the definition in Chapter 3 and is subject to the requirements of this section for street floors.

**24-2.1.5** For special considerations with contents of high hazard, see 24-1.5.

**24-2.2 Means of Egress Components.**

**24-2.2.1** Components of means of egress shall be limited to the types described in 24-2.2.2 through 24-2.2.8.

**24-2.2.2 Doors.**

**24-2.2.2.1** Doors shall comply with 5-2.1.

**24-2.2.2.2*** Locks complying with 5-2.1.5.1 Exception No. 2 shall be permitted only on principal entrance/exit doors.

**24-2.2.2.3** Selected doors on stairwells may be equipped with hardware that prevents reentry in accordance with 5-2.1.5.2 Exception No. 1.

**24-2.2.2.4** Special locking arrangements in accordance with 5-2.1.6 are permitted.

**24-2.2.2.5** Where horizontal or vertical security grilles or doors are used as a part of the required means of egress from a tenant space, such grilles or doors shall comply with 5-2.1.4.1 Exception No. 3.

**24-2.2.2.6** All doors at the foot of stairs from upper floors or at the head of stairs leading to floors below the street floor shall swing with the exit travel.

**24-2.2.2.7** Revolving doors shall comply with 5-2.1.10.

**24-2.2.3 Stairs.**

**24-2.2.3.1** Stairs shall comply with 5-2.2.

**24-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**24-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**24-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**24-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**24-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**24-2.2.8 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**24-2.3 Capacity of Means of Egress.**

**24-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**24-2.3.2** In Class A and Class B stores, street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging through the street floor.

**24-2.4 Number of Exits.** (*See also Section 5-4.*)

**24-2.4.1** At least two separate exits shall be accessible from every part of every floor, including floors below the street floor.

*Exception: A single means of egress shall be permitted in a Class C mercantile occupancy where travel distance to the exit or covered mall, where it is considered as a pedestrian way, is not more than 75 ft (23 m) or more than 100 ft (30 m) where the story on which the occupancy is located is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**24-2.5 Arrangement of Means of Egress.**

**24-2.5.1** Exits shall be arranged in accordance with Section 5-5.

**24-2.5.2*** No dead-end corridor shall exceed 20 ft (6.1 m).

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, dead-end corridors shall not exceed 50 ft (15 m).*

**24-2.5.3*** No common path of travel shall exceed 75 ft (23 m).

*Exception: A common path of travel may be permitted for the first 100 ft (30 m) in a building protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.*

**24-2.5.4** Aisles leading to each exit are required. The aggregate width of such aisles shall be equal to at least the required width of the exit.

**24-2.5.5** In no case shall any required aisle be less than 36 in. (91 cm) in clear width.

**24-2.5.6** In Class A stores, at least one aisle of 5 ft (152 cm) minimum width shall lead directly to an exit.

**24-2.5.7** If the only means of customer entrance is through one exterior wall of the building, two-thirds of the required exit width shall be located in this wall.

**24-2.5.8** At least one-half of the required exits shall be so located as to be reached without going through checkout stands. In no case shall checkout stands or associated railings or barriers obstruct exits, required aisles, or approaches thereto.

**24-2.5.9*** Where wheeled carts or buggies are used by customers, adequate provision shall be made for the transit and parking of such carts to minimize the possibility that they may obstruct means of egress.

**24-2.5.10*** Exit access in all Class C stores and exit access in Class B stores that have an occupant load not exceeding 200 and are protected throughout by an approved automatic sprinkler system may pass through storerooms provided the following conditions are met:

(a) Not more than 50 percent of exit access is provided through the storeroom.

(b) The storeroom is not subject to locking.

(c) The main aisle through the storeroom shall be not less than 44 in. (112 cm) wide.

(d) The path of travel, defined with fixed barriers, through the storeroom shall be direct and continuously maintained in an unobstructed condition.

**24-2.6 Travel Distance to Exits.** Travel distance to exits, measured in accordance with Section 5-6, shall be no more than 100 ft (30 m).

*Exception: An increase in the above travel distance to 200 ft (60 m) shall be permitted in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**24-2.7 Discharge from Exits.**

**24-2.7.1** Exit discharge shall comply with Section 5-7 except as modified by 24-2.7.2.

**24-2.7.2*** Fifty percent of the exits may discharge through the level of exit discharge in accordance with 5-7.2 where the building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and the distance of travel from the terminiation of the exit enclosure to an outside street door shall not exceed 50 ft (15 m).

**24-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**24-2.9 Emergency Lighting.** Class A and Class B stores shall have emergency lighting facilities in accordance with Section 5-9.

**24-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

*Exception: Where an exit is immediately apparent from all portions of the sales area, the exit marking may be omitted.*

**24-2.11 Special Features.**

## SECTION 24-3 PROTECTION

**24-3.1* Protection of Vertical Openings.** Each stairway, elevator shaft, escalator opening, or other vertical opening shall be enclosed or protected in accordance with Section 6-2.

*Exception No 1: In Class A or Class B mercantile occupancies protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7, unprotected vertical openings shall be permitted as follows:*

*(a) Between any two floors, or*

*(b) Between the street floor and the first adjacent floor below and the first adjacent floor (or mezzanines) above, or*

*(c) In accordance with 6-2.4.4.*

*Exception No. 2: In Class C mercantile occupancies, openings may be unprotected between the street floor and mezzanine.*

*Exception No. 3: Atriums in accordance with 24-4.5 are permitted.*

**24-3.2 Protection from Hazards.**

**24-3.2.1** Hazardous areas, including but not limited to areas used for general storage, boiler or furnace rooms, fuel storage, janitor closets, maintenance shops including woodworking and painting areas, and kitchens, shall:

(a) Be separated from other parts of the building by fire barriers having a fire resistance rating of not less than 1 hour with all openings therein protected by ¾-hour fire protection rated self-closing fire doors, or

(b) The area shall be protected by an automatic extinguishing system in accordance with Section 7-7.

**24-3.2.2** Areas with high hazard contents as defined in Section 4-2 shall be provided with both fire-resistive separation and automatic sprinkler protection.

**24-3.3 Interior Finish.**

**24-3.3.1** Interior finish on walls and ceilings shall be Class A or B, in accordance with Section 6-5.

**24-3.3.2 Interior Floor Finish.** No Requirements.

**24-3.4 Detection, Alarm, and Communications Systems.**

**24-3.4.1 General.** Class A mercantile occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**24-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means per 7-6.2.1(a).

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing protection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing protection throughout the building.*

**24-3.4.3 Notification.**

**24-3.4.3.1** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**24-3.4.3.2 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 24-3.4.3.1.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**24-3.4.3.3 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided, via the attended location where the alarm signal is received. (*See 24-3.4.3.1.*)

**24-3.5 Extinguishment Requirements.**

**24-3.5.1** Mercantile occupancies shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7 as follows:

(a) In all buildings three or more stories in height.

(b) In all buildings with a story over 12,000 sq ft (1,100 sq m).

(c) In all buildings exceeding 24,000 sq ft (2,200 sq m) in gross area.

(d) Throughout stories below the level of exit discharge where such stories have an area exceeding 2,500 sq ft (230 sq m) where used for the sale, storage, or handling of combustible goods and merchandise.

**24-3.5.2** Automatic sprinkler systems in Class A stores shall be supervised in accordance with 7-7.2.

**24-3.5.3** Portable fire extinguishers shall be provided in all mercantile occupancies in accordance with 7-7.4.1.

**24-3.6 Corridors.**

**24-3.6.1** Where access to exits is limited to corridors, such corridors shall be separated from use areas by fire barriers having a fire resistance rating of at least 1 hour.

*Exception No. 1: Where exits are available from an open floor area.*

*Exception No. 2: Corridors need not have a fire resistance rating within a space occupied by a single tenant.*

*Exception No. 3: Corridors need not have a fire resistance rating within buildings protected throughout by an approved automatic sprinkler system.*

**24-3.6.2** Doors and frames, each with a minimum 20-minute fire protection rating, equipped with a positive latch and closing device, shall be used to protect openings in 1-hour partitions separating the corridor from use areas.

**24-3.6.3** Glass vision panels within 1-hour fire-rated partitions, or doors therein, shall be limited to fixed wired glass in approved steel frames and shall be 1,296 sq in. (.84 sq m) or less in size per panel.

**24-3.7 Subdivision of Building Spaces.** No Special Requirements.

**24-3.8 Special Features.**

## SECTION 24-4 SPECIAL PROVISIONS

**24-4.1 Windowless or Underground Buildings.** *(See Section 30-7.)*

**24-4.2 High Rise Buildings.** No additional requirements.

**24-4.3 Open-Air Mercantile Operations.**

**24-4.3.1** Open-air mercantile operations, such as open-air markets, gasoline filling stations, roadside stands for the sale of farm produce, and other outdoor mercantile operations shall be so arranged and conducted as to maintain free and unobstructed ways of travel at all times to permit prompt escape from any point of danger in case of fire or other emergency, with no dead ends in which persons might be trapped due to display stands, adjoining buildings, fences, vehicles, or other obstructions.

**24-4.3.2** If mercantile operations are conducted in roofed-over areas, they shall be treated as mercantile buildings, provided that canopies over individual small stands to protect merchandise from the weather shall not be construed to constitute buildings for the purpose of this *Code*.

**24-4.4 Covered Mall Buildings.** The purpose of this section is to establish minimum standards of life safety for covered mall buildings having not more than three levels.

**24-4.4.1** The covered mall building shall be treated as a single building for the purpose of calculation of means of egress and shall be subject to the requirements for appropriate occupancies. The covered mall shall be at least of sufficient clear width to accommodate egress requirements as set forth in other sections of this *Code*.

*Exception: The covered mall may be considered to be a pedestrian way, in which case the distance of travel within a tenant space to an exit or to the covered mall shall be a maximum of 200 ft (60 m) (see Exception to 24-2.6), or shall be the maximum for the appropriate occupancy; plus an additional 200 ft (60 m) shall be permitted for travel through the covered mall space if all the following requirements are met:*

*(a) The covered mall shall be at least of sufficient clear width to accommodate egress requirements as set forth in other sections of this chapter, but in no case less than 20 ft (6.1 m) wide in its narrowest dimension.*

*(b)* On each side of the mall floor area, the covered mall shall be provided with an unobstructed exit access of not less than 10 ft (3 m) in clear width parallel to and adjacent to the mall tenant front. Such exit access shall lead to an exit having a minimum of 66 in. (168 cm) in width. (See 24-4.4.2.)*

*(c) The covered mall and all buildings connected thereto shall be protected throughout by an approved electrically supervised automatic sprinkler system in accordance with Section 7-7.*

*(d) Walls dividing stores from each other shall extend from the floor to the underside of the roof deck or floor deck above. No separation is required between a tenant space and the covered mall.*

*(e)* The covered mall shall be provided with a smoke control system.*

**24-4.4.2 Exit Details.**

**24-4.4.2.1** Every floor of a covered mall shall have no less than two exits remotely located from each other.

**24-4.4.2.2** No less than one-half the required exit widths for each Class A or Class B store connected to a covered mall shall lead directly outside without passage through the mall.

**24-4.4.2.3*** Each individual anchor store shall have means of egress independent of the covered mall.

**24-4.4.2.4** Every covered mall shall be provided with unobstructed exit access parallel to and adjacent to the connected buildings. This exit access shall extend to each mall exit.

**24-4.4.3 Detection, Alarm, and Communications Systems.**

**24-4.4.3.1 General.** Covered malls shall be provided with a fire alarm system in accordance with Section 7-6.

**24-4.4.3.2 Initiation.** Initiation of the required fire alarm system shall be by the approved automatic sprinkler system in accordance with 7-6.2.1(c).

**24-4.4.3.3 Notification.** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for the purpose of initiating emergency action.

**24-4.4.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 24-4.4.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**24-4.4.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided, via the attended location where the alarm signal is received. (*See 24-4.4.3.3.*)

**24-4.4.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**24-4.5 Atriums.**

**24-4.5.1** Atriums are permitted provided they comply with 6-2.4.5 and 24-4.5.2 through 24-4.5.4.

**24-4.5.2** The atrium is provided with an automatic ventilation system independently operated by all of the following:

(a) Approved smoke detectors located at the top of the space and adjacent to each return air intake from the atrium, and

(b) The required automatic fire extinguishing system, and

(c) Manual controls that are readily accessible to the fire department.

**24-4.5.3 Detection, Alarm, and Communications Systems.**

**24-4.5.3.1 General.** Buildings housing atriums shall be provided with a fire alarm system in accordance with Section 7-6.

**24-4.5.3.2 Initiation.** Initiation of the required fire alarm system shall occur independently by:

(a) Activation of the smoke detection system [*see 7-6.2.1(b)*], and

(b) Activation of the automatic sprinkler system [*see 7-6.2.1(c)*].

Manual pull stations are not required.

**24-4.5.3.3 Notification.** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**24-4.5.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 24-4.5.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**24-4.5.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided.

**24-4.5.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**24-4.5.4** All electrical equipment essential for smoke control or automatic extinguishing equipment for buildings more than six stories or 75 ft (23 m) in height containing an atrium shall be provided with an emergency source of power in accordance with NFPA 70, *National Electrical Code*, Section 700-12(b), or equivalent.

**24-4.6 Operating Features.** (*See Chapter 31.*)

## SECTION 24-5 BUILDING SERVICES

**24-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**24-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**24-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**24-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 25 EXISTING MERCANTILE OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 25-1 GENERAL REQUIREMENTS

**25-1.1 Application.**

**25-1.1.1** Existing mercantile occupancies shall comply with the provisions of Chapter 25. (*See Chapter 31 for operating features.*)

**25-1.1.2** This chapter establishes life safety requirements for existing buildings. Specific requirements for suboccupancy groups, such as Class A, B, and C stores and covered malls, are contained in paragraphs pertaining thereto.

**25-1.1.3** Additions to existing buildings shall conform to the requirements for new construction. Existing portions of the structure need not be modified, provided that the new construction has not diminished the fire safety features of the facility.

*Exception: Existing portions shall be upgraded if the addition results in a change of mercantile subclassification. (See 25-1.4.2.)*

**25-1.2 Mixed Occupancies.**

**25-1.2.1** Mixed occupancies shall comply with 1-4.7.

**25-1.2.2 Combined Mercantile and Residential Occupancies.**

**25-1.2.2.1** No dwelling unit shall have its sole means of egress through any mercantile occupancy in the same building.

**25-1.2.2.2** No multiple dwelling occupancy shall be located above a mercantile occupancy.

*Exception No. 1: Where the dwelling occupancy and exits therefrom are separated from the mercantile occupancy by construction having a fire resistance rating of at least 1 hour.*

*Exception No. 2: Where the mercantile occupancy is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 3: As permitted in 25-1.2.2.3.*

**25-1.2.2.3** A building with not more than two dwelling units above a mercantile occupancy shall be permitted, provided that the mercantile occupancy is protected by an automatic fire detection system in accordance with Section 7-6.

**25-1.3 Special Definitions.**

(a) **Anchor Store.** A department store or major merchandising center having direct access to the covered mall but having all required means of egress independent of the covered mall.

(b) **Class A Stores.** [*See 25-1.4.2.1(a)*].

(c) **Class B Stores.** [*See 25-1.4.2.1(b)*].

(d) **Class C Stores.** [*See 25-1.4.2.1(c)*].

(e) **Covered Mall.** A covered or roofed interior area used as a pedestrian way and connected to a building(s) or portions of a building housing single or multiple tenants.

(f) **Covered Mall Building.** A building, including the covered mall, enclosing a number of tenants and occupancies, such as retail stores, drinking and dining establishments, entertainment and amusement facilities, offices, and other similar uses, wherein two or more tenants have a main entrance into the covered mall.

(g) **Gross Leasable Area.** The total floor area designated for tenant occupancy and exclusive use, expressed in square feet (square meters), measured from centerlines of joining partitions and exteriors of outside walls.

(h) **Open-Air Mercantile Operations.** Operations conducted outside of all structures with the operations area devoid of all walls and roofs except for small, individual, weather canopies.

**25-1.4 Classification of Occupancy.**

**25-1.4.1** Mercantile occupancies shall include all buildings and structures or parts thereof with occupancy as described in 4-1.7.

**25-1.4.2 Subclassification of Occupancy.**

**25-1.4.2.1** Mercantile occupancies shall be subclassified as follows:

(a) *Class A.* All stores having aggregate gross area of more than 30,000 sq ft (2,800 sq m), or utilizing more than three levels, excluding mezzanines, for sales purposes.

(b) *Class B.* All stores of more than 3,000 sq ft (280 sq m) but not more than 30,000 sq ft (2,800 sq m) aggregate gross area, or utilizing floors above or below the street floor level for sales purposes. (Mezzanines permitted, *see 25-1.4.2.3.*)

*Exception to (b): If more than three floors, excluding mezzanines, are utilized, the store shall be Class A, regardless of area.*

(c) *Class C.* All stores of not more than 3,000 sq ft (280 sq m) gross area used for sales purposes on one story only, excluding mezzanines.

**25-1.4.2.2** For the purpose of the classification in 25-1.4.2.1, the aggregate gross area shall be the total gross area of all floors used for mercantile purposes and, where a store is divided into sections, regardless of fire separation, shall include the area of all sections used for sales purposes. Areas of floors not used for sales purposes, such as an area used only for storage and not open to the public, shall not be counted for the purposes of the above classifications, but exits shall be provided for such non-sales areas in accordance with their occupancy, as specified by other chapters of this *Code*.

**25-1.4.2.3** The floor area of a mezzanine or the aggregate floor area of multiple mezzanines shall not exceed one-half of the floor area of the room or story in which the mezzanines are located. A mezzanine or aggregated mezzanines in excess of the one-half area limitation shall be treated as floors.

**25-1.4.2.4** Where a number of stores under different management are located in the same building or in adjoining buildings, the aggregate gross area of all such stores shall be used in determining classification per 25-1.4.2.1.

*Exception No. 1: Where individual stores are separated by fire barriers with a 1-hour fire resistance rating.*

*Exception No. 2: Covered mall buildings. (See 25-4.4.)*

**25-1.5 Classification of Hazard of Contents.** Mercantile occupancies' contents shall be classed as ordinary hazard in accordance with Section 4-2.

*Exception: Mercantile occupancies shall be classified as high hazard if high hazard commodities are displayed or handled*

*without protective wrappings or containers, in which case the following additional provisions shall apply:*

*(a) Exits shall be located so that not more than 75 ft (23 m) of travel from any point is required to reach the nearest exit.*

*(b) From every point there shall be at least two exits accessible by travel in different directions (no common path of travel).*

*(c) All vertical openings shall be enclosed.*

**25-1.6 Minimum Construction Requirements.** No Special Requirements.

**25-1.7 Occupant Load.**

**25-1.7.1*** For purposes of determining required exits, the occupant load of mercantile buildings or parts of buildings used for mercantile purposes shall be not less than the following:

(a) Street floor: one person for each 30 sq ft (2.8 sq m) gross floor area of sales space. In stores with no street floor, as defined in Chapter 3, but with access directly from the street by stairs or escalators, the principal floor at the point of entrance to the store shall be considered the street floor.

*Exception to (a): In stores where, due to differences in grade of streets on different sides, there are two or more floors directly accessible from streets (not including alleys or similar back streets), for the purpose of determining occupant load, each such floor shall be considered a street floor. The occupant load factor shall be one person for each 40 sq ft (3.7 sq m) gross floor area of sales space.*

(b) Sales floors below the street floor: same as street floor.

(c) Upper floors used for sales: one person for each 60 sq ft (5.6 sq m) gross floor area of sales space.

(d) Floors or portions of floors used only for offices: one person for each 100 sq ft (9.3 sq m) gross floor area of office space.

(e) Floors or portions of floors used only for storage, receiving, shipping and not open to the general public: one person per each 300 sq ft (27.9 sq m) gross area of storage, receiving, or shipping space.

(f) Floors or portions of floors used for assembly purposes: occupant load determined in accordance with Chapter 9 for such assembly occupancies.

(g)* Covered mall buildings: determined in accordance with 25-1.7.1(a) through (f).

*Exception: The covered mall, where considered a pedestrian way (see Exception to 25-4.4.1), shall not be assessed an occupant load. However, means of egress from the covered mall shall be provided for an occupant load determined by dividing the gross leasable area (not including anchor stores) by the appropriate occupant load factor listed below:*

| *Gross Leasable Area [See 25-1.3(f).] (sq ft)* | *Occupant Load Factor* |
|---|---|
| *Less than 150,000 (14,000 sq m)* | *30* |
| *Over 150,000 (14,000 sq m) but less than 200,000 (18,500 sq m)* | *35* |
| *Over 200,000 (18,500 sq m) but less than 250,000 (23,000 sq m)* | *40* |
| *Over 250,000 (23,000 sq m) but less than 300,000 (28,000 sq m)* | *45* |
| *Over 300,000 (28,000 sq m) but less than 400,000 (37,000 sq m)* | *50* |
| *Over 400,000 (37,000 sq m)* | *55* |

*Each individual tenant space shall have means of egress to the outside or to the covered mall based on occupant loads figured utilizing 25-1.7.1 (a) through (f).*

*Each individual anchor store shall have means of egress independent of the covered mall.*

**25-1.7.2** Where mezzanines open to the floor below or other unprotected vertical openings between floors as permitted by the Exceptions to 25-3.1, the occupant load (or area) of the mezzanine or other subsidiary floor level shall be added to that of the street floor for the purpose of determining required exits, provided, however, that in no case shall the total exit capacity be less than would be required if all vertical openings were enclosed.

## SECTION 25-2 MEANS OF EGRESS REQUIREMENTS

**25-2.1 General.**

**25-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**25-2.1.2** No inside open stairway, escalator, or ramp may serve as a component of the required means of egress system for more than one floor.

**25-2.1.3** Where there are two or more floors below the street floor, the same stair or other exit may serve all floors, but all required exits from such areas shall be independent of any open stairways between the street floor and the floor below it.

**25-2.1.4** Where a level, outside exit from upper floors is possible owing to hills, such outside exits may serve instead of horizontal exits. If, however, such outside exits from the upper floor also serve as an entrance from a principal street, the upper floor shall be classed as a street floor in accordance with the definition of Chapter 3 and is subject to the requirements of this section for street floors.

**25-2.1.5** For special considerations with contents of high hazard, see 25-1.5.

**25-2.2 Means of Egress Components.**

**25-2.2.1** Components of means of egress shall be limited to the types described in 24-2.2.2 through 24-2.2.10.

**25-2.2.2 Doors.**

**25-2.2.2.1** Doors shall comply with 5-2.1.

**25-2.2.2.2*** Locks complying with 5-2.1.5.1 Exception No. 2 shall be permitted only on principal entrance/exit doors.

**25-2.2.2.3** The reentry provisions of 5-2.1.5.2 need not be met. (*See 5-2.1.5.2 Exception No. 3.*)

**25-2.2.2.4** Special locking arrangements in accordance with 5-2.1.6 are permitted.

**25-2.2.2.5** Where horizontal or vertical security grilles or doors are used as a part of the required means of egress from a tenant space, such grilles or doors shall comply with 5-2.1.4.1 Exception No. 3.

**25-2.2.2.6** All doors at the foot of stairs from upper floors or at the head of stairs leading to floors below the street floor shall swing with the exit travel.

**25-2.2.2.7** Revolving doors shall comply with 5-2.1.10.

**25-2.2.2.8** In Class C mercantile occupancies, doors may swing inward where such doors serve only the street floor area.

**25-2.2.3 Stairs.**

**25-2.2.3.1** Stairs shall comply with 5-2.2.

**25-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**25-2.2.3.3** Winders complying with 5-2.2.2.8 are permitted.

**25-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**25-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**25-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**25-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**25-2.2.8 Escalators and Moving Walks.** Escalators and moving walks complying with 5-2.7 are permitted.

**25-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**25-2.2.10 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**25-2.3 Capacity of Means of Egress.**

**25-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**25-2.3.2** In Class A and Class B stores, street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs, ramps, escalators and moving walks discharging through the street floor.

**25-2.4 Number of Exits.**

**25-2.4.1** The number of exits shall be in accordance with 25-2.4.2 and 25-2.4.3. The requirements of Section 5-4 shall not apply.

**25-2.4.2** In Class A and Class B stores, at least two separate exits shall be accessible from every part of every floor, including floors below the street floor.

**25-2.4.3** In Class C stores, at least two separate exits shall be provided as specified by 25-2.4.2.

*Exception No. 1: Where no part of the Class C stores is more than 75 ft (23 m) from the exit or covered mall, where it is considered as a pedestrian way, a single exit shall be permitted.*

*Exception No. 2: Where no part of the Class C store is more than 100 ft (30 m) from the exit or covered mall, where it is considered as a pedestrian way, and the story on which it is located is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, a single exit shall be permitted.*

**25-2.5 Arrangement of Means of Egress.**

**25-2.5.1** Exits shall be arranged in accordance with Section 5-5.

**25-2.5.2*** No dead-end corridor shall exceed 50 ft (15 m).

*Exception*: Existing dead-end corridors exceeding 50 ft (15 m) may be continued in use subject to the approval of the authority having jurisdiction and the travel distance requirements of 25-2.6.*

**25-2.5.3*** No common path of travel shall exceed 75 ft (23 m).

*Exception No. 1: A common path of travel may be permitted for the first 100 ft (30 m) on a story protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2*: Existing excessive common paths of travel may be continued in use subject to the approval of the authority having jurisdiction and the travel distance requirements of 25-2.6.*

**25-2.5.4** Aisles leading to each exit are required. The aggregate width of such aisles shall be equal to at least the required width of the exit.

**25-2.5.5** In no case shall any required aisle be less than 28 in. (71 cm) in clear width.

**25-2.5.6** In Class A stores, at least one aisle of 5 ft (152 cm) minimum width shall lead directly to an exit.

**25-2.5.7** If the only means of customer entrance is through one exterior wall of the building, two-thirds of the required exit width shall be located in this wall.

**25-2.5.8** At least one-half of the required exits shall be so located as to be reached without going through checkout stands. In no case shall checkout stands or associated railings or barriers obstruct exits, required aisles, or approaches thereto.

**25-2.5.9*** Where wheeled carts or buggies are used by customers, adequate provision shall be made for the transit and parking of such carts to minimize the possibility that they may obstruct means of egress.

**25-2.5.10** Exit access in Class A stores protected throughout with an approved supervised automatic sprinkler system in accordance with Section 7-7 and in all Class B or Class C stores may pass through storerooms provided the following conditions are met:

(a) Not more than 50 percent of exit access is provided through the storeroom.

(b) The storeroom is not subject to locking.

(c) The main aisle through the storeroom shall be not less than 44 in. (112 cm) wide.

(d) The path of travel, defined with fixed barriers, through the storeroom shall be direct and continuously maintained in an unobstructed condition.

**25-2.6 Travel Distance to Exits.** Travel distance to exits, measured in accordance with Section 5-6, shall be no more than 150 ft (45 m).

*Exception: An increase in the above travel distance to 200 ft (60 m) shall be permitted in a building protected throughout by*

*an approved automatic sprinkler system in accordance with Section 7-7.*

**25-2.7 Discharge from Exits.**

**25-2.7.1** Exit discharge shall comply with Section 5-7 except as modified by 25-2.7.2.

**25-2.7.2*** Fifty percent of the exits may discharge through the level of exit discharge in accordance with 5-7.2 where the building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and the distance of travel from the terminiation of the exit enclosure to an outside street door shall not exceed 50 ft (15 m).

**25-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**25-2.9 Emergency Lighting.** Class A and Class B stores shall have emergency lighting facilities in accordance with Section 5-9.

**25-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

*Exception: Where an exit is immediately apparent from all portions of the sales area, the exit marking may be omitted.*

**25-2.11 Special Features.**

## SECTION 25-3 PROTECTION

**25-3.1* Protection of Vertical Openings.** Each stairway, elevator shaft, escalator opening, or other vertical opening shall be enclosed or protected in accordance with Section 6-2.

*Exception No. 1: In Class A or Class B mercantile occupancies, openings may be unprotected between any two floors, such as between the street floor and the floor below, or between the street floor and mezzanine, or between the street floor and second floor.*

*Exception No. 2: In Class A or B mercantile occupancies protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, unprotected vertical openings shall be permitted as follows:*

*(a) Between the street floor and floor below and to the floor above the street floor or to mezzanines above the street floor; or*

*(b) Between the street floor, street floor mezzanine and second floor, but not among more than three floor levels; or*

*(c) In accordance with 6-2.4.4; or*

*(d) Among all floors permitted in Class B mercantile occupancies; or*

*(e) One floor above those permitted may be open if such floor is not used for sales purposes.*

*Exception No. 3: In Class C mercantile occupancies, unprotected vertical openings shall be permitted as follows:*

*(a) Between the street floor and mezzanine; or*

*(b) Between the street floor and the floor below or the second floor if not used for sales purposes.*

*Exception No. 4: Atriums in accordance with 25-4.5 are permitted.*

**25-3.2 Protection from Hazards.**

**25-3.2.1** Hazardous areas, including but not limited to areas used for general storage, boiler or furnace rooms, fuel storage, janitor closets, maintenance shops including woodworking and painting areas, and kitchens, shall:

(a) Be separated from other parts of the building by fire barriers having a fire resistance rating of not less than 1 hour with all openings therein protected by ¾-hour fire protection rated self-closing fire doors, or

(b) The area shall be protected by an automatic extinguishing system in accordance with Section 7-7.

**25-3.2.2** Areas with high hazard contents as defined in Section 4-2 shall be provided with both fire-resistive separation and automatic sprinkler protection.

**25-3.3 Interior Finish.**

**25-3.3.1** Interior finish on walls and ceilings shall be Class A or B, in accordance with Section 6-5.

*Exception: Existing Class C interior finish shall be permitted as follows:*

*(a) On walls.*

*(b) Throughout Class C stores.*

**25-3.3.2 Interior Floor Finish.** No Requirements.

**25-3.4 Detection, Alarm, and Communications Systems.**

**25-3.4.1 General.** Class A mercantile occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

**25-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means per 7-6.2.1(a).

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing protection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing protection throughout the building.*

**25-3.4.3 Notification.**

**25-3.4.3.1** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**25-3.4.3.2 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 25-3.4.3.1.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**25-3.5 Extinguishment Requirements.**

**25-3.5.1** Mercantile occupancies shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7 as follows:

(a) In all buildings with a story over 15,000 sq ft (1,400 sq m) in area.

(b) In all buildings exceeding 30,000 sq ft (2,800 sq m) in gross area.

(c) Throughout stories below the level of exit discharge where such stories have an area exceeding 2,500 sq ft (230 sq m) where used for the sale, storage, or handling of combustible goods and merchandise.

*Exception: Single-story buildings that meet the requirements of a street floor.*

**25-3.5.2** Portable fire extinguishers shall be provided in all mercantile occupancies in accordance with 7-7.4.1.

**25-3.6 Corridors.** No Special Requirements.

**25-3.7 Subdivision of Building Spaces.** No Special Requirements.

**25-3.8 Special Features.**

## SECTION 25-4 SPECIAL PROVISIONS

**25-4.1 Windowless or Underground Buildings.** (*See Section 30-7.*)

**25-4.2 High Rise Buildings.** No additional requirements.

**25-4.3 Open-Air Mercantile Operations.**

**25-4.3.1** Open-air mercantile operations, such as open-air markets, gasoline filling stations, roadside stands for the sale of farm produce, and other outdoor mercantile operations shall be so arranged and conducted as to maintain free and unobstructed ways of travel at all times to permit prompt escape from any point of danger in case of fire or other emergency, with no dead ends in which persons might be trapped due to display stands, adjoining buildings, fences, vehicles, or other obstructions.

**25-4.3.2** If mercantile operations are conducted in roofed-over areas, they shall be treated as mercantile buildings, provided that canopies over individual small stands to protect merchandise from the weather shall not be construed to constitute buildings for the purpose of this *Code*.

**25-4.4 Covered Mall Buildings.**

**25-4.4.1** The covered mall building shall be treated as a single building for the purpose of calculation of means of egress and shall be subject to the requirements for appropriate occupancies. The covered mall shall be at least of sufficient clear width to accommodate egress requirements as set forth in other sections of this *Code*.

*Exception: The covered mall may be considered to be a pedestrian way, in which case the distance of travel within a tenant space to an exit or to the covered mall shall be a maximum of 200 ft (60 m) (see Exception to 25-2.6), or shall be the maximum for the appropriate occupancy; plus, an additional 200 ft (60 m) shall be permitted for travel through the covered mall space if all the following requirements are met:*

*(a) The covered mall shall be at least of sufficient clear width to accommodate egress requirements as set forth in other sections of this chapter, but in no case less than 20 ft (6.1 m) wide in its narrowest dimension.*

*(b)* On each side of the mall floor area, the covered mall shall be provided with an unobstructed exit access of not less than 10 ft (3 m) in clear width parallel to and adjacent to the mall tenant front. Such exit access shall lead to an exit having a minimum of 66 in. (168 cm) in width. (See 25-4.4.2.)*

*(c) The covered mall and all buildings connected thereto shall be protected throughout by an approved electrically supervised automatic sprinkler system in accordance with Section 7-7.*

*(d) Walls dividing stores from each other shall extend from the floor to the underside of the roof deck or floor deck above. No separation is required between a tenant space and the covered mall.*

*(e)* The covered mall shall be provided with a smoke control system.*

**25-4.4.2 Exit Details.**

**25-4.4.2.1** Every floor of a covered mall shall have no less than two exits remotely located from each other.

**25-4.4.2.2** No less than one-half the required exit widths for each Class A or Class B store connected to a covered mall shall lead directly outside without passage through the mall.

**25-4.4.2.3*** Each individual anchor store shall have means of egress independent of the covered mall.

**25-4.4.2.4** Every covered mall shall be provided with unobstructed exit access parallel to and adjacent to the connected buildings. This exit access shall extend to each mall exit.

**25-4.4.3 Detection, Alarm, and Communications Systems.**

**25-4.4.3.1 General.** Covered malls shall be provided with a fire alarm system in accordance with Section 7-6.

**25-4.4.3.2 Initiation.** Initiation of the required fire alarm system shall be by the approved automatic sprinkler system in accordance with 7-6.2.1(c).

**25-4.4.3.3 Notification.** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for the purpose of initiating emergency action.

**25-4.4.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 25-4.4.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**25-4.4.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided, via the attended location where the alarm signal is received. (*See 25-4.4.3.3.*)

**25-4.4.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**25-4.5 Atriums.**

**25-4.5.1** Atriums are permitted provided they comply with 6-2.4.5 and 25-4.5.2 through 25-4.5.4.

**25-4.5.2** The atrium is provided with an automatic ventilation system independently operated by all of the following:

(a) Approved smoke detectors located at the top of the space and adjacent to each return air intake from the atrium, and

(b) The required automatic fire extinguishing system, and

(c) Manual controls that are readily accessible to the fire department.

**25-4.5.3 Detection, Alarm, and Communications Systems.**

**25-4.5.3.1 General.** Buildings housing atriums shall be provided with a fire alarm system in accordance with Section 7-6.

**25-4.5.3.2 Initiation.** Initiation of the required fire alarm system shall occur, independently, by:

(a) Activation of the smoke detection system [*see 7-6.2.1(b)*], and

(b) Activation of the automatic sprinkler system [*see 7-6.2.1(c)*].

Manual pull stations are not required.

**25-4.5.3.3 Notification.** At all times that the store is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the store, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**25-4.5.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 25-4.5.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**25-4.5.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided.

**25-4.5.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**25-4.5.4** All electrical equipment essential for smoke control or automatic extinguishing equipment for buildings more than six stories or 75 ft (23 m) in height containing an atrium shall be provided with an emergency source of power in accordance with NFPA 70, *National Electrical Code*, Section 700-12(b), or equivalent.

**25-4.6 Operating Features.** (*See Chapter 31.*)

## SECTION 25-5 BUILDING SERVICES

**25-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**25-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**25-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**25-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 26 NEW BUSINESS OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 26-1 GENERAL REQUIREMENTS

**26-1.1 Application.**

**26-1.1.1** New construction shall comply with the provisions of this chapter. (*See Chapter 31 for operating features.*)

*Exception*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

**26-1.1.2** This chapter establishes life safety requirements for all new business buildings. Specific requirements for high rise buildings [buildings over 75 ft (23 m) in height] are contained in paragraphs pertaining thereto.

**26-1.1.3** Additions to existing buildings shall conform to the requirements for new constructon. Existing portions of the structure need not be modified, provided that the new construction has not diminished the fire safety features of the facility.

**26-1.2 Mixed Occupancies.** Mixed occupancies shall comply with 1-4.7.

**26-1.3 Special Definitions.** None.

**26-1.4 Classification of Occupancy.**

**26-1.4.1** Business occupancies shall include all buildings and structures or parts thereof with occupancy described in 4-1.8.

**26-1.5 Classification of Hazard of Contents.**

**26-1.5.1** The contents of business occupancies shall be classified as ordinary hazard in accordance with Section 4-2.

**26-1.5.2** For purposes of the design of an automatic sprinkler system, a business occupancy shall be classified as "light hazard occupancy," as identified by NFPA 13, *Standard for the Installation of Sprinkler Systems.*

**26-1.6 Minimum Construction Requirements.** No Requirements.

**26-1.7 Occupant Load.**

**26-1.7.1*** For purposes of determining required means of egress, the occupant load of business buildings or parts of buildings used for business purposes shall be no less than one person per 100 sq ft (9.3 sq m) of gross floor area. The occupant load for parts of buildings used for other purposes shall be calculated using occupant load factors associated with the use.

**26-1.7.2** In the case of a mezzanine open to the floor below or other unprotected vertical openings between floors as permitted by 26-3.1, the occupant load of the mezzanine or other subsidiary floor level shall be added to that of the street floor for the purpose of determining required exits. However, in no case shall the total exit capacity be less than would be required if all vertical openings were enclosed.

## SECTION 26-2 MEANS OF EGRESS REQUIREMENTS

**26-2.1 General.**

**26-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**26-2.1.2** If, owing to differences in grade, any street floor exits are at points above or below the street or ground level, such exits shall comply with the provisions for exits from upper floors or floors below the street floor.

**26-2.1.3** Where two or more floors below the street floor are occupied for business use, the same stairs or ramps may serve each.

*Exception: No inside open stairway or ramp may serve as a required egress facility from more than one floor level.*

**26-2.1.4** Floor levels below the street floor used only for storage, heating, and other service equipment, and not subject to business occupancy shall have exits in accordance with Chapter 29.

**26-2.2 Means of Egress Components.**

**26-2.2.1** Components of means of egress shall be limited to the types described in 26-2.2.2 through 26-2.2.8.

**26-2.2.2 Doors.**

**26-2.2.2.1** Doors shall comply with 5-2.1.

**26-2.2.2.2*** Locks complying with 5-2.1.5.1 Exception No. 2 shall be permitted only on principal entrance/exit doors.

**26-2.2.2.3** Selected doors on stairwells may be equipped with hardware that prevents reentry in accordance with 5-2.1.5.2 Exception No. 1.

**26-2.2.2.4** Special locking arrangements in accordance with 5-2.1.6 are permitted.

**26-2.2.2.5** Where horizontal or vertical security grilles or doors are used as part of the required means of egress from a tenant space, such grilles or doors shall comply with 5-2.1.4.1 Exception No. 3.

**26-2.2.2.6** Revolving doors shall comply with 5-2.1.10.

**26-2.2.3 Stairs.**

**26-2.2.3.1** Stairs shall comply with 5-2.2.

**26-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**26-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**26-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**26-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**26-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**26-2.2.8 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**26-2.3 Capacity of Means of Egress.**

**26-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**26-2.3.2** The minimum width of any corridor or passageway shall be 44 in. (112 cm) in the clear.

**26-2.3.3** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging through the street floor.

**26-2.4 Number of Exits.** (*See also Section 5-4.*) Not less than two exits shall be accessible from every part of every floor, including floor levels below the street floor occupied for business purposes or uses incidental thereto.

*Exception No. 1: For a room or area with a total occupant load of less than one hundred persons, having an exit that discharges directly to the outside at the level of exit discharge of the building, with a total distance of travel, including travel within the exit, from any point of not over 100 ft (30 m), a single exit may be permitted. Such travel shall be on the same floor level or, if the traversing of stairs is required, such stairs shall not be more than 15 ft (4.5 m) in height, and they shall be provided with complete enclosures to separate them from any other part of the building, with no door openings therein. A single outside stairway in accordance with 5-2.2 may serve all floors allowed within the 15 ft (4.5 m) vertical travel limitation.*

*Exception No. 2: Any business occupancy not over three stories and not exceeding an occupant load of 30 people per floor may be permitted with a single separate exit to each floor if the total travel distance to the outside of the building does not exceed 100 ft (30 m) and if such exit is enclosed in accordance with 5-1.3 and serves no other levels and discharges directly to the outside. A single outside stairway in accordance with 5-2.2 may serve all floors.*

**26-2.5 Arrangement of Means of Egress.**

**26-2.5.1** Exits shall be arranged in accordance with Section 5-5.

**26-2.5.2** No dead-end corridor shall exceed 20 ft (6.1 m).

*Exception: In buildings protected throughout by an approved supervised automatic sprinkler system, in accordance with Section 7-7, dead-end corridors shall not exceed 50 ft (15 m).*

**26-2.5.3** No common path of travel shall exceed 75 ft (23 m).

*Exception No. 1: A common path of travel may be permitted for the first 100 ft (30 m) in a building protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: A single tenant space that does not exceed an occupant load of 30 people may have a single exit access from that tenant space, provided the corridor to which that exit access leads does not exceed a 20 ft (6.1 m) dead end.*

**26-2.6 Travel Distance to Exits.** Travel distance to exits, measured in accordance with Section 5-6, shall be no more than 200 ft (60 m).

*Exception: An increase in the above travel distance to 300 ft (91 m) shall be permitted in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**26-2.7 Discharge from Exits.** Exit discharge shall comply with Section 5-7.

**26-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**26-2.9 Emergency Lighting.**

**26-2.9.1** Emergency lighting shall be provided in accordance with Section 5-9 in any building where:

(a) The building is two or more stories in height above the level of exit discharge, or

(b) The occupancy is subject to 100 or more occupants above or below the level of exit discharge, or

(c) The occupancy is subject to 1,000 or more total occupants.

**26-2.9.2** Emergency lighting in accordance with Section 5-9 shall be provided for all windowless or underground structures meeting the definition of 30-1.3.

**26-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**26-2.11 Special Features.**

## SECTION 26-3 PROTECTION

**26-3.1 Protection of Vertical Openings.**

**26-3.1.1** Every stairway, elevator shaft, escalator opening, and other vertical opening shall be enclosed or protected in accordance with Section 6-2.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors used for business occupancy only may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: A vertical opening enclosure will not be required for a vertical opening where:*

*(a) The vertical opening connects only two adjacent floors, neither of which is a basement, and*

*(b) The vertical opening is not a required means of egress, and*

*(c) The vertical opening is not connected with corridors or other stairways.*

*Exception No. 3: Atriums in accordance with 26-4.3 are permitted.*

**26-3.1.2** Floors below the street floor used for storage or other than business occupancy shall have no unprotected openings to business occupancy floors.

**26-3.2 Protection from Hazards.**

**26-3.2.1** Hazardous areas, including but not limited to areas used for general storage, boiler or furnace rooms, fuel storage, janitor closets, maintenance shops including woodworking and painting areas, and kitchens, shall:

(a) Be separated from other parts of the building by fire barriers having a fire resistance rating of not less than 1 hour with all openings therein protected by ¾-hour fire protection rated self-closing fire doors, or

(b) The area shall be protected by an automatic extinguishing system in accordance with Section 7-7.

**26-3.2.2** High hazard content areas, as defined in Section 4-2, shall be protected by both fire resistance rated construction and automatic extinguishing equipment.

**26-3.3 Interior Finish.**

**26-3.3.1** Interior finish on walls and ceilings of exits and of enclosed corridors furnishing access thereto or ways of travel therefrom shall be Class A or Class B in accordance with Section 6-5.

**26-3.3.2** In office areas, Class A, Class B, or Class C interior finish shall be provided in accordance with Section 6-5.

**26-3.3.3** Interior floor finish in corridors and exits shall be Class I or Class II in accordance with Section 6-5.

**26-3.4 Detection, Alarm, and Communications Systems.**

**26-3.4.1 General.** A fire alarm system in accordance with Section 7-6 shall be provided in any business occupancy where:

(a) The building is two or more stories in height above the level of exit discharge, or

(b) The occupancy is subject to 100 or more occupants above or below the level of exit discharge, or

(c) The occupancy is subject to 1,000 or more total occupants.

**26-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means per 7-6.2.1(a).

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing protection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing protection throughout the building.*

**26-3.4.3 Notification.**

**26-3.4.3.1** At all times that the building is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the building, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**26-3.4.3.2 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 26-3.4.3.1.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**26-3.5 Extinguishment Systems.** Portable fire extinguishers shall be provided in every business occupancy in accordance with 7-7.4.1. (*See also Section 26-4.*)

**26-3.6 Corridors.**

**26-3.6.1** Where access to exits is limited to corridors, such corridors shall be separated from use areas by partitions having a fire resistance rating of at least 1 hour.

*Exception No. 1*: Where exits are available from an open floor area.*

*Exception No. 2*: Corridors need not have a fire resistance rating within a space occupied by a single tenant.*

*Exception No. 3: Corridors need not have a fire resistance rating within buildings protected throughout by an approved automatic sprinkler system.*

**26-3.6.2** Doors and frames, each with a minimum 20-minute fire protection rating, equipped with a positive latch and closing device, shall be used to protect openings in 1-hour partitions separating the corridor from use areas.

**26-3.6.3** Glass vision panels within 1-hour fire-rated partitions, or doors therein, shall be limited to fixed wired glass in approved steel frames and shall be 1,296 sq in. (.84 sq m) or less in size per panel.

## SECTION 26-4 SPECIAL PROVISIONS

**26-4.1 Windowless or Underground Buildings.** (*See Section 30-7.*)

**26-4.2* High Rise Buildings.**

**26-4.2.1 General.** In addition to the requirements of this section, all high rise buildings shall comply with all other applicable provisions of this *Code*.

**26-4.2.2 Extinguishment Requirements.** High rise buildings shall be protected throughout by an approved electrically supervised automatic sprinkler system installed in accordance with Section 7-7. A sprinkler control valve and a water flow device shall be provided for each floor.

**26-4.2.3 Detection, Alarm, and Communications Sytstems.**

**26-4.2.3.1 General.** Detection, alarm, and communications systems as specified by 26-4.2.3.2 and 26-4.2.3.3 shall be provided in all buildings with an occupied story 150 ft (45 m) or more in height, measured from the lowest level of fire department vehicle access.

**26-4.2.3.2** A fire alarm system utilizing voice communication shall be installed in accordance with Section 7-6.

**26-4.2.3.3** Two-way telephone communication service shall be provided for fire department use. This system shall be in accordance with NFPA 72F, *Standard for the Installation, Maintenance, and Use of Emergency Voice/Alarm Communication Systems*. The communication system shall operate between the central control station and every elevator car, every elevator lobby, and each floor level of exit stairs.

*Exception: Where the fire department radio system is approved as an equivalent system.*

**26-4.2.4 Standby Power.** Standby power in accordance with NFPA 70, *National Electrical Code*, Article 701 shall be provided. The standby power system shall have a capacity and rating sufficient to supply all required equipment. Selective load pickup and load shedding shall be permitted in accordance with NFPA 70, *National Electrical Code*. The standby power system shall be connected to the following:

(a) Emergency lighting system

(b) Fire alarm system

(c) Electric fire pump

(d) Central Control Station equipment and lighting

(e) At least one elevator serving all floors and be transferable to any elevator

(f) Mechanical equipment for smokeproof enclosures.

**26-4.2.5* Central Control Station.** A central control station shall be provided in a location approved by the fire department. The control station shall contain:

(a) Voice fire alarm system panels and controls

(b) Fire department two-way telephone communications service panels and controls

(c) Fire detection and fire alarm system annunciation panels

(d) Elevator floor location and operation annunciators

(e) Sprinkler valve and water flow annunciators

(f) Emergency generator status indicators

(g) Controls for any automatic stairway door unlocking system

(h) Fire pump status indicators

(i) A telephone for fire department use with controlled access to the public telephone system.

**26-4.3 Atriums.**

**26-4.3.1** Atriums are permitted provided they comply with 6-2.4.5 and 26-4.3.2 through 26-4.3.4.

**26-4.3.2** The atrium is provided with an automatic ventilation system independently operated by all of the following:

(a) Approved smoke detectors located at the top of the space and adjacent to each return air intake from the atrium, and

(b) The required automatic fire extinguishing system, and

(c) Manual controls that are readily accessible to the fire department.

**26-4.3.3 Detection, Alarm, and Communications Systems.**

**26-4.3.3.1 General.** Buildings housing atriums shall be provided with a fire alarm system in accordance with Section 7-6.

**26-4.3.3.2 Initiation.** Initiation of the required fire alarm system shall occur independently by:

(a) Activation of the smoke detection system [*see 7-6.2.1(b)*], and

(b) Activation of the automatic sprinkler system [*see 7-6.2.1(c)*].

Manual pull stations are not required.

**26-4.3.3.3 Notification.** At all times that the building is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the building, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**26-4.3.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 26-4.3.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**26-4.3.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided.

**26-4.3.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**26-4.3.4** All electrical equipment essential for smoke control, or automatic extinguishing equipment for buildings more than six stories or 75 ft (23 m) in height containing an atrium shall be provided with an emergency source of power in accordance with NFPA 70, *National Electrical Code*, Section 700-12(b), or equivalent.

**26-4.4 Operating Features.** (*See Chapter 31.*)

## SECTION 26-5 BUILDING SERVICES

**26-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**26-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**26-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**26-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 27 EXISTING BUSINESS OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 27-1 GENERAL REQUIREMENTS

**27-1.1 Application.**

**27-1.1.1** Existing business occupancies shall comply with the provisions of this chapter. (*See Chapter 31 for operating features.*)

*Exception*: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-5.*

**27-1.1.2** This chapter establishes life safety requirements for existing business buildings. Specific requirements for high rise buildings [buildings over 75 ft (23 m) in height] are contained in paragraphs pertaining thereto.

**27-1.2 Mixed Occupancies.** Mixed occupancies shall comply with 1-4.7.

**27-1.3 Special Definitions.** None.

**27-1.4 Classification of Occupancy.**

**27-1.4.1** Business occupancies shall include all buildings and structures or parts thereof with occupancy described in 4-1.8.

**27-1.5 Classification of Hazard of Contents.**

**27-1.5.1** The contents of business occupancies shall be classified as ordinary hazard in accordance with Section 4-2.

**27-1.5.2** For purposes of the design of an automatic sprinkler system, a business occupancy shall be classified as "light hazard occupancy," as identified by NFPA 13, *Standard for the Installation of Sprinkler Systems.*

**27-1.6 Minimum Construction Requirements.** No Requirements.

**27-1.7 Occupant Load.**

**27-1.7.1*** For purposes of determining required means of egress, the occupant load of business buildings or parts of buildings used for business purposes shall be no less than one person per 100 sq ft (9.3 sq m) of gross floor area. The occupant load for parts of buildings used for other purposes shall be calculated using occupant load factors associated with the use.

**27-1.7.2** In the case of a mezzanine open to the floor below or other unprotected vertical openings between floors as permitted by 27-3.1, the occupant load of the mezzanine or other subsidiary floor level shall be added to that of the street floor for the purpose of determining required exits. However, in no case shall the total exit capacity be less than would be required if all vertical openings were enclosed.

## SECTION 27-2 MEANS OF EGRESS REQUIREMENTS

**27-2.1 General.**

**27-2.1.1** All means of egress shall be in accordance with Chapter 5 and this chapter.

**27-2.1.2** If, owing to differences in grade, any street floor exits are at points above or below the street or ground level, such exits shall comply with the provisions for exits from upper floors or floors below the street floor.

**27-2.1.3** Where two or more floors below the street floor are occupied for business use, the same stairs, escalators, or ramps may serve each.

*Exception: No inside open stairway, escalator, or ramp may serve as a required egress facility from more than one floor level.*

**27-2.1.4** Floor levels below the street floor used only for storage, heating, and other service equipment, and not subject to business occupancy shall have exits in accordance with Chapter 29.

**27-2.2 Means of Egress Components.**

**27-2.2.1** Components of means of egress shall be limited to the types described in 27-2.2.2 through 27-2.2.10.

**27-2.2.2 Doors.**

**27-2.2.2.1** Doors shall comply with 5-2.1.

**27-2.2.2.2*** Locks complying with 5-2.1.5.1 Exception No. 2 shall be permitted only on principal entrance/exit doors.

**27-2.2.2.3** The reentry provisions of 5-2.1.5.2 need not be met. (*See 5-2.1.5.2 Exception No. 3.*)

**27-2.2.2.4** Special locking arrangements in accordance with 5-2.1.6 are permitted.

**27-2.2.2.5** Where horizontal or vertical security grilles or doors are used as part of the required means of egress from a tenant space, such grilles or doors shall comply with 5-2.1.4.1 Exception No. 3.

**27-2.2.2.6** Revolving doors shall comply with 5-2.1.10.

**27-2.2.3 Stairs.**

**27-2.2.3.1** Stairs shall comply with 5-2.2.

**27-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**27-2.2.3.3** Winders complying with 5-2.2.2.8 are permitted.

**27-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**27-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**27-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**27-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**27-2.2.8 Escalators and Moving Walks.** Escalators and moving walks complying with 5-2.7 are permitted.

**27-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted.

**27-2.2.10 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**27-2.3 Capacity of Means of Egress.**

**27-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

**27-2.3.2** The minimum width of any corridor or passageway shall be 44 in. (112 cm) in the clear.

**27-2.3.3** Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs, ramps, escalators, and moving walks discharging through the street floor.

**27-2.4 Number of Exits.**

**27-2.4.1** The number of exits shall be in accordance with 27-2.4.2. The requirements of 5-4.1.2 shall not apply.

**27-2.4.2** Not less than two exits shall be accessible from every part of every floor, including floor levels below the street floor occupied for business purposes or uses incidential thereto.

*Exception No. 1: For a room or area with a total occupant load of less than one hundred persons, having an exit that discharges directly to the outside at the level of exit discharge of the building, with a total distance of travel, including travel within the exit, from any point of not over 100 ft (30 m), a single exit may be permitted. Such travel shall be on the same floor level or, if the traversing of stairs is required, such stairs shall not be more than 15 ft (4.5 m) in height, and they shall be provided with complete enclosures to separate them from any other part of the building, with no door openings therein. A single outside stairway in accordance with 5-2.2 may serve all floors allowed within the 15 ft (4.5 m) vertical travel limitation.*

*Exception No. 2: Any business occupancy not over three stories and not exceeding an occupant load of 30 people per floor may be permitted with a single separate exit to each floor if the total travel distance to the outside of the building does not exceed 100 ft (30 m), and if such exit is enclosed in accordance with 5-1.3 and serves no other levels and discharges directly to the outside. A single outside stairway in accordance with 5-2.2 may serve all floors.*

**27-2.5 Arrangement of Means of Egress.**

**27-2.5.1** Exits shall be arranged in accordance with Section 5-5.

**27-2.5.2** No dead-end corridor shall exceed 50 ft (15 m).

*Exception*: Existing dead-end corridors exceeding 50 ft (15 m) may be continued in use subject to the approval of the authority having jurisdiction and the travel distance requirements of 27-2.6.*

**27-2.5.3** No common path of travel shall exceed 75 ft (23 m).

*Exception No. 1: A common path of travel may be permitted for the first 100 ft (30 m) on a story protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 2: A single tenant space that does not exceed an occupant load of 30 people may have a single exit access, provided the corridor to which that exit access leads does not have a dead end in excess of 50 ft (15 m).*

*Exception No. 3*: Existing excessive common paths of travel may be continued in use subject to the approval of the authority having jurisdiction and the travel distance requirements of 27-2.6.*

**27-2.6 Travel Distance to Exits.** Travel distance to exits, measured in accordance with Section 5-6, shall be no more than 200 ft (60 m).

*Exception: An increase in the above travel distance to 300 ft (91 m) shall be permitted in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**27-2.7 Discharge from Exits.** Exit discharge shall comply with Section 5-7.

**27-2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 5-8.

**27-2.9 Emergency Lighting.**

**27-2.9.1** Emergency lighting shall be provided in accordance with Section 5-9 in any building where:

(a) The building is two or more stories in height above the level of exit discharge, or

(b) The occupancy is subject to 100 or more occupants above or below the level of exit discharge, or

(c) The occupancy is subject to 1,000 or more total occupants.

**27-2.9.2** Emergency lighting in accordance with Section 5-9 shall be provided for all windowless or underground structures meeting the definition of 30-1.3.

**27-2.10 Marking of Means of Egress.** Means of egress shall have signs in accordance with Section 5-10.

**27-2.11 Special Features.**

## SECTION 27-3 PROTECTION

**27-3.1 Protection of Vertical Openings.**

**27-3.1.1** Every stairway, elevator shaft, escalator opening, and other vertical opening shall be enclosed or protected in accordance with Section 6-2.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors used for business occupancy only may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: A vertical opening enclosure will not be required for a vertical opening where:*

*(a) The vertical opening connects only two adjacent floors, neither of which is a basement, and*

*(b) The vertical opening is not a required means of egress, and*

*(c) The vertical opening is not connected with corridors or other stairways.*

*Exception No. 3: Atriums in accordance with 27-4.3 are permitted.*

*Exception No. 4: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, vertical openings may be unprotected if no unpro-*

*tected vertical opening serves as any part of any required exit facility and all required exits consist of smokeproof enclosures in accordance with 5-2.3, outside stairs in accordance with 5-2.2, or horizontal exits in accordance with 5-2.4.*

**27-3.1.2** Floors below the street floor used for storage or other than business occupancy shall have no unprotected openings to business occupancy floors.

**27-3.2 Protection from Hazards.**

**27-3.2.1** Hazardous areas, including but not limited to areas used for general storage, boiler or furnace rooms, fuel storage, janitor closets, maintenance shops including woodworking and painting areas, and kitchens, shall:

(a) Be separated from other parts of the building by fire barriers having a fire resistance rating of not less than 1 hour with all openings therein protected by ¾-hour fire protection rated self-closing fire doors, or

(b) The area shall be protected by an automatic extinguishing system in accordance with Section 7-7.

**27-3.2.2** High hazard content areas, as defined in Section 4-2, shall be protected by both fire resistance rated construction and automatic extinguishing equipment.

**27-3.3 Interior Finish.**

**27-3.3.1** Interior finish on walls and ceilings of exits and of enclosed corridors furnishing access thereto or ways of travel therefrom shall be Class A or Class B in accordance with Section 6-5.

**27-3.3.2** In office areas, Class A, Class B, or Class C interior finish shall be provided in accordance with Section 6-5.

**27-3.3.3 Interior Floor Finish.** No Requirements.

**27-3.4 Detection, Alarm, and Communications Systems.**

**27-3.4.1 General.** A fire alarm system in accordance with Section 7-6 shall be provided in any business occupancy where:

(a) The building is two or more stories in height above the level of exit discharge, or

(b) The occupancy is subject to 100 or more occupants above or below the level of exit discharge, or

(c) The occupancy is subject to 1,000 or more total occupants.

**27-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by manual means per 7-6.2.1(a).

*Exception No. 1: Initiation may be by means of an approved automatic fire detection system, in accordance with 7-6.2.1(b), providing protection throughout the building.*

*Exception No. 2: Initiation may be by means of an approved automatic sprinkler system, in accordance with 7-6.2.1(c), providing protection throughout the building.*

**27-3.4.3 Notification.**

**27-3.4.3.1** At all times that the building is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the building, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**27-3.4.3.2 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 27-3.4.3.1.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**27-3.5 Extinguishment Requirements.** Portable fire extinguishers shall be provided in every business occupancy in accordance with 7-7.4.1. (*See also Section 27-4.*)

**27-3.6 Corridors. Reserved.**

## SECTION 27-4 SPECIAL PROVISIONS

**27-4.1 Windowless or Underground Buildings.** (*See Section 30-7.*)

**27-4.2 High Rise Buildings.**

**27-4.2.1** All high rise business occupancy buildings shall be provided with a reasonable degree of safety from fire that shall be accomplished by the installation of a complete approved automatic sprinkler system in accordance with Section 7-7 or an engineered life safety system approved by the authority having jurisdiction, which may consist of a combination of any or all of the following systems:

Partial automatic sprinkler protection.
Smoke detection alarms.
Smoke control.
Compartmentation,
and/or other approved systems.

**27-4.2.2*** A limited but reasonable time shall be allowed for compliance with any part of this section, commensurate with the magnitude of expenditure and the disruption of services.

**27-4.2.3** In addition to the above requirements, all buildings, regardless of height, shall comply with all other applicable provisions of this chapter.

**27-4.3 Atriums.**

**27-4.3.1** Atriums are permitted provided they comply with 6-2.4.5 and 27-4.3.2 through 27-4.3.4.

**27-4.3.2** The atrium is provided with an automatic ventilation system independently operated by all of the following:

(a) Approved smoke detectors located at the top of the space and adjacent to each return air intake from the atrium, and

(b) The required automatic fire extinguishing system, and

(c) Manual controls that are readily accessible to the fire department.

**27-4.3.3 Detection, Alarm, and Communications Systems.**

**27-4.3.3.1 General.** Buildings housing atriums shall be provided with a fire alarm system in accordance with Section 7-6.

**27-4.3.3.2 Initiation.** Initiation of the required fire alarm system shall occur independently by:

(a) Activation of the smoke detection system [*see 7-6.2.1(b)*], and

(b) Activation of the automatic sprinkler system [*see 7-6.2.1(c)*].

Manual pull stations are not required.

**27-4.3.3.3 Notification.** At all times that the building is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the building, or

(b) Sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**27-4.3.3.4 Occupant Notification.** Occupant notification shall be by live voice public address system announcement originating from the attended location where the alarm signal is received. (*See 27-4.3.3.3.*) The system may be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

*Exception: Any other occupant notification means permitted by 7-6.3 may be used in lieu of live voice public address system announcement.*

**27-4.3.3.5 Emergency Forces Notification.** Emergency forces notification shall include notifying:

(a) The fire department in accordance with 7-6.4, and

(b) The local fire brigade, if provided.

**27-4.3.3.6 Emergency Control.** The fire alarm system shall be arranged to automatically actuate smoke management or smoke control systems in accordance with 7-6.5.2(c).

**27-4.3.4** All electrical equipment essential for smoke control, or automatic extinguishing equipment for buildings more than six stories or 75 ft (23 m) in height containing an atrium shall be provided with an emergency source of power in accordance with NFPA 70, *National Electrical Code*, Section 700-12(b), or equivalent.

**27-4.4 Operating Features.** (*See Chapter 31.*)

## SECTION 27-5 BUILDING SERVICES

**27-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**27-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**27-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**27-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 28
# INDUSTRIAL OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 28-1 GENERAL REQUIREMENTS

**28-1.1 Application.** The requirements of this chapter apply to both new and existing Industrial Occupancies. Industrial occupancies include factories making products of all kinds and properties used for operations such as processing, assembling, mixing, packaging, finishing or decorating, repairing, and similar operations.

**28-1.2 Mixed Occupancies.** In any building occupied for both industrial and other purposes, exits shall comply with 1-4.7.

**28-1.3 Special Definitions.** None.

**28-1.4 Classification of Occupancy.** (*See 4-1.9.*)

**28-1.4.1 Subclassification of Industrial Occupancies.** Each industrial occupancy shall be subclassified according to its use as follows:

(a) *General Industrial Occupancy.* Ordinary and low hazard manufacturing operations conducted in buildings of conventional design suitable for various types of manufacture. Included are multistory buildings where floors are rented to different tenants, or buildings suitable for such occupancy and, therefore, subject to possible use for types of manufacturing with a high density of employee population.

(b) *Special Purpose Industrial Occupancy.* Includes ordinary and low hazard manufacturing operations 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.

(c)* *High Hazard Industrial Occupancy.* Includes those buildings having high hazard materials, processes, or contents. Incidental high hazard operations in low or ordinary occupancies and protected in accordance with Section 4-2 and 28-3.2 shall not be the basis for overall occupancy classification.

**28-1.5 Classification of Hazard of Contents.** Classification of hazard of contents shall be as defined in Section 4-2.

**28-1.6 Minimum Construction Standards.** No occupancy requirement.

**28-1.7* Occupant Load.** The occupant load of industrial occupancies for determination of means of egress shall be one person per 100 sq ft (9.3 sq m) of gross floor area.

*Exception: In a special purpose industrial occupancy, the occupant load shall be the maximum number of persons to occupy the area under any probable conditions.*

## SECTION 28-2 MEANS OF EGRESS REQUIREMENTS

**28-2.1 General.**

**28-2.1.1** Each required means of egress shall be in accordance with the applicable portions of Chapter 5.

**28-2.2 Means of Egress Components.**

**28-2.2.1** Components of means of egress shall be limited to the types described in 28-2.2.2 through 28-2.2.12.

**28-2.2.2 Doors.**

**28-2.2.2.1** Doors shall comply with 5-2.1.

**28-2.2.2.2** Special locking arrangements complying with 5-2.1.6 are permitted.

**28-2.2.2.3** In low and ordinary hazard industrial occupancies, horizontal sliding doors may be used in a means of egress serving an occupant load of not more than fifty in accordance with 5-2.1.4.1 Exception No. 6.

**28-2.2.2.4** In low and ordinary hazard industrial occupancies, horizontal sliding doors may be used in horizontal exits and smoke barriers in accordance with 5-2.1.4.1 Exception No. 7. (*See 28-2.2.5.2.*)

**28-2.2.3 Stairs.**

**28-2.2.3.1** Stairs shall comply with 5-2.2.

**28-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**28-2.2.3.3** In existing buildings, winders complying with 5-2.2.2.8 are permitted.

**28-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**28-2.2.5 Horizontal Exits.**

**28-2.2.5.1** Horizontal exits shall comply with 5-2.4.

**28-2.2.5.2*** In horizontal exits where the doorway is protected by a fire door on each side of the wall in which it is located, one fire door shall be of the swinging type as provided in 5-2.4.3.3, and the other may be an automatic sliding fire door that shall be kept open whenever the building is occupied.

**28-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**28-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**28-2.2.8 Escalators and Moving Walks.** In existing buildings, previously approved escalators and moving walks complying with 5-2.7 may be continued in use.

**28-2.2.9 Fire Escape Stairs.** Existing fire escape stairs complying with 5-2.8 are permitted.

**28-2.2.10 Fire Escape Ladders.** Fire escape ladders complying with 5-2.9 are permitted.

**28-2.2.11 Slide Escapes.** Approved slide escapes complying with 5-2.10 may be used as required exits for both new and existing high hazard industrial occupancies. Slide escapes shall be counted as exits only when regularly used in drills or for normal exit so that occupants are, through practice, familiar with their use.

**28-2.2.12 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**28-2.3 Capacity of Means of Egress.**

**28-2.3.1** The capacity of means of egress shall be in accordance with Section 5-3.

*Exception: In special purpose industrial occupancies, means of egress shall be provided at least for the persons actually employed; spaces not subject to human occupancy because of the presence of machinery or equipment may be excluded from consideration.*

**28-2.3.2** The minimum width of any corridor or passageway serving as a required exit, exit access, or exit discharge shall be 44 in. (112 cm) in the clear.

**28-2.4 Number of Exits.** (*See also Section 5-4.*)

**28-2.4.1** No less than two exits shall be provided for every story or section, including stories below the floor of exit discharge used for general industrial purposes or for uses incidental thereto.

*Exception: In low and ordinary hazard industrial occupancies, a single means of egress shall be permitted from any story or section, provided that the exit can be reached within the distance allowed as common path of travel. (See 28-2.5.1 Exception.)*

**28-2.4.2** Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 5-4.1.2.

*Exception: Existing buildings.*

**28-2.4.3** There shall be at least two separate means of egress from every high hazard area regardless of size.

**28-2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**28-2.5.1*** Where two or more exits are required, they shall be so arranged as to be reached by different paths of travel in different directions.

*Exception: A common path of travel may be permitted for the first 50 ft (15 m) from any point in low and ordinary hazard occupancies.*

**28-2.5.2** No dead end may be more than 50 ft (15 m) deep. Dead ends are not permitted in high hazard occupancies.

**28-2.6 Travel Distance to Exits.**

**28-2.6.1** Travel distance limitations shall be accordance with 5-6.5.

*Exception No. 1: As permitted by 28-2.6.2.*

*Exception No. 2: As permitted by 28-2.6.3.*

*Exception No. 3: Travel distance to exits in high hazard industrial occupancies shall not exceed 75 ft (23 m).*

**28-2.6.2** In low or ordinary hazard general industrial occupancies, travel distance may be increased to 400 ft (122 m) if the following additional provisions are met in full:

(a) Shall limit application to one-story buildings.

(b)* Shall provide smoke and heat venting by engineered means or by building configuration to insure that occupants shall not be overtaken by spread of fire or smoke within 6 ft (183 cm) of floor level before they have time to reach exits.

(c) Shall provide automatic sprinkler or other automatic fire extinguishing systems in accordance with Section 7-7. The extinguishing system shall be supervised.

**28-2.6.3** In low or ordinary hazard special purpose industrial occupancies, travel distance may be increased to 300 ft (91 m), or if the building is protected throughout by an automatic sprinkler system in accordance with Section 7-7, travel distance may be increased to 400 ft (122 m).

**28-2.7 Discharge from Exits.** Discharge from exits shall be in accordance with Section 5-7.

**28-2.8 Illumination of Means of Egress.**

**28-2.8.1** Illumination of means of egress shall be provided in accordance with Section 5-8.

*Exception: Means of egress illumination may be eliminated in structures occupied only during daylight hours, with skylights or windows arranged to provide, during these hours, the required level of illumination on all portions of the means of egress.*

**28-2.9 Emergency Lighting.**

**28-2.9.1** All industrial occupancies shall have emergency lighting in accordance with Section 5-9.

*Exception No. 1: Special purpose industrial occupancies do not require emergency lighting where routine human habitation is not the case.*

*Exception No. 2: Emergency lighting may be eliminated in structures occupied only during daylight hours with skylights or windows arranged to provide, during those hours, the required level of illumination on all portions of the means of egress.*

**28-2.10 Marking of Means of Egress.**

**28-2.10.1** Signs designating exits or ways of travel thereto shall be provided in accordance with Section 5-10.

**28-2.11 Special Features.**

## SECTION 28-3 PROTECTION

**28-3.1 Protection of Vertical Openings.**

**28-3.1.1** Every stairway, elevator shaft, escalator opening, and other vertical opening shall be enclosed or protected in accordance with Chapter 5 and Section 6-2.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: In special purpose and high hazard occupancies where unprotected vertical openings are in new or existing buildings and necessary to manufacturing operations, they may be permitted beyond the specified limits, provided every floor level has direct access to one or more enclosed stairways or other exits protected against obstruction by any fire or smoke in the open areas connected by the unprotected vertical openings.*

*Exception No. 4: Existing open stairways, existing open ramps, and existing escalators may be unenclosed or unprotected where connecting only two floor levels.*

*Exception No. 5: In existing buildings with low or ordinary hazard contents and protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, vertical openings may be unprotected provided the vertical*

*opening does not serve as a required exit. All required exits under such conditions shall consist of smokeproof enclosures in accordance with 5-2.3, outside stairs in accordance with 5-2.2, or horizontal exits in accordance with 5-2.4.*

**28-3.2* Protection from Hazards.** Every high hazard industrial occupancy, operation, or process shall have automatic extinguishing systems or such other protection as may be appropriate to the particular hazard, such as explosion venting or suppression for any area subject to an explosion hazard, designed to minimize danger to occupants in case of fire or other emergency before they have time to utilize exits to escape.

**28-3.3 Interior Finish.**

**28-3.3.1** Interior wall and ceiling finish shall be Class A, B, or C in accordance with Section 6-5 in operating areas, and shall be as required by 5-1.4 in exit enclosures.

**28-3.3.2 Interior Floor Finish.** No occupancy requirements.

**28-3.4 Detection, Alarm, and Communications Systems.**

**28-3.4.1 General.** Industrial occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception: If the total capacity of the building is under 100 persons and fewer than 25 persons are above or below the level of exit discharge.*

**28-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by either manual or automatic means in accordance with 7-6.2.

**28-3.4.3 Notification.**

**28-3.4.3.1** The required fire alarm system shall sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**28-3.4.3.2** In high hazard industrial occupancies (*see 28-1.4*), the required fire alarm system shall automatically initiate an occupant evacuation alarm signal per 7-6.3.

**28-3.5 Extinguishing Requirements.** None.

**28-3.6 Corridors.** The provisions of 5-1.3.4 shall not apply.

## SECTION 28-4 SPECIAL PROVISIONS

**28-4.1 Operating Features.** (*See Chapter 31.*)

**28-4.2 High Rise Buildings.** No Requirements.

## SECTION 28-5 BUILDING SERVICES

**28-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**28-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**28-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**28-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

# CHAPTER 29 STORAGE OCCUPANCIES

*(See also Chapter 31.)*

## SECTION 29-1 GENERAL REQUIREMENTS

**29-1.1 Application.** The requirements of this chapter apply to both new and existing storage occupancies. Storage occupancies include all buildings or structures used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals.

**29-1.2 Mixed Occupancies.** *(See 1-4.7 and 29-1.4.)*

**29-1.3 Special Definitions.** None.

**29-1.4 Classification of Occupancy.** Storage occupancies shall include all occupancies defined in 4-1.10. Incidental storage in another occupancy shall not be the basis for overall occupancy classification.

*Exception: Storage occupancies or areas of storage occupancies that are used for the purpose of packaging, labeling, sorting, special handling, or other operations requiring an occupant load greater than that normally contemplated for storage shall be classified as industrial occupancies. (See Chapter 28.)*

**29-1.5 Classification of Hazard of Contents.** Contents of storage occupancies shall be classified as high hazard, ordinary hazard, or low hazard in accordance with Section 4-2, depending upon the character of the materials stored, their packaging, and other factors.

**29-1.6 Minimum Construction Standards.** No occupancy requirements.

**29-1.7 Occupant Load.** No Requirements.

## SECTION 29-2 MEANS OF EGRESS REQUIREMENTS

**29-2.1 General.** Every required means of egress shall be in accordance with the applicable portions of Chapter 5.

**29-2.2 Means of Egress Components.**

**29-2.2.1** Components of means of egress shall be limited to the types described in 29-2.2.2 through 29-2.2.11.

**29-2.2.2 Doors.**

**29-2.2.2.1** Doors shall comply with 5-2.1.

**29-2.2.2.2** Special locking arrangements complying with 5-2.1.6 are permitted.

**29-2.2.2.3** Horizontal sliding doors may be used in a means of egress serving an occupant load of not more than 50 in accordance with 5-2.1.4.1 Exception No. 6.

**29-2.2.2.4** Horizontal sliding doors may be used in horizontal exits and smoke barriers in accordance with 5-2.1.4.1 Exception No. 7. *(See 29-2.2.5.2.)*

**29-2.2.3 Stairs.**

**29-2.2.3.1** Stairs shall comply with 5-2.2.

**29-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**29-2.2.3.3** In existing buildings, winders complying with 5-2.2.2.8 are permitted.

**29-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**29-2.2.5 Horizontal Exits.**

**29-2.2.5.1** Horizontal exits shall comply with 5-2.4.

**29-2.2.5.2*** In horizontal exits where the doorway is protected by a fire door on each side of the wall in which it exists, one fire door shall be of the swinging type as provided in 5-2.4.3.3, and the other may be an automatic sliding fire door that shall be kept open whenever the building is occupied.

**29-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**29-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**29-2.2.8 Fire Escape Stairs.** Existing fire escape stairs complying with 5-2.8 are permitted.

**29-2.2.9 Fire Escape Ladders.** Fire escape ladders complying with 5-2.9 are permitted.

**29-2.2.10 Slide Escapes.** Existing slide escapes complying with 5-2.10 are permitted.

**29-2.2.11 Alternating Tread Devices.** Alternating tread devices complying with 5-2.11 are permitted.

**29-2.3 Capacity of Means of Egress.**

**29-2.3.1** The capacity of a means of egress shall be in accordance with Section 5-3.

**29-2.3.2** The minimum width of any corridor or passageway serving as a required exit or means of travel to or from a required exit shall be 44 in. (112 cm) in the clear.

**29-2.4 Number of Means of Egress.** *(See also Section 5-4.)*

**29-2.4.1** Every building or structure used for storage and every section thereof considered separately shall have at least two separate means of egress as remote from each other as practicable.

*Exception No. 1: In low hazard storage occupancies, a single means of egress shall be permitted from any story or section.*

*Exception No. 2: In ordinary hazard storage occupancies, a single means of egress shall be permitted from any story or section, provided that the exit can be reached within the distance allowed as common path of travel. (See 29-2.5.1 Exception No. 3.)*

**29-2.4.2** Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 5-4.1.2.

*Exception: Existing buildings.*

**29-2.5 Arrangement of Means of Egress.** *(See also Section 5-5.)*

**29-2.5.1** Where two or more means of egress are required, they shall be arranged so as to be reached by different paths of travel in different directions.

*Exception No. 1: Existing buildings.*

*Exception No. 2: Low hazard storage occupancies.*

*Exception No. 3: Common paths of travel and dead ends shall be allowed in ordinary hazard storage occupancies, provided that they do not exceed 50 ft (15 m) in an unsprinklered building and 100 ft (30 m) in a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**29-2.5.2** Travel from all locations in a storage occupancy of high hazard contents shall be via at least two separate routes to exits remote from each other.

**29-2.5.3** No dead ends are permitted in high hazard occupancies.

**29-2.6 Travel Distance to Exits.** (*See also Section 5-6.*)

**29-2.6.1*** Travel to exits shall not exceed 200 ft (60 m) from any point to reach the nearest exit.

*Exception No. 1: In a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, travel distance may be increased to 400 ft (122 m).*

*Exception No. 2: There shall be no limitations on travel to exits for low hazard storage occupancy.*

*Exception No. 3: Every area used for the storage of high hazard commodities shall have an exit within 75 ft (23 m) of any point in the area where persons may be present. Travel distance shall be measured in accordance with 5-6.*

*Exception No. 4: In areas used for the storage of high hazard commodities and protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, distances to an exit shall be within 100 ft (30 m) of any point in the area where persons may be present.*

**29-2.7 Discharge from Exits.** Discharge from exits shall be in accordance with Section 5-7.

**29-2.8 Illumination of Means of Egress.**

**29-2.8.1** Illumination of means of egress shall be provided in accordance with Section 5-8.

*Exception: In structures occupied only during daylight hours with windows arranged to provide, during daylight hours, the required level of illumination of all portions of the means of egress, illumination may be eliminated by special permission of the authority having jurisdiction.*

**29-2.9 Emergency Lighting.**

**29-2.9.1** All storage occupancies shall have emergency lighting in accordance with Section 5-9.

*Exception No. 1: Storage occupancies do not require emergency lighting when not normally occupied.*

*Exception No. 2: In structures occupied only during daylight hours with skylights or windows arranged to provide, during these hours, the required level of illumination of all portions of the means of egress, emergency lighting may be eliminated.*

**29-2.10 Marking of Means of Egress.** Signs designating exits or ways of travel thereto shall be provided in accordance with Section 5-10.

**29-2.11 Special Features.**

## SECTION 29-3 PROTECTION

**29-3.1 Protection of Vertical Openings.**

**29-3.1.1** Every stairway, elevator shaft, escalator opening, manlift opening, and other vertical opening shall be enclosed or protected in accordance with Section 6-2.

*Exception No. 1: Unprotected vertical openings connecting not more than three floors may be permitted in accordance with the conditions of 6-2.4.4.*

*Exception No. 2: An atrium may be utilized in accordance with 6-2.4.5.*

*Exception No. 3: In existing buildings with low or ordinary hazard contents and protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, vertical openings may be unprotected where they do not serve as required exits. All required exits under such conditions shall consist of smokeproof enclosures in accordance with 5-2.3, outside stairs in accordance with 5-2.2, or horizontal exits in accordance with 5-2.4.*

**29-3.2 Protection from Hazards.** No occupancy requirements.

**29-3.3 Interior Finish.**

**29-3.3.1** Interior wall and ceiling finish shall be Class A, B, or C in accordance with Section 6-5 in the storage areas and shall be as required by 5-1.4 in exit enclosures.

**29-3.3.2 Interior Floor Finish.** No occupancy requirements.

**29-3.4 Detection, Alarm, and Communications Systems.**

**29-3.4.1 General.** Storage occupancies shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception No. 1: Storage occupancies limited to low hazard contents.*

*Exception No. 2: Storage occupancies with ordinary or high hazard contents not exceeding an aggregate floor area of 100,000 sq ft (9,300 sq m).*

*Exception No. 3: Storage occupancies with complete automatic extinguishment protection.*

**29-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by either manual or automatic means in accordance with 7-6.2.

**29-3.4.3 Notification.** The required fire alarm system shall sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**29-3.5 Extinguishing Requirements.** None.

**29-3.6 Corridors.** The provisions of 5-1.3.4 shall not apply.

## SECTION 29-4 SPECIAL PROVISIONS

**29-4.1 Operating Features.** (*See Chapter 31.*)

**29-4.2 High Rise Buildings.** No Requirements.

## SECTION 29-5 BUILDING SERVICES

**29-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**29-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**29-5.3 Elevators, dumbwaiters, and vertical conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**29-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 29-6* SPECIAL PROVISIONS FOR AIRCRAFT HANGARS

**29-6.1** The requirements of Sections 29-1 through 29-5 shall be met, except as modified by 29-6.2 through 29-6.4.

**29-6.2** Exits from aircraft storage or servicing areas shall be provided at intervals of not more than 150 ft (45 m) on all exterior walls. There shall be a minimum of two exits serving each aircraft storage or servicing area. Horizontal exits through interior fire walls shall be provided at intervals of not more than 100 ft (30 m) along the wall.

*Exception: Dwarf or "smash" doors in doors accommodating aircraft may be used to comply with these requirements.*

**29-6.3** Exits from mezzanine floors in aircraft storage or servicing areas shall be so arranged that the maximum travel distance to reach the nearest exit from any point on the mezzanine shall not exceed 75 ft (23 m). Such exits shall lead directly to a properly enclosed stairwell discharging directly to the exterior, to a suitable cutoff area, or to outside stairs.

**29-6.4** No dead end may be more than 50 ft (15 m) deep.

*Exception: No dead end shall be allowed for high hazard areas.*

## SECTION 29-7* SPECIAL PROVISIONS FOR GRAIN OR OTHER BULK STORAGE ELEVATORS

**29-7.1** The requirements of Sections 29-1 through 29-5 shall be met, except as modified in 29-7.2 through 29-7.4.

**29-7.2** There shall be at least two means of egress from all working levels of the head house. One of these means of egress shall be a stair to the level of exit discharge that is enclosed by a dust-resistant 1-hour fire resistance rated enclosure in accordance with 5-1.3. The second means of egress may be either:

(a) An exterior stair or basket ladder-type fire escape accessible from all working levels of the head house that provides a passage to ground level, or

(b) An exterior stair or basket ladder-type fire escape accessible from all working levels of the head house that provides access to the top of adjoining structures that provide a continuous path to the means of egress described in 29-7.3.

*Exception: Stair enclosures in existing structures may have non-fire-rated dust-resistant enclosures.*

**29-7.3** There shall be an exterior stair or basket ladder-type fire escape that provides passage to ground level from the top of the end of the adjoining structure, such as a silo, conveyor, gallery, or gantry, etc.

**29-7.4 Underground Spaces.**

**29-7.4.1** Underground spaces shall have at least two means of egress, one of which may be a means of escape. The means of escape shall be arranged to eliminate dead ends.

**29-7.4.2** Travel distance to means of escape or exit shall not exceed 200 ft (60 m).

*Exception No. 1: Existing facilities.*

*Exception No. 2: In a building protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, travel distance may be increased to 400 ft (122 m).*

## SECTION 29-8 SPECIAL PROVISIONS FOR PARKING GARAGES

**29-8.1 General Requirements.**

**29-8.1.1* Application.** The following provisions apply to parking garages of closed or open type, above or below ground, but not to mechanical or exclusively attendant parking facilities, which are not occupied by customers and thus require a minimum of exits.

**29-8.1.2 Mixed Occupancies.**

**29-8.1.2.1** Where both parking and repair operations are conducted in the same building, the entire building shall comply with Chapter 28.

*Exception: If the parking and repair sections are separated by 1-hour fire-rated construction, the parking and repair sections may be treated separately.*

**29-8.1.2.2** In areas where repair operations are conducted, the exits shall comply with Chapter 28, Industrial Occupancies.

**29-8.1.3 Special Definitions.**

**Open-Air Parking Structure.** Buildings, structures, or portions thereof used for parking motor vehicles and having not less than 25 percent of the total wall area open to atmosphere at each level, utilizing at least two sides of the structure.

**29-8.1.4 Classification of Occupancy.** Incidental vehicle parking in another occupancy shall not be the basis for overall occupancy classification.

**29-8.1.5 Classification of Hazard of Contents.** Garages used only for the storage of vehicles shall be classified as ordinary hazard in accordance with Section 4-2.

**29-8.1.6 Minimum Construction Requirements.** No Special Requirements.

**29-8.1.7 Occupant Load.** No Requirements.

**29-8.2 Means of Egress Requirements.**

**29-8.2.1 General.** Required means of egress shall be in accordance with the applicable portions of Chapter 5.

**29-8.2.2 Means of Egress Components.**

**29-8.2.2.1** Components of means of egress shall be limited to the types described in 29-8.2.2.2 through 29-8.2.2.8.

**29-8.2.2.2 Doors.**

(a) Doors shall comply with 5-2.1.

(b) Special locking arrangements complying with 5-2.1.6 are permitted.

(c) Horizontal sliding doors may be used in a means of egress serving an occupant load of not more than fifty in accordance with 5-2.1.4.1 Exception No. 6.

(d) Horizontal sliding doors may be used in horizontal exits and smoke barriers in accordance with 5-2.1.4.1 Exception No. 7.

(e) An opening for the passage of automobiles may serve as an exit from a street floor, provided no door or shutter is installed therein.

**29-8.2.2.3 Stairs.**

(a) Stairs shall comply with 5-2.2.

(b) In existing buildings, winders in accordance with 5-2.2.2.8 are permitted.

**29-8.2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**29-8.2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**29-8.2.2.6 Ramps.** Ramps shall comply with 5-2.5 and shall not be subject to normal vehicular traffic where used as an exit.

*Exception No. 1: In a ramp-type open garage with open vehicle ramps not subject to closure, the ramp may serve in lieu of the second exit from floors above the level of exit discharge, provided the ramp discharges directly outside of the street level.*

*Exception No. 2: For garages extending only one floor level below the level of exit discharge, a vehicle ramp leading directly to the outside may serve in lieu of the second exit, provided no door or shutter is installed therein.*

**29-8.2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**29-8.2.2.8 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted for existing garages only.

**29-8.2.3 Capacity of Means of Egress.** (*Also see 29-8.2.4, Number of Exits, and 29-8.2.5, Arrangement of Means of Egress.*)

**29-8.2.3.1** The minimum width of any corridor or passageway serving as a required exit or means of travel to or from a required exit shall be 44 in. (112 cm) in the clear.

**29-8.2.4 Number of Exits.** (*See also Section 5-4.*)

**29-8.2.4.1** Every floor of every garage shall have access to at least two separate exits.

**29-8.2.4.2** Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 5-4.1.2.

*Exception: Existing buildings.*

**29-8.2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**29-8.2.5.1** Exits shall be so arranged that from any point in the garage the paths of travel to the two exits will be in different directions.

*Exception: A common path of travel may be permitted for the first 50 ft (15 m) from any point.*

**29-8.2.5.2** No dead end may be more than 50 ft (15 m) deep.

**29-8.2.5.3** If any gasoline pumps are located within any closed parking garage, exits shall be arranged and located to meet the following:

(a) Travel away from the gasoline pump in any direction will lead to an exit, with no dead end in which occupants might be trapped by fire or explosion at any gasoline pump.

(b) Such exit shall lead to the outside of the building on the same level or to stairs; no upward travel shall be permitted unless direct outside exits are available from that floor.

(c) Any story below that story at which gasoline is being dispensed shall have exits leading direct to the outside via outside stairs or doors at ground level.

**29-8.2.6 Travel Distance to Exits.** Exits in garages shall be so arranged that no point in the area will be more than 150 ft (45 m) (measured in accordance with 5-6) from the nearest complying permissible exit.

*Exception No. 1: Travel distance may be increased to 200 ft (60 m) for open floors of unsprinklered, open-air garages and 300 ft (91 m) in open-air garages protected throughout by an approved automatic sprinkler system.*

*Exception No. 2: Travel distance may be increased to 200 ft (60 m) for enclosed parking garages protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

*Exception No. 3: For new garages with vehicle ramps serving in lieu of the second exit per 29-8.2.2.6 Exception No. 1, travel distance shall be measured to the exit discharge.*

*Exception No. 4: For existing garages with vehicle ramps serving in lieu of the second exit per 29-8.2.2.6 Exception No. 1, no travel distance requirements apply.*

**29-8.2.7 Discharge from Exits.** No special occupancy provisions.

**29-8.2.8 Illumination of Means of Egress.** Every public space, hall, stair enclosure, and other means of egress shall have illumination in accordance with Section 5-8.

*Exception: In structures occupied only during daylight hours with windows arranged to provide, during daylight hours, the required level of illumination of all portions of the means of egress, illumination may be eliminated by special permission of the authority having jurisdiction.*

**29-8.2.9 Emergency Lighting.** Every public space, hall, stair enclosure, and other means of egress shall have emergency lighting in accordance with Section 5-9.

*Exception: In structures occupied only during daylight hours with skylights or windows arranged to provide, during these hours, the required level of illumination of all portions of the means of egress, emergency lighting may be eliminated.*

**29-8.2.10 Marking of Means of Egress.** Signs designating exits or ways of travel thereto shall be provided in accordance with Section 5-10.

**29-8.2.11 Special Features.**

**29-8.3 Protection.**

**29-8.3.1 Protection of Vertical Openings.** No Requirements.

**29-8.3.2 Protection from Hazards.** No Requirements. (*See 29-8.1.2.1.*)

**29-8.3.3 Interior Finish.**

**29-8.3.3.1 Interior Wall and Ceiling Finish.** Interior wall and ceiling finish shall be Class A, B, or C in accordance with Section 6-5 in garages, and shall be as required by 5-1.4 in exit enclosures.

**29-8.3.3.2 Interior Floor Finish.** No Requirements.

**29-8.3.4 Detection, Alarm, and Communications Systems.**

**29-8.3.4.1 General.** Garages exceeding an aggregate floor area of 100,000 sq ft (9,300 sq m) shall be provided with a fire alarm system in accordance with Section 7-6.

*Exception No. 1: Open-air parking structures.*

*Exception No. 2: Garages protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.*

**29-8.3.4.2 Initiation.** Initiation of the required fire alarm system shall be by either manual or automatic means in accordance with 7-6.2.

**29-8.3.4.3 Notification.** The required fire alarm system shall sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**29-8.3.5 Extinguishing Requirements.** None.

**29-8.3.6 Corridors.** The provisions of 5-1.3.4 shall not apply.

**29-8.4 Special Provisions.**

**29-8.4.1 High Rise Buildings.** No Requirements.

# CHAPTER 30 SPECIAL STRUCTURES AND HIGH RISE BUILDINGS

*(See also Chapter 31.)*

## SECTION 30-1 GENERAL REQUIREMENTS

**30-1.1 Application.** The requirements of this chapter apply to both new and existing occupancies in special structures and to those occupancies regulated by Chapters 8 through 29 that are in a special structure or building.

*Exception: Any building, tower, or vessel surrounded by water and under the jurisdiction of the US Coast Guard, such as a lighthouse, offshore oil platform, or vessel mooring point, and designed and arranged in accordance with Coast Guard regulations is exempt from the requirements of this chapter.*

**30-1.2 Mixed Occupancies.** (*See 1-4.7.*)

**30-1.3 Special Definitions.**

**30-1.3.1 Tower.** Independent structure or portion of a building occupied for observation, signaling, or similar limited use and not open to general use.

**30-1.3.2 Vehicle.** Any trailer, railroad car, street car, bus, or similar conveyance that is not mobile or is attached to a building or is permanently fixed to a foundation.

**30-1.3.3 Vessel.** Any ship, barge, or other vessel permanently fixed to a foundation or mooring or unable to get under way under its own power and occupied for purposes other than navigation.

**30-1.3.4* Underground Structure.** A structure or portions of a structure in which the story is below the level of exit discharge.

*Exception: A structure or portions of a structure shall not be considered an underground structure if:*

*(a) The story is provided on at least two sides with at least 20 sq ft (1.9 sq m) of opening entirely above the adjoining grade level in each 50 lineal ft (15 m) of exterior enclosing wall area, and*

*(b) The openings have minimum dimensions of not less than 22 in. (55.9 cm) in width and 24 in. (61 cm) in height and are unobstructed to allow for ventilation and rescue operations from the exterior, and*

*(c) The bottom of the openings are not more than 44 in. (112 cm) above the floor, and*

*(d) The openings are readily identifiable from both the exterior and interior of the story, and*

*(e) The openings are readily openable from both the exterior and interior of the story.*

**30-1.3.5 Windowless Structure.** A structure or portions of a structure lacking means for direct access to the outside from the enclosing walls, or outside openings for ventilation or rescue through windows.

*Exception No. 1: A one-story structure or portion thereof shall not be considered a windowless structure if:*

*(a) The story is provided with grade level doors, access panels, or windows, on two sides of the building, spaced not more than 125 ft (38 m) apart in the exterior walls, and*

*(b) The access panels or windows have minimum dimensions of not less than 22 in. (55.9 cm) in width and 24 in. (61 cm) in height and are unobstructed to allow for ventilation and rescue operations, and*

*(c) The bottom of the openings are not more than 44 in. (112 cm) above the floor, and*

*(d) The openings are readily identifiable from both the exterior and interior of the story, and*

*(e) The openings are readily openable from both the exterior and interior of the story.*

*Exception No. 2: A structure or portion thereof more than one story in height shall not be considered a windowless structure if:*

*(a) Access openings are provided for the first story as required in Exception No. 1 above, and*

*(b) Every story above the first floor is provided with access openings or windows on two sides of the building, spaced not more than 30 ft (9.1 m) apart, and*

*(c) The openings have minimum dimensions of not less than 22 in. (55.9 cm) in width and 24 in. (61 cm) in height and are unobstructed to allow for ventilation and rescue operations, and*

*(d) The bottoms of the openings are not more than 44 in. (112 cm) above the floor, and*

*(e) The openings are readily identifiable from both the exterior and interior of the story, and*

*(f) The openings are readily openable from both the exterior and interior of the story.*

**30-1.3.6 Water Surrounded Structure.** A structure fully surrounded by water.

**30-1.3.7 Open Structure.** Operations and equipment conducted in open air and not enclosed within buildings, such as found in oil refining and chemical processing plants. Roofs or canopies providing shelter without enclosing walls may be provided and shall not be considered an enclosure.

**30-1.4 Classification of Occupancy.** Occupancies regulated by Chapters 8 through 29 that are in special structures or buildings shall meet the requirements of those chapters, except as modified by Chapter 30.

**30-1.5** Classification of hazard of contents shall be as defined in Section 4-2.

**30-1.6 Minimum Construction Standard.** No special occupancy provisions.

**30-1.7 Occupant Load.** The occupant load of special structures shall be as determined by the maximum actual design occupant load.

*Exception: Any special structure or part of a special structure utilized for an occupancy regulated by Chapters 8 through 29, in which case the requirements of the appropriate chapter shall apply.*

## SECTION 30-2 MEANS OF EGRESS REQUIREMENTS

**30-2.1 General.** Each required means of egress shall be in accordance with the applicable portions of Chapter 5.

**30-2.2* Means of Egress Components.**

**30-2.2.1** Components of means of egress shall be limited to the types described in 30-2.2.2 through 30-2.2.11.

**30-2.2.2 Doors.**

**30-2.2.2.1** Doors shall comply with 5-2.1.

**30-2.2.2.2** Horizontal sliding doors may be used in a means of egress serving an occupant load of not more than fifty in accordance with 5-2.1.4.1 Exception No. 6.

**30-2.2.2.3** Horizontal sliding doors may be used in horizontal exits and smoke barriers in accordance with 5-2.1.4.1 Exception No. 7.

**30-2.2.3 Stairs.**

**30-2.2.3.1** Stairs shall comply with 5-2.2.

**30-2.2.3.2** Spiral stairs complying with 5-2.2.2.7 are permitted.

**30-2.2.3.3** In existing buildings, winders complying with 5-2.2.2.8 are permitted.

**30-2.2.4 Smokeproof Enclosures.** Smokeproof enclosures shall comply with 5-2.3.

**30-2.2.5 Horizontal Exits.** Horizontal exits shall comply with 5-2.4.

**30-2.2.6 Ramps.** Ramps shall comply with 5-2.5.

**30-2.2.7 Exit Passageways.** Exit passageways shall comply with 5-2.6.

**30-2.2.8 Escalators and Moving Walks.** In existing buildings, previously approved escalators and moving walks complying with 5-2.7 may be continued in use.

**30-2.2.9 Fire Escape Stairs.** Fire escape stairs complying with 5-2.8 are permitted for existing buildings.

**30-2.2.10 Fire Escape Ladders.**

**30-2.2.10.1** Fire escape ladders complying with 5-2.9 are permitted.

**30-2.2.10.2** Towers and open structures, such as a forest fire observation or railroad signal tower, designed for occupancy by not more than three persons employed therein may be served by ladder instead of stairs.

**30-2.2.11 Alternating Tread Devices.** Alternating Tread Devices complying with 5-2.11 are permitted.

**30-2.3 Capacity of Means of Egress.**

**30-2.3.1** The width and capacity of a means of egress shall be in accordance with Chapter 5.

*Exception No. 1: The means of egress for towers shall be provided for the persons expected to occupy the space.*

*Exception No. 2: Open structures.*

*Exception No. 3: Spaces not subject to human occupancy because of machinery or equipment may be excluded from consideration.*

**30-2.3.2** The minimum width of any corridor or passageway serving as a required exit or means of travel to or from a required exit shall be 44 in. (112 cm) in the clear.

*Exception: Where ladders are permitted by 30-2.2.*

**30-2.3.3** Required means of egress for multistoried special structures may serve floors other than the level where required. However, for purposes of designing means of egress, an interior egress facility shall serve only one floor.

*Exception No. 1: No inside open stairway, escalator, or ramp may serve as a required egress facility from more than one floor level.*

*Exception No. 2: Open structures.*

**30-2.4 Number of Exits.** (*See also Section 5-4.*)

**30-2.4.1** No less than two exits shall be provided for every story or section, including stories below the floor of exit discharge.

*Exception No. 1: Piers used exclusively to moor cargo vessels and to store materials, where provided with proper exit facilities from structures thereon to the pier and a single means of access to the mainland as appropriate with the pier's arrangement.*

*Exception No. 2: The grade level of open structures which by their very nature contain an infinite number of exits.*

*Exception No. 3*: Towers may be provided with a single exit if the following conditions are met:*

*(a) The tower is subject to less than twenty-five persons on any one floor level.*

*(b) The tower is not used for living or sleeping purposes and is subject to occupancy by only able-bodied persons.*

*(c) The tower is of Type I, II, or IV construction. (See 6-2.1.).*

*(d) The tower interior finish is Class A or B.*

*(e) The tower has no combustible materials in, under, or in the immediate vicinity, except necessary furniture.*

*(f) There are no high hazard occupancies in the tower or immediate vicinity.*

*Exception No. 4: Open structures occupied by not more than three people with travel distance to exit not more than 200 ft (60 m).*

**30-2.4.2** Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 5-4.1.2.

*Exception: Existing buildings.*

**30-2.5 Arrangement of Means of Egress.** (*See also Section 5-5.*)

**30-2.5.1** Where two or more exits are required, they shall be arranged so as to be reached by different paths of travel in different directions.

*Exception: A common path of travel may be permitted for the first 50 ft (15 m) from any point.*

**30-2.5.2** No dead end may be more than 50 ft (15 m) deep.

**30-2.5.3* Piers.**

**30-2.5.3.1** Piers not meeting requirements of 30-2.4.1 Exception No. 1 and occupied for other than cargo handling and storage shall have exits arranged in accordance with Chapters 8 through 29. (*See 30-1.4.*) In addition, one of the following mea-

sures shall be provided on piers extending over 150 ft (45 m) from shore to minimize the possibility that fire under or on the pier may block escape of occupants to shore.

**30-2.5.3.2** The pier shall be arranged to provide two separate ways of travel to shore, such as by two well separated walkways or independent structures.

**30-2.5.3.3** The pier deck shall be open and fire resistive, set on noncombustible supports.

**30-2.5.3.4** The pier shall be open and unobstructed and shall be 50 ft (15 m) or more in width if less than 500 ft (150 m) long, or its width shall be not less than ten percent of its length if over 500 ft (150 m) long.

**30-2.5.3.5** The pier deck shall be provided with automatic sprinkler protection for combustible substructure and all superstructures, if any.

**30-2.6 Travel Distance to Exits.** Travel to exits, where not regulated by Chapters 8 through 29, shall not exceed 100 ft (30 m).

*Exception No. 1: In a building or structure protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, travel distance may be increased to 150 ft (45 m).*

*Exception No. 2: Where ladders are permitted in 30-2.2.10.2.*

*Exception No. 3: Open structures.*

**30-2.7 Discharge from Exits.** Discharge from exits shall be in accordance with Section 5-7.

*Exception: Towers or other structures provided with one exit, as permitted by 30-2.4 and arranged in accordance with 30-2.5, may have 100 percent of the exit discharge through areas on the level of discharge.*

**30-2.8 Illumination of Means of Egress.** Illumination of means of egress shall be provided in accordance with Section 5-8.

*Exception No. 1: Open structures.*

*Exception No. 2: Towers with ladders for exits as permitted by 30-2.2.10.2.*

**30-2.9 Emergency Lighting.** Emergency lighting shall be provided in accordance with Section 5-9.

*Exception No. 1: Open structures.*

*Exception No. 2: Towers with ladders for exits as permitted by 30-2.2.10.2.*

*Exception No. 3: Locations not routinely inhabited by humans.*

*Exception No. 4: Structures occupied only during daylight hours with windows arranged to provide, during daylight hours, the required level of illumination of all portions of the means of egress, upon special approval of the authority having jurisdiction.*

**30-2.10 Marking of Means of Egress.** Signs designating exits or ways of travel thereto shall be provided in accordance with Section 5-10.

*Exception No. 1: Towers with ladders for exits as permitted by 30-2.2.10.2.*

*Exception No. 2: Open structures.*

*Exception No. 3: Locations where routine human habitation is not provided.*

**30-2.11 Special Features.**

## SECTION 30-3 PROTECTION

**30-3.1 Protection of Vertical Openings.** Every stairway, elevator shaft, escalator opening, and other vertical opening shall be enclosed or protected in accordance with Chapter 5 and Section 6-2.

*Exception No. 1: In towers where there is no occupancy below the top floor level, stairs may be open with no enclosure required, or fire escape stairs may be used where the structure is entirely open.*

*Exception No. 2: Towers with ladders for exits as permitted by 30-2.2.10.2.*

*Exception No. 3: Open structures.*

**30-3.2 Protection from Hazards.** Every special structure shall have automatic, manual, or such other protection as may be appropriate to the particular hazard designed to minimize danger to occupants in case of fire or other emergency before they have time to utilize exits to escape.

*Exception: Special structures, such as open structures, with only occasional occupancy.*

**30-3.3 Interior Finish.**

**30-3.3.1** Interior wall and ceiling finish shall be Class A, B, or C, in accordance with Section 6-5, and as required by 5-1.4 in exit enclosures.

**30-3.3.2 Interior Floor Finish.** No special occupancy requirements.

**30-3.4 Detection, Alarm, and Communications Systems.**

**30-3.4.1 General.** A fire alarm system shall be provided in accordance with Section 7-6.

*Exception No. 1: Towers designed for occupancy by not more than three persons.*

*Exception No. 2: Open structures.*

**30-3.4.2 Initiation.** Initiation of the required fire alarm system shall be by either manual or automatic means in accordance with 7-6.2.

**30-3.4.3 Notification.** The required fire alarm system shall sound an audible alarm in a continuously attended location for purposes of initiating emergency action.

**30-3.5 Extinguishing Requirements.** None.

**30-3.6 Corridors.** The corridor provisions for the occupancy involved within the special structure shall apply.

## SECTION 30-4 SPECIAL PROVISIONS

**30-4.1 Operating Features.** (*See Chapter 31.*)

**30-4.2 High Rise Buildings.** The high rise building provisions for the occupancy involved within the special structure shall apply. (*See Chapters 8 through 29.*)

*Exception: Existing buildings.*

## SECTION 30-5 BUILDING SERVICES

**30-5.1 Utilities.** Utilities shall comply with the provisions of Section 7-1.

**30-5.2 Heating, Ventilating, and Air Conditioning Equipment.** Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

**30-5.3 Elevators, Dumbwaiters, and Vertical Conveyors.** Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

**30-5.4 Rubbish Chutes, Incinerators, and Laundry Chutes.** Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

## SECTION 30-6* SPECIAL PROVISIONS FOR VEHICLES AND VESSELS

**30-6.1** Any vehicle as defined by 30-1.3.2 that is subject to human occupancy shall comply with the requirements of this *Code* that are appropriate to buildings of similar occupancy. (*See 30-1.4.*)

**30-6.2** Any ship, barge, or other vessel permanently fixed to a foundation or mooring, or unable to get under way under its own power, and occupied for purposes other than navigation shall be subject to the requirements of this *Code* applicable to buildings of similar occupancy.

## SECTION 30-7 SPECIAL PROVISIONS FOR UNDERGROUND STRUCTURES AND WINDOWLESS BUILDINGS

**30-7.1 General.**

**30-7.1.1** In addition to meeting the applicable requirements of this section, occupancies in underground structures and windowless buildings meeting the purposes regulated by Chapters 8 through 29 shall meet the requirements of those chapters. (*See 30-1.4.*)

**30-7.1.2** Windowless or underground structures with an occupant load of more than 50 persons shall be protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

*Exception: Existing structures with an occupant load not greater than 100.*

**30-7.1.3** Windlowless or underground structures shall be provided with emergency lighting in accordance with Section 5-9.

*Exception: One- and two-family dwellings.*

**30-7.2 Underground Structures.**

**30-7.2.1** Exits from underground structures having an occupant load greater than 50 shall be cut off from the level of exit discharge per Section 5-1 and shall be provided with outside smoke venting facilities or other means to prevent the exits from becoming charged with smoke from any fire in the area served by the exits.

*Exception No. 1: Existing structures with an occupant load not greater than 100.*

*Exception No. 2: As modified by Chapters 8 through 29.*

**30-7.2.2** Underground structures with an occupant load greater than 100 having combustible contents, interior finish, or construction shall have automatic smoke venting facilities in accordance with Chapter 7 in addition to automatic sprinkler protection.

*Exception: Existing structures.*

## SECTION 30-8 HIGH RISE BUILDINGS

**30-8.1 General.**

**30-8.1.1** Where required by Chapters 8 through 30, the provisions of this section shall apply to high rise buildings as defined in Chapter 3.

*Exception: As modified by Chapters 8 through 30.*

**30-8.1.2** In addition to the requirements of this section, all other applicable provisions of this *Code* shall be complied with.

**30-8.2 Extinguishment Requirements.**

**30-8.2.1*** High rise buildings shall be protected throughout by an electrically supervised, approved, automatic sprinkler system installed in accordance with Section 7-7. A sprinkler control valve and a water flow device shall be provided for each floor.

**30-8.3. Detection, Alarm, and Communication Systems.**

**30-8.3.1*** A fire alarm system utilizing voice communication shall be installed in accordance with Section 7-6.

**30-8.3.2** Two-way telephone communication service shall be provided for fire department use. This system shall be in accordance with NFPA 72F, *Standard for the Installation, Maintenance, and Use of Emergency Voice/Alarm Communication Systems*. The communication system shall operate between the central control station and every elevator car, every elevator lobby, and each floor level of exit stairs.

*Exception: Where the fire department radio system is approved as an equivalent system.*

**30-8.4 Emergency Lighting and Standby Power.**

**30-8.4.1** Emergency lighting in accordance with Section 5-9 shall be provided.

**30-8.4.2** Standby power in accordance with NFPA 70, *National Electrical Code*, and NFPA 110, *Emergency and Standby Power Systems*, Class I, Type 60 shall be provided. The standby power system shall have a capacity and rating sufficient to supply all required equipment. Selective load pickup and load shedding shall be permitted in accordance with NFPA 70, *National Electrical Code*. The standby power system shall be connected to the following:

(a) Emergency lighting system.

(b) Fire alarm system.

(c) Electric fire pump.

(d) Central control station equipment and lighting.

(e) At least one elevator serving all floors and shall be transferable to any elevator.

(f) Mechanical equipment for smokeproof enclosures.

**30-8.5 Central Control Station.**

**30-8.5.1*** A central control station shall be provided in a location approved by the fire department. The control station shall contain:

(a) Voice fire alarm system panels and controls.

(b) Fire department two-way telephone communications service panels and controls.

(c) Fire detection and fire alarm system annunciation panels.

(d) Elevator floor location and operation annunciators.

(e) Sprinkler valve and water flow annunciators.

(f) Emergency generator status indicators.

(g) Controls for any automatic stairway door unlocking system.

(h) Fire pump status indicators.

(i) A telephone for fire department use with controlled access to the public telephone system.

# CHAPTER 31 OPERATING FEATURES

*(See also Sections 31-2 through 31-9 for special occupancy requirements.)*

## SECTION 31-1 GENERAL REQUIREMENTS

**31-1.1 Construction, Repair, Improvement Operations.**

**31-1.1.1** 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, walkways, 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. See also NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations.*

**31-1.1.2** Flammable or explosive substances or equipment for repairs or alterations may be introduced in a building of normally low or ordinary hazard classification while the building is occupied only if the condition of use and safeguards provided are such as not to create any additional danger or handicap to egress beyond the normally permissible conditions in the building.

**31-1.2 Means of Egress Reliability.**

**31-1.2.1** Every required exit, exit access, or exit discharge shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.

**31-1.2.2 Furnishings and Decorations in Means of Egress.**

**31-1.2.2.1** No furnishings, decorations, or other objects shall be so placed as to obstruct exits, access thereto, egress therefrom, or visibility thereof.

**31-1.2.2.2** Hangings or draperies shall not be placed over exit doors or otherwise located as to conceal or obscure any exit. 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 exit.

**31-1.2.2.3** There shall be no obstruction by railings, barriers, or gates that divide the open space into sections appurtenant to individual rooms, apartments, or other uses. Where the authority having jurisdiction finds the required path of travel to be obstructed by furniture or other movable objects, the authority may require that they be fastened out of the way or may require that railings or other permanent barriers be installed to protect the path of travel against encroachment.

**31-1.3 Equipment Maintenance and Testing.**

**31-1.3.1** 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 permanently maintained unless the *Code* exempts such maintenance.

**31-1.3.2** Every required automatic sprinkler system, fire detection and alarm system, smoke control system, exit lighting, fire door, and other item of equipment required by this *Code* shall be continuously in proper operating condition.

**31-1.3.3** Any equipment requiring test or periodic operation to assure its maintenance shall be tested or operated as specified elsewhere in this *Code* or as directed by the authority having jurisdiction.

**31-1.3.4** Systems shall be under the supervision of a responsible person who shall cause proper tests to be made at specified intervals and have general charge of all alterations and additions.

**31-1.3.5** Systems shall be tested at intervals required by the appropriate standards listed in Chapter 32.

**31-1.3.6* Automatic Sprinkler Systems.** All automatic sprinkler systems required by this *Code* shall be continuously maintained in reliable operating condition at all times, and such periodic inspections and tests shall be made as are necessary to assure proper maintenance.

**31-1.3.7* Alarm and Fire Detection Systems.** Fire alarm signaling equipment shall be restored to service as promptly as possible after each test or alarm and shall be kept in normal condition for operation. Equipment requiring rewinding or replenishing shall be rewound or replenished as promptly as possible after each test or alarm.

**31-1.3.8 Periodic Testing of Emergency Lighting Equipment.** A functional test shall be conducted on every required emergency lighting system at 30-day intervals for a minimum of 30 seconds. An annual test shall be conducted for the 1½-hour duration. Equipment shall be fully operational for the duration of the test. Written records of testing shall be kept by the owner for inspection by the authority having jurisdiction.

**31-1.3.9 Smokeproof Enclosures and Pressurized Stairs.** Before mechanical equipment is accepted by the authority having jurisdiction, it shall be tested to confirm that such equipment is operating in compliance with the *Code*. All operating parts of the system shall be tested semiannually by approved personnel, and a log shall be kept of the results.

**31-1.4 Furnishings, Decorations, and Treated Finishes.** (*See also 31-1.2.2.*)

**31-1.4.1*** Draperies, curtains, and other similar furnishings and decorations shall be flame resistant where required by the applicable provisions of this chapter. These materials required herein to be tested in accordance with NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*, shall comply with both the small- and large-scale tests.

**31-1.4.2*** Furnishings or decorations of an explosive or highly flammable character shall not be used.

**31-1.4.3** Fire retardant coatings shall be maintained so as to retain the effectiveness of the treatment under service conditions encountered in actual use.

**31-1.5* Fire Exit Drills.**

**31-1.5.1** Fire exit drills conforming to the provisions of this chapter of the *Code* shall be regularly conducted in occupancies where specified by the provisions of this chapter, or by appropriate action of the authority having jurisdiction. Drills shall be designed in cooperation with the local authorities.

**31-1.5.2** Fire exit drills, where required by the authority having jurisdiction, shall be held with sufficient frequency to familiarize all occupants with the drill procedure and to have the conduct of the drill a matter of established routine.

**31-1.5.3** Responsibility for the planning and conduct of drills shall be assigned only to competent persons qualified to exercise leadership.

**31-1.5.4** In the conduct of drills, emphasis shall be placed upon orderly evacuation under proper discipline rather than upon speed.

**31-1.5.5*** Drills shall include suitable procedures to make sure that all persons in the building, or all persons subject to the drill, actually participate.

**31-1.5.6*** Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions that occur in the case of fire.

**31-1.6 Flammable Liquids.** Flammable liquids shall be stored and handled in accordance with NFPA 30, *Flammable and Combustible Liquids Code.*

**31-1.7 Laboratories.** Laboratories that use chemicals shall comply with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, unless otherwise modified by other provisions of this *Code.*

**31-1.8 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 permanently maintained unless the *Code* exempts such maintenance.

## SECTION 31-2 ASSEMBLY OCCUPANCIES

**31-2.1* Drills.** The employees or attendants of places of public assembly shall be schooled and drilled in the duties they are to perform in case of fire, panic, or other emergency in order to be of greatest service in effecting orderly exit of assemblages.

**31-2.1.1** Employees or attendants of assembly occupancies shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment if provided.

**31-2.2*** In theaters, motion picture theaters, auditoriums, and other similar Class A and B assembly occupancies where there are noncontinuous programs, an audible announcement shall be made prior to the start of each program to notify occupants of the location of the exits to be used in case of a fire or other emergency.

*Exception: Assembly occupancies in schools when used for nonpublic events.*

**31-2.3 Open Flame Devices.** No open flame devices shall be used in any assembly occupancy.

*Exception No. 1*: When necessary for ceremonial, religious, or demonstration purpose, the authority having jurisdiction may permit open flame devices under such restrictions as are necessary to avoid danger of ignition of combustible materials or injury to occupants.*

*Exception No. 2: Open flame devices may be used on stages when a necessary part of theatrical performances, provided adequate precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible materials.*

*Exception No. 3: Gas lights may be permitted provided adequate precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible materials.*

*Exception No. 4: Candles may be used on tables if securely supported on substantial noncombustible bases so located as to avoid danger of ignition of combustible materials and only if approved by the authority having jurisdiction. Candle flames shall be protected.*

*Exception No. 5: As permitted in 31-2.4.*

**31-2.4 Special Food Service Devices.** Portable cooking equipment, not flue-connected, shall be permitted only as follows:

(a) Equipment fueled by small heat sources that can be readily extinguished by water, such as candles or alcohol-burning equipment (including "solid alcohol"), may be used provided adequate precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible materials.

(b) Candles may be used on tables used for food service if securely supported on substantial noncombustible bases so located as to avoid danger of ignition of combustible materials and only if approved by the authority having jurisdiction. Candle flames shall be protected.

(c) "Flaming Sword" or other equipment involving open flames and flamed dishes, such as cherries jubilee, crepes suzette, etc., may be permitted provided that necessary precautions are taken and subject to the approval of the authority having jurisdiction.

**31-2.5 Smoking.**

**31-2.5.1** Smoking in assembly occupancies shall be regulated by the authority having jurisdiction.

**31-2.5.2** In rooms or areas where smoking is prohibited, plainly visible "NO SMOKING" signs shall be posted.

**31-2.5.3** No person shall smoke in prohibited areas that are so posted.

*Exception: The authority having jurisdiction may permit smoking on a stage only when it is a necessary and rehearsed part of a performance and only by a regular performing member of the cast.*

**31-2.5.4** Where smoking is permitted, suitable ashtrays or receptacles shall be provided in convenient locations.

**31-2.6 Furnishings, Decorations, and Stage Scenery.**

**31-2.6.1** Draperies, curtains, and other similar furnishings, decorations, and stage settings shall be in accordance with the provisions of 31-1.4.

**31-2.6.2** The authority having jurisdiction shall impose controls on the amount and arrangement of combustible contents, including decorations, in assembly occupancies to provide an adequate level of safety to life from fire.

**31-2.6.3** There shall be no exposed foamed plastics.

**31-2.7 Seating.**

**31-2.7.1** Seats in assembly occupancies accommodating more than 200 persons shall be securely fastened to the floor except

where fastened together in groups of not less than three nor more than seven and as permitted by 31-2.7.2. All seats in balconies and galleries shall be securely fastened to the floor, except in places of worship.

**31-2.7.2** Seats not secured to the floor may be permitted in restaurants, night clubs, and other occupancies where the fastening of seats to the floor may be impracticable, provided that in the area used for seating (excluding dance floor, stage, etc.), there shall be not more than one seat for each 15 sq ft (1.4 sq m) of net floor area and adequate aisles to reach exits shall be maintained at all times.

*Exception: Seating diagrams shall be submitted for approval of the authority having jurisdiction to allow increase in occupant load per 8-1.7.2 and 9-1.7.2.*

**31-2.7.3** Every room constituting an assembly occupancy and not having fixed seats shall have the occupant load of the room posted in a conspicuous place, near the main exit from the room. Approved signs shall be maintained in a legible manner by the owner or his authorized agent. Signs shall be durable and shall indicate the number of occupants permitted for each room use.

**31-2.8 Projection Room.** Unless the projection room is constructed in accordance with NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film*, there shall be posted on the outside of each projection room door, and within the projection room proper, a conspicuous sign with 1-in. (2.5-cm) block letters stating: "Safety Film Only Permitted in This Room".

**31-2.9 Coat Racks.** Clothing and personal effects shall not be stored in corridors and lobbies.

## SECTION 31-3 EDUCATIONAL OCCUPANCIES

**31-3.1 Drills.**

**31-3.1.1*** Fire exit drills shall be conducted regularly in accordance with the applicable provisions of the following paragraphs.

**31-3.1.2*** There shall be at least two fire exit drills held during the first two weeks of a school term and eight additional fire exit drills during the year. In climates where the weather is severe during the winter months, at least six drills should be held at the beginning of the school term and four drills held after the winter months to complete the ten required drills.

**31-3.1.3*** Drills shall be executed at different hours of the day or evening; during the changing of classes; when the school is at assembly; during the recess or gymnastic periods; etc., so as to avoid distinction between drills and actual fires. If a drill is called when pupils are going up and down the stairways, as during the time classes are changing, the pupils shall be instructed to form in file and immediately proceed to the nearest available exit in an orderly manner.

**31-3.1.4*** Every fire exit drill shall be an exercise in school management for principal and teachers, with the chief purpose of every drill being the complete control of the class so that the teacher will form its ranks quickly and silently, may halt it, turn it, or direct it as desired. Great stress shall be laid upon the execution of each drill in a brisk, quiet, and orderly manner. Running shall be prohibited. In case there are pupils incapable of holding their places in a line moving at a reasonable speed, provisions shall be made to have them taken care of by the more sturdy pupils, who will keep them from moving independently from the regular line of march.

**31-3.1.5** Monitors shall be appointed from the more mature pupils to assist in the proper execution of all drills. They shall be instructed to hold doors open in the line of march or to close doors where necessary to prevent spread of fire or smoke per 5-2.1.8. There shall be at least two substitutes for each appointment so as to provide for proper performance in case of absence of the regular monitors. The searching of toilet or other rooms shall be the duty of the teachers or other members of the staff. If the teachers are to search, it should be done after they have joined their classes to the preceeding lines.

**31-3.1.6** As all drills simulate an actual fire condition, pupils shall not be allowed to obtain clothing after the alarm is sounded, even when in home rooms, on account of the confusion that would result in forming the lines and the danger of tripping over dragging apparel.

**31-3.1.7** Each class or group shall proceed to a predetermined point outside the building and remain there while a check is made to see that all are accounted for, leaving only when a recall signal is given to return to the building, or when dismissed. Such points shall be sufficiently far away from the building and from each other as to avoid danger from any fire in the building, interference with fire department operations, or confusion between different classes or groups.

**31-3.1.8*** Where necessary for drill lines to cross roadways, signs reading "STOP! SCHOOL FIRE DRILL," or equivalent, shall be carried by monitors to the traffic intersecting points in order to stop traffic during the period of the drill.

**31-3.1.9*** Fire exit drills in schools shall not include any fire extinguishing operations.

**31-3.2 Signals.**

**31-3.2.1** All fire exit drill alarms shall be sounded on the fire alarm system.

**31-3.2.2** Whenever any of the school authorities determine that an actual fire exists, they shall immediately call the local fire department using the public fire alarm system or such other facilities as are available.

**31-3.2.3** In order to prevent pupils from being returned to a building that is burning, the recall signal shall be one that is separate and distinct from, and cannot be mistaken for, any other signals. Such signals may be given by distinctive colored flags or banners. If the recall signal is electrical, the push buttons or other controls shall be kept under lock, the key for which shall be in the possession of the principal or some other designated person in order to prevent a recall at a time when there is a fire. Regardless of the method of recall, the means of giving the signal shall be kept under a lock.

**31-3.3 Inspection.**

**31-3.3.1*** It shall be the duty of principals and teachers to inspect all exit facilities daily in order to make sure that all stairways, doors, and other exits are in proper condition.

**31-3.3.2** Open-plan buildings require extra surveillance to ensure that exit paths are maintained clear of obstruction and are obvious.

**31-3.4 Day-Care Centers.**

**31-3.4.1** Fire prevention inspections shall be conducted monthly by a trained senior member of the staff. A copy of the latest inspection form shall be posted in a conspicuous place in the day-care facility.

**31-3.4.2*** An approved fire evacuation plan shall be executed not less than once per month.

**31-3.4.3** Flammable and combustible liquids shall be stored in areas accessible only to designated individuals and as required in 31-1.6.

**31-3.4.4** Wastebaskets and other waste containers shall be made of noncombustible materials.

**31-3.5 Group Day-Care Homes.** At least one operable flashlight shall be provided for each staff member in a location accessible to the staff for use in the event of a power failure.

**31-3.6 Family Day-Care Homes.** At least one operable flashlight shall be provided in a location accessible to the staff for use in the event of a power failure.

**31-3.7 Day Care Staff.** Adequate adult staff shall be on duty, alert, awake, and in the facility at all times when clients are present.

**31-3.8 Furnishings and Decorations.**

**31-3.8.1** Draperies, curtains, and other similar furnishings and decorations in educational occupancies shall be in accordance with the provisions of 31-1.4.

**31-3.8.2** Clothing and personal effects shall not be stored in corridors and lobbies.

*Exception: Metal lockers may be installed in corridors for storage of clothing and personal effects provided the corridor width is maintained.*

**31-3.9** Child-prepared artwork and teaching materials may be attached directly to the walls and shall not exceed 20 percent of the wall area.

**31-3.10 Unvented Fuel-Fired Heating Equipment.** Unvented fuel-fired heating equipment shall be prohibited in educational occupancies and in all categories of day care facilities.

## SECTION 31-4* HEALTH CARE OCCUPANCIES

**31-4.1 Attendants, Evacuation Plan, Fire Exit Drills.**

**31-4.1.1** The administration of every hospital, nursing home, and limited care facility shall have in effect and available to all supervisory personnel, written copies of a plan for the protection of all persons in the event of fire and for their evacuation to areas of refuge and for evacuation from the building when necessary. All employees shall be periodically instructed and kept informed with respect to their duties under the plan. A copy of the plan shall be readily available at all times in the telephone operator's position or at the security center.

The provisions of 31-4.1.3 to 31-4.2.3 inclusive shall apply.

**31-4.1.2** Every bed intended for use by health care occupants shall be easily movable under conditions of evacuation and shall be equipped with the type and size casters to allow easy mobility, especially over elements of the structure such as expansion plates and elevator thresholds. The authority having jurisdiction may make exceptions in the equipping of beds intended for use in areas limited to patients such as convalescent, self-care, or mental health patients.

**31-4.1.3*** Fire exit drills in health care occupancies shall include the transmission of a fire alarm signal and simulation of emergency fire conditions except that the movement of infirm or bedridden patients to safe areas or to the exterior of the building is not required. Drills shall be conducted quarterly on each shift to familiarize facility personnel (nurses, interns, maintenance engineers, and administrative staff) with signals and emergency action required under varied conditions. At least twelve drills shall be held every year. When drills are conducted between 9:00 p.m. (2100 hours) and 6:00 a.m. (0600 hours), a coded announcement may be used instead of audible alarms.

**31-4.1.4** Employees of health care facilities shall be instructed in life safety procedures and devices.

**31-4.2 Procedure in Case of Fire.**

**31-4.2.1*** For health care occupancies, the proper protection of patients requires the prompt and effective actions of health care personnel. The basic actions required of staff shall include the removal of all occupants directly involved with the fire emergency, transmission of an appropriate fire alarm signal to warn other building occupants, confinement of the effects of the fire by closing doors to isolate the fire area, and the execution of those evacuation duties as detailed in the Facility Firesafety Plan. See Appendix A for a more detailed suggested emergency plan.

**31-4.2.2** A written facility firesafety plan shall provide for:

(a) Use of alarms
(b) Transmission of alarm to fire department
(c) Response to alarms
(d) Isolation of fire
(e) Evacuation of area
(f) Preparation of building for evacuation
(g) Extinguishment of fire.

**31-4.2.3** All facility personnel shall be instructed in the use of, and response to, fire alarms; and, in addition, they shall be instructed in the use of the code phrase to ensure transmission of an alarm under the following conditions:

(a) When the discoverer of a fire must immediately go to the aid of an endangered person.

(b) During a malfunction of the building fire alarm system.

Personnel hearing the code announced shall first activate the building fire alarm using the nearest manual alarm station and shall then immediately execute their duties as outlined in the firesafety plan.

**31-4.3 Maintenance of Exits.** Proper maintenance shall be provided to ensure the dependability of the method of evacuation selected. Facilities that find it necessary to lock exits shall at all times maintain an adequate staff qualified to release and conduct occupants from the immediate danger area to a place of safety in case of fire or other emergency.

**31-4.4* Smoking.** Smoking regulations shall be adopted and shall include the following minimal provisions:

(a) Smoking shall be prohibited in any room, ward, or compartment where flammable liquids, combustible gases, or oxygen are used or stored and in any other hazardous location. Such areas shall be posted with "NO SMOKING" signs.

(b) Smoking by patients classified as not responsible shall be prohibited.

*Exception to (b): When the patient is under direct supervision.*

(c) Ashtrays of noncombustible material and safe design shall be provided in all areas where smoking is permitted.

(d) Metal containers with self-closing cover devices into which ashtrays may be emptied shall be readily available to all areas where smoking is permitted.

**31-4.5 Bedding, Furnishings, and Decorations.**

**31-4.5.1** Draperies, curtains, including cubicle curtains, and other similar furnishings and decorations in health care occupancies shall be in accordance with the provisions of 31-1.4.

**31-4.5.2*** Bedding, furnishings, and decorations in health care occupancies shall be in accordance with the provisions of 31-1.4.

**31-4.5.3*** Combustible decorations are prohibited in any health care occupancy unless flame-retardant.

*Exception: Combustible decorations of such limited quantities that a hazard of fire development or spread is not present, such as photographs and paintings.*

**31-4.5.4** Wastebaskets and other waste containers shall be of noncombustible or other approved materials.

**31-4.5.5** Newly introduced upholstered furniture within health care occupancies shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with NFPA 260B, *Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes*, and shall have a char length not exceeding 1.5 in. (3.8 cm).

*Exception: Health Care Occupancies protected throughout with an approved automatic sprinkler system in accordance with Section 7-7.*

**31-4.6** Where engineered smoke control systems are provided in accordance with Chapter 12, such systems shall be tested to verify proper operation in accordance with design criteria prior to occupancy.

**31-4.7 Portable Space Heating Devices.** Portable space heating devices are prohibited in all health care and ambulatory health care occupancies.

*Exception: Portable space heating devices shall be permitted to be used in nonsleeping staff and employee areas when the heating elements of such devices are limited to not more than 212°F (100°C).*

**31-4.8 Construction, Repair, and Improvement Operations.**

**31-4.8.1** Construction, repair, and improvement operations shall comply with 31-1.1.

**31-4.8.2** The means of egress in any area undergoing construction, repair, or improvements shall be inspected daily. (*See 31-1.2.1.*)

## SECTION 31-5 DETENTION AND CORRECTIONAL OCCUPANCIES

**31-5.1 Attendants, Evacuation Plan, Fire Exit Drills.**

**31-5.1.1** Detention and correctional facilities, or those portions of facilities having such occupancy, must be provided with 24-hour staffing. Staff must be within three floors or 300 ft (91 m) horizontal distance of the access door of each resident housing area.

In addition, for Use Conditions III, IV, and V, the arrangement shall be such that the staff involved can start release of locks necessary for emergency evacuation or rescue and initiate other necessary emergency actions within two minutes of alarm.

**31-5.1.2*** Provisions shall be made so that residents in Use Conditions III, IV, and V can readily notify staff of an emergency.

**31-5.1.3*** The administration of every detention or correctional facility shall have in effect and provided to all supervisory personnel, written copies of a plan for the protection of all persons in the event of fire and for their evacuation to areas of refuge and for evacuation from the building when necessary. All employees shall be instructed and drilled with respect to their duties under the plan. The plan shall be coordinated with and reviewed by the fire department legally committed to serve the facility.

**31-5.1.4** Employees of detention and correctional occupancies shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment that they may be called upon to use. With respect to new staff, such training shall be provided promptly upon commencement of duty. With respect to existing staff, refresher training shall be provided at least annually.

**31-5.2** Books, clothing, and other combustible personal property allowed in sleeping rooms shall be stored in closable metal lockers or a fire resistant container.

**31-5.3** The amount of heat-producing appliances, such as toasters, hot plates, etc., and the overall use of electrical power within a sleeping room shall be controlled by facility administration.

**31-5.4 Furnishings and Decorations.**

**31-5.4.1** Draperies, curtains, including privacy curtains, and other similar furnishings and decorations in detention and correctional occupancies shall be in accordance with the provisions of 31-1.4.

**31-5.4.2*** Combustible decorations are prohibited in any detention or correctional occupancy unless flame-retardant.

**31-5.4.3** Wastebaskets and other waste containers shall be of noncombustible or other approved materials.

**31-5.4.4** Furnishings, such as mattresses and upholstered or cushioned furniture, shall not be of a highly flammable character.

**31-5.5 Keys.** All keys necessary for unlocking doors installed in means of egress shall be individually identified by both touch and sight.

**31-5.6 Portable Space Heating Devices.** Portable space heating devices are prohibited.

## SECTION 31-6 RESIDENTIAL OCCUPANCIES

**31-6.1 Hotel Emergency Organization.**

**31-6.1.1*** All employees of hotels shall be instructed and drilled in the duties they are to perform in the event of fire, panic, or other emergency.

**31-6.1.2*** Drills of the emergency organization shall be held at monthly intervals, covering such points as the operation and maintenance of the available first aid fire appliances, the testing of guest alerting devices, and a study of instructions for emergency duties.

**31-6.2 Emergency Duties.**

**31-6.2.1** Upon discovery of fire, some or all of these duties will become immediately imperative, the number and sequence depending upon the exact situation encountered:

Alarms

Notify office.
Notify public fire department.
Notify private fire brigade.

Guests

Warn guests or others who are or may become endangered.

Assist occupants to safety, with special attention to aged, infirm, or otherwise incapacitated persons.

Search rooms to be sure all occupants have escaped.

Man all elevators, including those of automatic type, with competent operators.

Extinguishment

Extinguish or control the fire using available first aid equipment.

Send messenger to meet public fire department upon arrival in order to direct latter to exact location of fire. (The public fire department is in full command upon arrival.)

Special Equipment

Fire Pumps — stand by for instant operation.

Ventilating Equipment — in case of dense smoke, stand by, operate under proper instructions to clear area affected.

Refrigerating Equipment — if machines are definitely endangered, shut them down and blow refrigerant to sewer or atmosphere to prevent explosion.

Generators and Motors — protect against water damage with tarpaulins — shut down motors not needed — keep generators operating to furnish lights, elevator power, etc.

Boilers — if necessary to abandon boiler room, extinguish or dump fire and lower steam pressure by blowing to sewer or atmosphere to prevent possible explosion.

**31-6.3 Dormitories.**

**31-6.3.1 Drills.** Fire exit drills shall be regularly conducted in accordance with 31-1.5.

**31-6.4 Emergency Instructions for Residents or Guests.**

**31-6.4.1*** A floor diagram reflecting the actual floor arrangement, exit locations, and room identification shall be posted in a location and manner acceptable to the authority having jurisdiction on or immediately adjacent to every guest room door in hotels and in every resident room in dormitories.

**31-6.4.2*** Fire safety information shall be provided to allow guests to make a decision to either; evacuate to the outside; evacuate to an area of refuge; remain in place, or any combination of the three.

**31-6.5 Emergency Instructions for Residents of Apartment Buildings.**

**31-6.5.1** Emergency instructions shall be provided to each living unit on a yearly basis indicating the location of alarms, exiting paths, and actions to be taken, both in response to a fire in the living unit and in response to the sounding of the alarm system.

**31-6.6 Furnishings and Decorations.**

**31-6.6.1*** New draperies, curtains, and other similar furnishings and decorations in hotels and dormitories shall be in accordance with the provisions of 31-1.4.

**31-6.7** Unvented fuel-fired heaters shall not be used in residential occupancies.

*Exception: Listed and approved unvented fuel-fired heaters in one- and two-family dwellings.*

## SECTION 31-7 BOARD AND CARE HOMES

**31-7.1 Emergency Plan.** The administration of every residential board and care facility shall have in effect and available to all supervisory personnel written copies of a plan for the protection of all persons in the event of fire and for their remaining in place, for their evacuation to areas of refuge and from the building when necessary. The plan shall include special staff actions including fire protection procedures needed to ensure the safety of any resident and shall be amended or revised upon admission to the home of any resident with unusual needs. All employees shall be periodically instructed and kept informed with respect to their duties and responsibilities under the plan. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

**31-7.2 Resident Training.** All residents participating in the emergency plan shall be trained in the proper actions to take in the event of fire. This training shall include actions to take if the primary escape route is blocked. If the resident is given rehabilitation or habilitation training, training in fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.

**31-7.3 Fire Exit Drills.** Fire exit drills shall be conducted at least twelve times per year, four times a year on each shift. The drills may be announced in advance to the residents. The drills shall involve the actual evacuation of all residents to an assembly point as specified in the emergency plan and shall provide residents with experience in exiting through all exits required by the *Code*. Exits not used in any fire drill shall not be credited in meeting the requirements of this *Code* for board and care homes.

*Exception No. 1: Actual exiting from windows shall not be required to meet the requirements of this section; opening the window and signaling for help shall be an acceptable alternative.*

*Exception No. 2: If the board and care home has an evacuation capability rating of "Impractical," those residents who cannot meaningfully assist in their own evacuation or who have special health problems need not actively participate in the drill. Section 31-4 applies in such instances.*

**31-7.4 Smoking.**

**31-7.4.1** Where smoking is permitted, noncombustible safety-type ashtrays or receptacles shall be provided in convenient locations.

## SECTION 31-8 MERCANTILE OCCUPANCIES

**31-8.1 Drills.** In every Class A or B store, employees shall be regularly trained in fire exit drill procedures in general conformance with 31-1.5.

**31-8.2** Employees of mercantile occupancies shall be instructed in the proper use of portable fire extinguishers.

## SECTION 31-9 BUSINESS OCCUPANCIES

**31-9.1 Drills.** In any building subject to occupancy by more than 500 persons or more than 100 above or below the street level, employees and supervisory personnel shall be instructed in fire exit drill procedures in accordance with 31-1.5 and shall hold practice drills periodically where practicable.

**31-9.2** Employees of business occupancies shall be instructed in the proper use of portable fire extinguishers.

# CHAPTER 32 REFERENCED PUBLICATIONS

*(See Appendix B for other referenced publications that are advisory and thus do not constitute part of the requirements of this Code.)*

**32-1** The following documents or portions thereof are referenced within this *Code* and shall be considered part of the requirements of this *Code* to the extent called for by the *Code*. The edition indicated for each reference is current as of the date of the NFPA issuance of this document. These references are listed separately to facilitate updating to the latest edition by the user.

The numbers in parentheses represent the paragraph numbers from chapters of this *Code* that reference, in a mandatory way, the given publication.

The Committee on Safety to Life recognizes that it is sometimes not practical to continually upgrade existing buildings or installations to comply with all the requirements of the following referenced publications. Existing buildings or installations that do not comply with the provisions of the following referenced publications may be continued in service, subject to approval by the authority having jurisdiction and provided the lack of conformity with these standards does not present a serious hazard to the occupants.

**32-1.1 NFPA Publications.** The following publications are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

NFPA 10-1988, *Standard for Portable Fire Extinguishers (7-7.4.1, 31-1.3.5)*

NFPA 11-1988, *Standard for Low Expansion Foam and Combined Agent Systems (7-7.3, 31-1.3.5)*

NFPA 11A-1988, *Standard for Medium and High Expansion Foam Systems (7-7.3, 31-1.3.5)*

NFPA 12-1985, *Standard on Carbon Dioxide Extinguishing Systems (7-7.3, 31-1.3.5)*

NFPA 12A-1987, *Standard on Halon 1301 Fire Extinguishing Systems (7-7.3, 31-1.3.5)*

NFPA 12B-1985, *Standard on Halon 1211 Fire Extinguishing Systems (7-7.3, 31-1.3.5)*

NFPA 13-1987, *Standard for the Installation of Sprinkler Systems (6-2.4.7, 7-7.1.1, 16-1.5.1, 17-1.5.1, 22-2.1.2, 26-1.5.2, 27-1.5.2, 31-1.3.5)*

NFPA 13D-1984, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes (7-7.1.1, 21-2.3.5.1, 22-2.1.2, 31-1.3.5)*

NFPA 14-1986, *Standard for the Installation of Standpipe and Hose Systems (7-7.4.2, 31-1.3.5)*

NFPA 15-1985, *Standard for Water Spray Fixed Systems for Fire Protection (7-7.3, 31-1.3.5)*

NFPA 16-1986, *Standard on Deluge Foam-Water Sprinkler and Foam-Water Spray Systems (7-7.3, 31-1.3.5)*

NFPA 17-1985, *Standard for Dry Chemical Extinguishing Systems (7-7.3, 31-1.3.5)*

NFPA 17A-1986, *Standard for Wet Chemical Extinguishing Systems (7-7.3, 31-1.3.5)*

NFPA 20-1987, *Standard for the Installation of Centrifugal Fire Pumps (7-7.3, 31-1.3.5)*

NFPA 22-1987, *Standard for Water Tanks for Private Fire Protection (31-1.3.5)*

NFPA 30-1987, *Flammable and Combustible Liquids Code (6-4.3, 31-1.6)*

NFPA 31-1987, *Standard for the Installation of Oil Burning Equipment (7-2.2)*

NFPA 40-1988, *Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film (8-3.2.2.1, 9-3.2.2.1, 31-2.8)*

NFPA 45-1986, *Standard on Fire Protection for Laboratories Using Chemicals (6-4.4, 10-3.2.4, 11-3.2.4, 31-1.7)*

NFPA 54-1988, *National Fuel Gas Code (7-1.1, 7-2.2)*

NFPA 58-1986, *Standard for the Storage and Handling of Liquefied Petroleum Gases (7-1.1)*

NFPA 70-1987, *National Electrical Code (5-9.2.2, 6-2.4.7, 7-1.2, 7-2.2, 7-6.1.3, 8-4.1.4, 10-4.1.5, 14-5.1.2, 15-5.1.2, 24-4.5.4, 25-4.5.4, 26-4.2.4, 26-4.3.4, 27-4.3.4, 30-8.4.2)*

NFPA 71-1987, *Standard for the Installation, Maintenance, and Use of Signaling Systems for Central Station Service (7-6.1.3, 7-6.4, 31-1.3.5)*

NFPA 72A-1987, *Standard for the Installation, Maintenance, and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm, and Supervisory Service (7-6.1.3, 7-6.3.3, 12-3.4.1.3, 14-3.4.1.3, 15-3.4.1.3, 31-1.3.5)*

NFPA 72B-1986, *Standard for the Installation, Maintenance, and Use of Auxiliary Protective Signaling Systems for Fire Alarm Service (7-6.1.3, 7-6.4, 31-1.3.5)*

NFPA 72C-1986, *Standard for the Installation, Maintenance, and Use of Remote Station Protective Signaling Systems (7-6.1.3, 7-6.4, 31-1.3.5)*

NFPA 72D-1986, *Standard for the Installation, Maintenance, and Use of Proprietary Protective Signaling Systems (7-6.1.3, 7-6.4, 31-1.3.5)*

NFPA 72E-1987, *Standard on Automatic Fire Detectors (5-2.1.8, 6-3.5.2, 6-3.5.3, 7-6.1.3, 7-6.2.7, 7-6.2.8, 18-3.4.4.2, 19-3.4.4.2, 21-3.3.4.8, 31-1.3.5)*

NFPA 72F-1985, *Standard for the Installation, Maintenance, and Use of Emergency Voice/Alarm Communication Systems (7-6.1.3, 26-4.2.3.3, 30-8.3.2, 31-1.3.5)*

NFPA 74-1984, *Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment (7-6.1.3, 7-6.2.9, 31-1.3.5)*

NFPA 80-1986, *Standard for Fire Doors and Windows (5-2.1.14.1, 6-2.3.6, 12-3.6.3.6, 13-3.6.3.6, 31-1.3.5)*

NFPA 82-1983, *Standard on Incinerators, Waste and Linen Handling Systems and Equipment (7-5.2)*

NFPA 88A-1985, *Standard for Parking Structures (16-3.5.3, 18-3.5.8)*

NFPA 90A-1985, *Standard for the Installation of Air Conditioning and Ventilating Systems (6-2.5.1, 7-2.1, 12-3.1.1)*

NFPA 90B-1984, *Standard for the Installation of Warm Air Heating and Air Conditioning Systems (7-2.1)*

NFPA 91-1983, *Standard for the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying (7-2.2)*

NFPA 96-1987, *Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment (7-2.3, 31-1.3.5)*

NFPA 99-1987, *Standard for Health Care Facilities (6-4.4, 12-2.9.2, 12-2.10.2, 12-3.2.2, 12-3.2.3, 12-3.2.4, 12-5.1.2, 12-5.1.3, 12-6.2.9.2, 12-6.3.2.1, 12-6.3.2.2, 13-3.2.2, 13-3.2.3, 13-3.2.4, 13-6.2.9.2, 13-6.3.2.1, 13-6.3.2.2, 31-1.3.5)*

NFPA 101M®-1988, *Manual on Alternative Approaches to Life Safety (21-2.1.4.2, 21-2.3.6.1)*

NFPA 102-1986, *Standard for Assembly Seating, Tents, and Membrane Structures (8-2.5.4.6, 8-2.5.6.9, 8-4.3.1, 9-2.5.4.6, 9-2.5.6.9, 9-4.3.1)*

NFPA 110-1988, *Standard for Emergency and Standby Power Systems (30-8.4.2)*

NFPA 211-1988, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances (7-2.2, 12-5.2.2, 13-5.2.2)*

NFPA 220-1985, *Standard on Types of Building Construction (6-2.1, 6-5.3.4)*

NFPA 241-1986, *Standard for Safeguarding Construction, Alteration, and Demolition Operations (31-1.1.1)*

NFPA 251-1985, *Standard Methods of Fire Tests of Building Construction and Materials (Section 3-2, 6-2.3.5, 12-3.6.2.1, 13-3.6.2.1)*

NFPA 252-1984, *Standard Methods of Fire Tests of Door Assemblies (5-1.3.4, 6-2.3.2, 6-2.3.6, 12-3.6.3.3, 13-3.6.3.3)*

NFPA 253-1984, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source (Section 3-2, 6-5.4.1)*

NFPA 255-1984, *Standard Method of Test of Surface Burning Characteristics of Building Materials (6-5.3.1)*

NFPA 256-1987, *Standard Methods of Fire Tests of Roof Coverings (12-1.6.2, 13-1.6.2, 15-1.6.3, 21-3.1.4.3)*

NFPA 257-1985, *Standard for Fire Tests of Window Assemblies (Section 3-2, 6-2.3.6)*

NFPA 260B-1983, *Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes (31-4.5.5)*

NFPA 701-1977, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films (8-3.2.1.11, 8-4.4.3, 9-3.2.1.11, 9-4.4.3, 31-1.4.1)*

NFPA 703-1985, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials (6-5.6.1, 8-4.4.3, 9-4.4.3)*

NFPA 1221-1988, *Standard for the Installation, Maintenance, and Use of Public Fire Service Communication Systems (7-6.1.3, 31-1.3.5)*

**32-1.2 Other Publications.**

ANSI A14.3-1984, *Safety Code for Fixed Ladders*, American National Standards Institute, 1430 Broadway, New York, NY 10018 (5-2.9.2)

ANSI/ASME A17.1-1987, *Safety Code for Elevators and Escalators*, American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017 (7-4.2, 7-4.4)

ANSI/ASME A17.3-1986, *Safety Code for Existing Elevators and Escalators*, American Society of Mechanical Engineers, 345 East 44th Street, New York, NY 10017 (7-4.3)

ASTM E136-1982, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°F*, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103 (Section 3-2)

ASTM F851-83, *Standard Test Method for Self-Rising Seat Mechanisms*, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103 (8-2.5.4.1, 9-2.5.4.1)

# APPENDIX A

*This Appendix is not a part of the requirements of this NFPA document, but is included for information purposes only.*

The following notes, bearing the same number as the text of the *Life Safety Code* to which they apply, contain useful explanatory material and references to standards.

## CHAPTER 1

**A-1-3.1 Panic.** The *Code* recognizes that panic in a burning building may be uncontrollable, but deals with the potential panic hazard through measures designed to prevent the development of panic. Experience indicates that panic seldom develops, even in the presence of potential danger, so long as occupants of buildings are moving toward exits that they can see within a reasonable distance with no obstructions or undue congestion in the path of travel. However, any uncertainty as to the location or adequacy of means of egress, the presence of smoke, or stoppage of exit travel, such as may occur when one person stumbles and falls on the stairs, may be conducive to panic. Panic danger is greatest when there are numbers of people in a confined area.

**A-1-4.4** In existing buildings it is not always practical to strictly apply the provisions of this *Code*. Physical limitations may require disproportionate effort or expense with little increase in life safety. In such cases the authority having jurisdiction shall be satisfied that reasonable life safety is assured.

In existing buildings it is intended that any condition that represents a serious threat to life be mitigated by application of appropriate safeguards. It is not intended to require modifications for conditions that do not represent a significant threat to life even though the circumstances are not literally in compliance with the *Code*.

**A-1-4.6** The following is an example of what is intended by 1-4.6. In a hospital that has 6-ft (183-cm) corridors, these corridors cannot be reduced in width even though the requirements for existing buildings do not require 6-ft (183-cm) wide corridors. However, if a hospital had 10-ft (3-m) wide corridors they may be reduced to 8 ft (244 cm), which is the requirement for new construction. If the hospital corridor was 3 ft (91 cm) wide it would have to be increased to 4 ft (122 cm). If alterations require replacement of a portion of a hospital corridor wall, this portion of the wall should be increased to 1-hour fire resistance in accordance with the requirements for new construction. However, it would not be required that the corridor width be increased to 8 ft (244 cm) unless it was practical to do so.

**A-1-5.1** It is the intent of the Committee on Safety to Life to recognize that future editions of this *Code* are a further refinement of this edition and earlier editions. The changes in future editions will reflect the continuing input of the fire protection/life safety community in its attempt to meet the goals stated in Chapter 2, Fundamental Requirements.

**A-1-6.3** Fatal fires have occurred when a required stairway has been closed for repairs or removed for rebuilding, when a required automatic sprinkler system has been shut off to change piping, etc.

**A-1-6.4** Examples of changes from one occupancy subclassification to another subclassification of the same occupancy could include a change from a Class C to a Class B assembly occupancy or a change from a Class B to a Class A mercantile occupancy. Hospitals and nursing homes are both health care occupancies and are defined separately but are not established as separate suboccupancies, thus a change from one to the other does not constitute a change of occupancy subclassification.

Hotels and apartments, although both are residential occupancies, are treated separately, and a change from one to the other constitutes a change of occupancy.

## CHAPTER 2

**A-2-1** It is not always necessary to completely evacuate the building or structure to escape from a fire or other emergency. An area of refuge formed by horizontal exits, smoke barriers, other floors, or like compartmentation often can serve as a place for the occupants to remain in relative safety until the emergency is over. In those occupancies where access to the exits is by way of enclosed corridors, particularly those occupancies with sleeping occupants, a single fire may block access to all exits, including horizontal exits and smoke barriers. In such cases, the occupants may achieve a greater degree of safety by remaining in their rooms.

**A-2-10** The provisions of this *Code* will not necessarily provide a building suitable for use by physically handicapped people. Reference is made to ANSI A117.1, *Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped.* (*See Appendix B.*)

## CHAPTER 3

**A-3-2 Approved.** The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment or materials, nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations that is in a position to determine compliance with appropriate standards for the current production of listed items.

**A-3-2 Authority Having Jurisdiction.** The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner since jurisdictions and "approval" agencies vary, as do their responsibilities. Where public safety is primary, the "authority having jurisdiction" may be a federal, state, local, or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department rating bureau or other insurance company representative may be the "authority having jurisdiction." In many circumstances, the property owner or his designated agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

**A-3-2 Fire Compartment.** In the provisions of fire compartments utilizing the outside walls of a building, it is not intended that the outside wall be specifically fire resistance rated unless required by other standards. Likewise it is not intended for outside windows or doors to be protected unless specifically required for exposure protection by another section of this *Code* or by other standards.

**A-3-2 High Rise Building.** It is the intent of this definition that in determining the level from which the highest occupiable floor is to be measured, the enforcing agency should exercise reasonable judgment, including consideration of overall accessibility to the building by fire department personnel and vehicular equipment. Where a building is situated on a sloping terrain and there is building access on more than one level, the enforcing agency may select the level which provides the most logical and adequate fire department access.

**A-3-2 Limited Combustible.** See NFPA 259, *Standard Test Method for Potential Heat of Building Materials* and NFPA 220, *Standard Types of Building Construction.* (*See Appendix B.*)

**A-3-2 Smoke Compartment.** In the provision of smoke compartments utilizing the outside walls or the roof of a building, it is not intended that outside walls or roofs or any openings therein be capable of resisting the passage of smoke.

## CHAPTER 4

**A-4-1.2** Such occupancies are characterized by the presence or potential presence of crowds with attendant panic hazard in case of fire or other emergency. They are generally open to the public, or may on occasion be open to the public, and the occupants, present voluntarily, are not ordinarily subject to discipline or control. Such buildings are ordinarily occupied by able-bodied persons and are not used for sleeping purposes. The need for alternate exit routes for small commercial places of assembly, such as restaurants, lounges, theaters, etc., with capacities of as few as 50 persons, is specially treated in this method of classification. Special conference rooms, snack areas, etc., incidental to and under the control of the management of other occupancies, such as offices, fall under the 50-person limitation.

**A-4-1.3** Educational occupancy is distinguished from assembly in that the same occupants are regularly present and they are subject to discipline and control.

**A-4-1.7** Office, storage, and service facilities incidental to the sale of merchandise and located in the same building are included with mercantile occupancy.

**A-4-1.8** Doctors' and dentists' offices are included unless of such character as to be classified as hospitals. Service facilities usual to city office buildings such as newsstands, lunch counters serving less than 50 persons, barber shops, and beauty parlors are included in this occupancy group.

City halls, town halls, and court houses are included in this occupancy group insofar as their principal function is the transaction of public business and the keeping of books and records. Insofar as they are used for assembly purposes, they are classed as assembly occupancies.

**A-4-1.10** Storage properties are characterized by the presence of relatively small numbers of persons in proportion to the area; any new use that increases the number of occupants to a figure comparable with other classes of occupancy changes the classification of the building to that of the new use.

**A-4-2.1.3** Under this provision, any violation of the requirements of Chapters 8 through 30 for separation or protection of hazardous operation or storage would inherently involve violation of the other sections of the *Code* unless additional exit facilities appropriate to high hazard contents were provided.

**A-4-2.2.1** These classifications do not apply to the application of sprinkler protection classifications. (*See NFPA 13, Installation of Sprinkler Systems.*) (*See Appendix B.*)

**A-4-2.2.2** Chapter 29, Storage Occupancies, recognizes storage of noncombustible materials as low hazard. In other occupancies it is assumed that even where the actual contents hazard may normally be low, there is sufficient likelihood that some combustible material or hazardous operations will be introduced in connection with building repair or maintenance, or that some psychological factor might create conditions conducive to panic, so that the exit facilities cannot safely be reduced below those specified for ordinary hazard contents.

**A-4-2.2.3** This classification represents the conditions found in most buildings and is the basis for the general requirements of this *Code.*

The fear of poisonous fumes or explosions is necessarily a relative matter to be determined on a judgment basis. All smoke contains some toxic fire gases, but under conditions of ordinary hazard there should be no unduly dangerous exposure during the period necessary to escape from the fire area, assuming there are proper exits.

**A-4-2.2.4** High hazard contents may include occupancies where gasoline and other flammable liquids are handled or used or are stored under conditions involving possible release of flammable vapors; where grain dust, wood flour or plastic dusts, aluminum or magnesium dust, or other explosive dusts may be produced; where hazardous chemicals or explosives are manufactured, stored, or handled; where cotton or other combustible fibers are processed or handled under conditions producing flammable flyings; and other situations of similar hazard.

Chapter 28, Industrial Occupancies, and Chapter 29, Storage Occupancies, include detailed provisions on high hazard contents.

## CHAPTER 5

**A-5-1.1.1** Portable ladders, rope fire escapes, and similar emergency escape devices may have a useful function in facilitating escape from burning buildings lacking adequate exits of the stair or other standard type, but they are not the equivalent of standard exits, and their use is not in any way recognized by this *Code* as satisfying the requirements for means of egress. Furthermore, many such devices are of types quite unsuited to use by aged or infirm persons or by small children. Therefore, such devices may give a false sense of security and should not be made an excuse for not providing standard exit facilities.

**A-5-1.2.3** In the case of a stairway, the exit includes the door to the stairway enclosure, stairs and landings inside the enclosure, the door from the stairway enclosure to the street or open air, or any passageway and door necessary to provide a path of travel from the stairway enclosure to the street or open air. In the case of a door leading directly from the street floor to the street or open air, the exit comprises only the doorway.

Doors of small individual rooms, as in hotels, while constituting exit access from the room, are not referred to as exits except when they lead directly to the outside of the building or other place of safety.

**A-5-1.2.5** Horizontal exits should not be confused with egress through doors in smoke barriers. Doors in smoke barriers are designed only for temporary protection against smoke, whereas horizontal exits provide protection against serious fire for a relatively long period of time in addition to providing immediate protection from smoke.

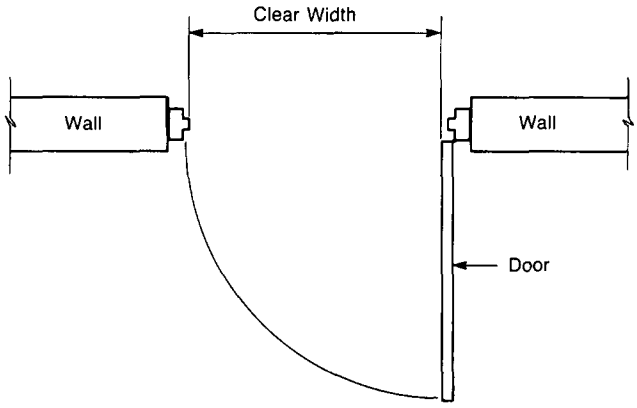
**A-5-1.3.4** The purpose of a tight-fitting door is to control the flow of smoke. The tight fit can be achieved by close attention to tolerances or by supplemental means. In no case should the "crack dimensions" exceed the maximum tolerances allowed in NFPA 80, *Standard for Fire Doors and Windows.* (*See Appendix B.*) (*Also see NFPA 105, Recommended Practice for the Installation of Smoke- and Draft-Control Door Assemblies.*)

**A-5-1.6.2** Aside from the problems created for persons with mobility disabilities, small changes of elevations of floors are best avoided because of the increased occurrence of missteps where the presence of single steps or a series of steps is not readily apparent. A contrasting marking stripe on each stepping surface may be provided at the nosing or leading edge such that the location of each step is readily apparent, especially when viewed in descent. Such stripes should be at least 1 in. (2.5 cm) but not more than 2 in. (5.0 cm) in width. Other methods could include lighting of each tread, contrasting colors, contrasting textures, a combination thereof, or other similar means. The construction or application of marking stripes should be such that slip resistance is consistent over the walking surface, and no tripping hazard is created. (*See also A-5-2.2.4.4.*) Depending on the distractions of the surroundings, the familiarity of users with a particular small change of level, and the number of people that might be in a group traversing the change of level (thereby reducing visibility of the level changes), additional warning measures might be needed to make sure that everyone's attention is drawn to such ramps, platforms, and steps, especially for descent. These measures include prominent handrails within reach of users, warning signs, highlighting each step by illumination.

**A-5-1.7.3** Means of egress must permit unobstructed travel at all times. Any type barrier including, but not limited to, the accumulations of snow and ice in those climates subject to such accumulations is an impediment to free movement in the means of egress.

**A-5-2.1.2.1** Figure A-5-2.1.2.1 illustrates the difference in measuring the width of doors in new and existing buildings.

In New Buildings the Actual Net Unobstructed Width of the Door Opening is Measured




Door Stop and Hinge Stile Projections are Disregarded in Determining Width in Existing Buildings.

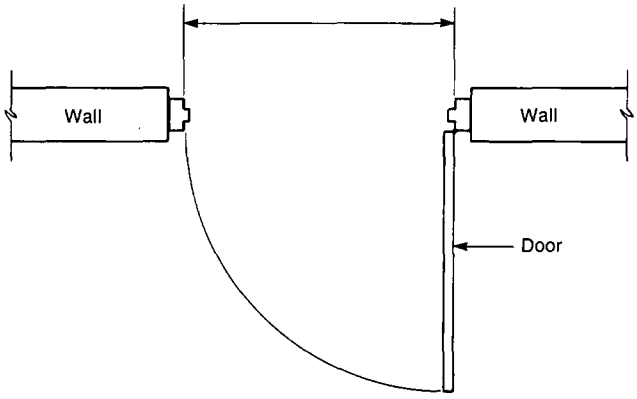



**Figure A-5-2.1.2.1**

**A-5-2.1.4.1** Where doors are subject to two-way traffic, or where their opening may interfere with pedestrian traffic, an appropriately located vision panel can reduce the chance of accidents.

**A-5-2.1.4.2** This section is not intended to apply to the swing of cross corridor doors such as smoke barrier doors and horizontal exits.

**A-5-2.1.5.2** This arrangement makes it possible to leave the stairway at such floor should the fire render the lower part of the stair unusable during egress or should the occupants seek refuge on another floor.

**A-5-2.1.5.3** This requirement may be satisfied by the use of conventional types of hardware, whereby the door is released by the turning of a knob or handle, or pushing against a panic bar, but not by unfamiliar methods of operation such as a blow to break glass.

**A-5-2.1.6.2** In the event that the authority having jurisdiction has allowed increased operation time, the sign should reflect the appropriate time.

**A-5-2.2.2.1** It is the intent of 5-2.2.2.1 to use the table "Existing Stairs" in existing buildings even when there is a change in occupancy per 1-6.4.

**A-5-2.2.2.2** A small drainage slope for stair treads subject to wetting may improve tread slip resistance. (*See also A-5-2.2.4.4.*) A consistent slope to a side of the stair, where drainage is possible, may be preferable to a front-to-back slope of the treads.

**A-5-2.2.2.3** Figures A-5-2.2.2.3(a), (b), (c), and (d) illustrate the method for measuring riser height and tread depth. Stairs that will be covered with resilient floor coverings may need additional tread depth beyond the minimum specified in the *Code*. Any horizontal projection of resilient covering materials, such as carpet and underlayment, beyond the tread nosing and riser, can interfere with users' feet and thereby reduces usable tread depth. At the tread nosing, such resilient covering materials may not be capable of providing stable support for users' feet. Generally, effective tread depth is reduced by the uncompressed thickness of such resilient coverings and might be further reduced, over time, if coverings are not well secured and move forward at the nosings. [*See Figure A-5-2.2.2.3(e).*]

RISER MEASUREMENTS:

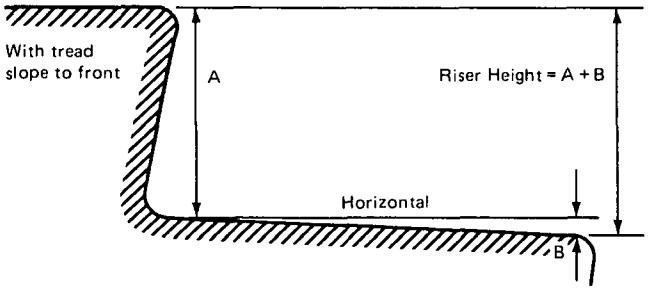



**Figure A-5-2.2.2.3(a)**

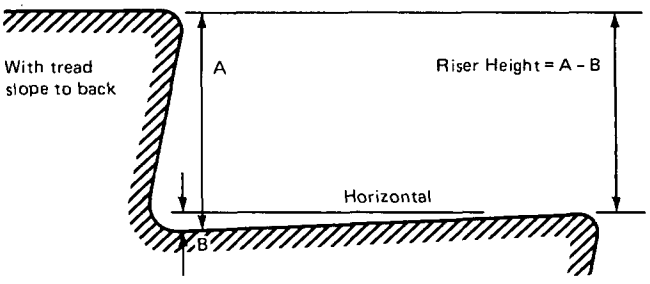



**Figure A-5-2.2.2.3(b)**

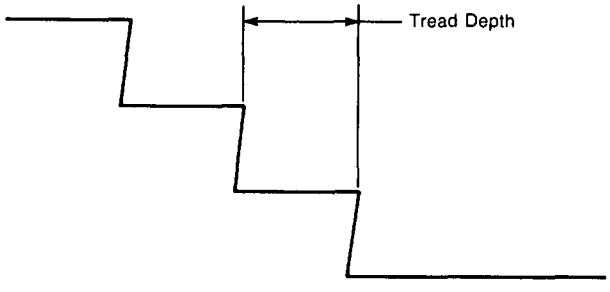



**Figure A-5-2.2.2.3(c)**

TREAD MEASUREMENTS:

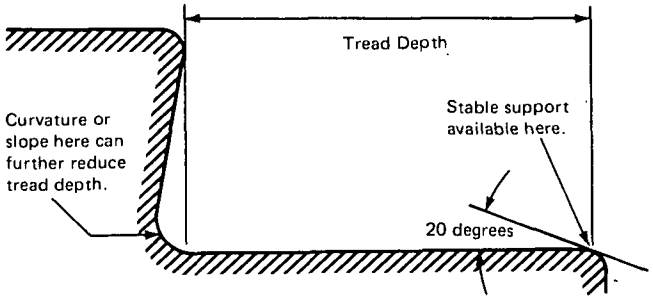



**Figure A-5-2.2.2.3(d)**

CARPETED STAIR:

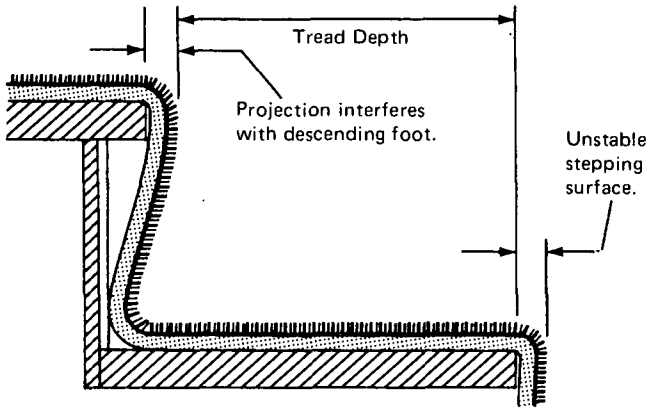



**Figure A-5-2.2.2.3(e)**

**A-5-2.2.3.2** The purpose of this *Code* section is to protect the exterior wall of a stairway from fires in other portions of the building. If the exterior wall of the stair is flush with the building exterior wall, the fire would need to travel around 180 degrees in order to impact the stair. This has not been a problem in existing buildings, so no protection is required. However, if the angle of exposure is less than 180 degrees, protection of either the stair wall or building wall is required.

The following diagrams illustrate the requirement (assuming nonrated glass on exterior wall of stair).

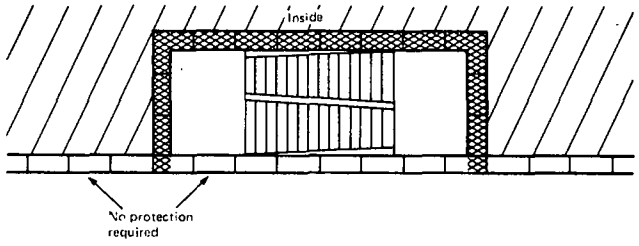



**Figure A-5-2.2.3.2(a)**

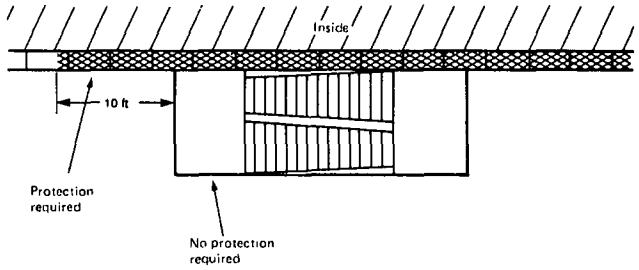



**Figure A-5-2.2.3.2(b)**

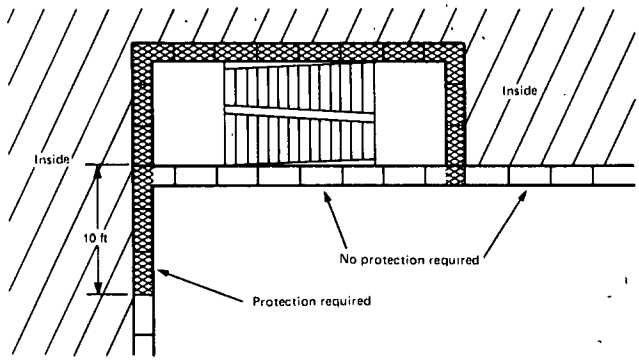



**Figure A-5-2.2.3.2(c)**

**A-5-2.2.4.4** The tripping hazard referred to in 5-2.2.4.4 occurs especially during descent where the tread walking surface has projections such as strips of high friction materials or lips from metal pan stairs that are not completely filled with concrete or other material. Tread nosings that project over adjacent treads can also be a tripping hazard. ANSI A117.1 (*see Appendix B*) illustrates projecting nosing configurations that minimize the hazard.

Regarding the slip resistance of treads, it should be recognized that when walking up or down stairs a person's foot exerts a smaller horizontal force against treads than achieved when walking on level floors. Therefore, materials that are acceptable as slip resistant used for floors (as described by ASTM) provide adequate slip resistance where used for stair treads, including the important leading edges of treads — the part of the tread that the foot first contacts during descent, the most critical direction of travel. If stair treads are wet there may be an increased danger of slipping, just as there may be an increased danger of slipping on wet floors of similar materials. A small wash or drainage slope on exterior stair treads is therefore recommended to shed water. [*See NBS BSS 120, p. 33.*] Where environmental conditions (such as illumination levels and directionality or a complex visual field drawing a person's attention away from stair treads) lead to a hazardous reduction in one's ability to perceive stair treads, they should be made of a material that permits ready discrimination of the number and position of treads. In all cases, the leading edges of all treads should be readily visible during both ascent and descent. A major factor in injury-producing stair accidents and in the ability to use stairs efficiently in conditions such as egress is the clarity of the stair treads as separate stepping surfaces.

**A-5-2.2.5.2** The guards that are required by 5-2.2.6 will usually meet this requirement where the stair is not more than three stories high. Special architectural treatment, including application of such devices as metal or masonry screens and grilles, will usually be necessary to comply with the intent of the requirements for stairs over three stories in height.

**A-5-2.2.6.2** The intent of this provision is to place handrails for the required exit width of stairs only regardless of the actual width of the stairs. The required exit width is along the natural path of travel to and from the building. Examples of this requirement are shown in Figure A-5-2.2.6.2. A reduced intermediate handrail spacing of approximately 60 in. (152 cm), along with a handrail height at the upper limit of permissible heights, is recommended in public assembly, educational and similar occupancies where crowds of people must simultaneously use a stair for normal access and egress as well as for emergency egress. This permits everyone to reach and grasp one handrail. Except as noted in 5-2.2.6.3 and 5-2.2.6.5, handrails are not required on stair landings.

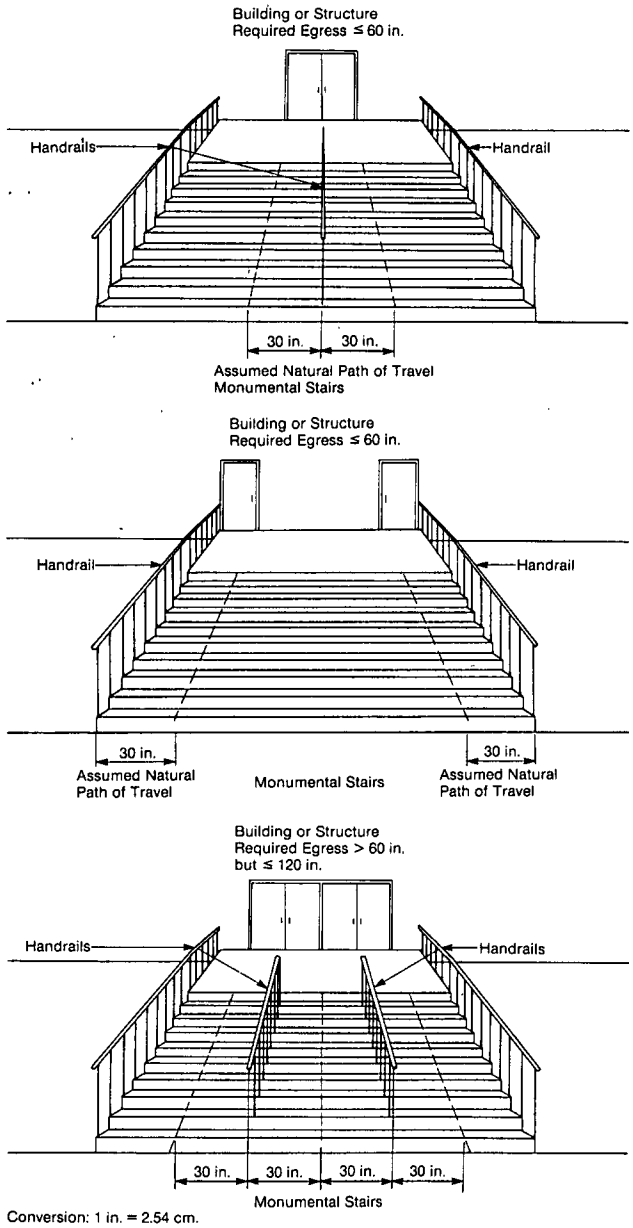



**Figure A-5-2.2.6.2**

**A-5-2.2.6.5** Aisle stairs forming part of a required means of egress should be provided with handrails located along the centerline of such aisles or at one side of such aisle. Center aisle handrails may be made up of short sections, with returns to the stair, and with the resulting gaps not greater than 36 in. (91 cm) measured horizontally.

**A-5-2.2.6.5(a) Exception No. 2** On stairs that will be used extensively by children 5 years of age or younger, additional handrails at a height of approximately 24 in. (61 cm) are recommended.

**A-5-2.2.6.5(b)** This 1½-in. (3.8-cm) clearance assumes that the wall adjacent to the handrail is a smooth surface. Where rough wall surfaces are used, greater clearances are recommended.

**A-5-2.2.6.5(c)** Handrails should be designed so that they can be grasped firmly with a comfortable grip, and so that the hand can be slid along the rail without encountering obstructions. The profile of the rail should comfortably match the hand grips. For example, a round profile such as is provided by the simplest round tubing or pipe having an outside diameter of 1½ to 2 in. (3.8 to 5 cm) provides good graspability for adults. Factors such as the use of a handrail by small children and the wall-fixing details should be taken into account in assessing handrail graspability. The most functional as well as the most preferred handrail shape and size is circular with a 1.5 in. (3.8 cm) outside diameter (according to research with adults). Handrails used predominantly by children should be designed at the lower end of the permitted dimensional range.

It should be noted that handrails are one of the most important components of a stair; therefore, design excesses such as oversized wood handrail sections should be avoided unless there is a readily perceived and easily grasped handhold provided. At all times in handrail design it is useful to remember the effectiveness of a simple round profile that permits some locking action by fingers as they curl around the handrail.

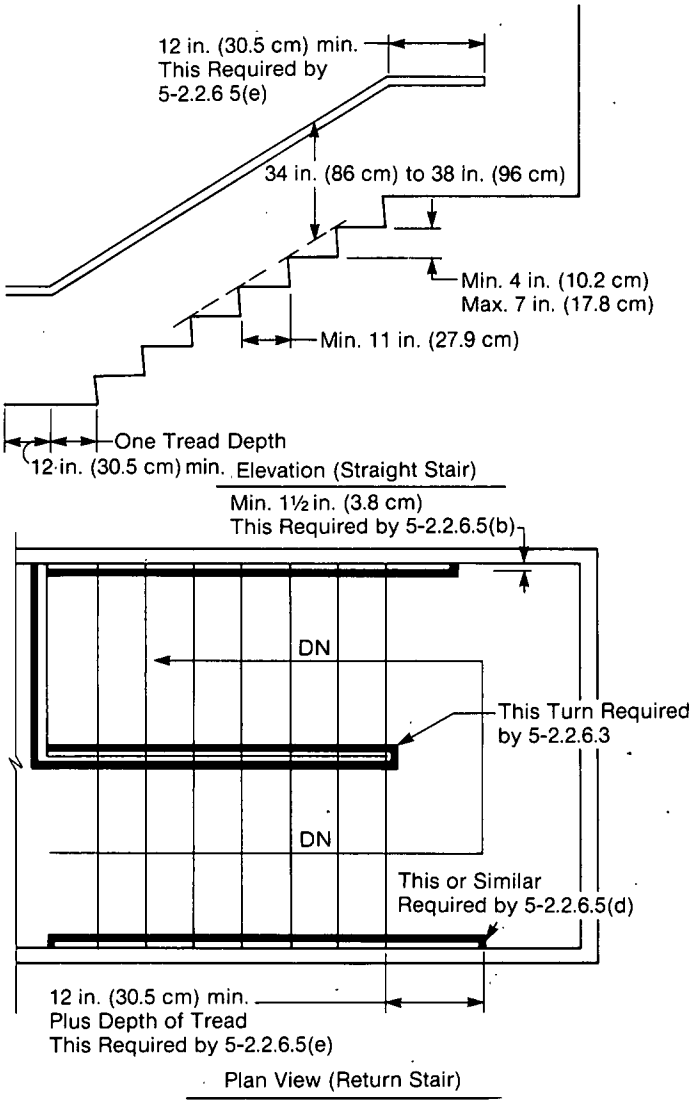



**Figure A-5-2.2.6.5(e)**

**A-5-2.2.6.5(e)** Figure A-5-2.2.6.5(e) illustrates some of the requirements of 5-2.2.6.5.

**A-5-2.3.2** For further guidance see:

(1) ASHRAE *Handbook of Fundamentals* (*see Appendix B*).

(2) *Design of Smoke Control Systems for Buildings*, by Klote and Fothergill. (*See Appendix B.*)

(3) NFPA 105, *Recommended Practice for the Installation of Smoke- and Draft-Control Door Assemblies*. (*See Appendix B.*)

**A-5-2.4.1** Example: One way to provide the required exit capacity from the upper floor of a department store building 350 ft by 200 ft (107 m by 60 m) (occupant load 1166 per floor) would be to furnish eight 44-in. (112-cm) stairs. [*See Figure A-5-2.4.1(a).*]

Assume now that this building is divided into two sections by a fire wall meeting the requirements for a horizontal exit, one 130 ft by 200 ft (40 m by 60 m) and the other 220 ft by 200 ft (67 m by 60 m), with two pairs of 44-in. (112-cm) double egress doors, with each door providing 44-in. (112-cm) of egress width [*see Figure A-5-2.4.1(b)*]. The smaller section, considered separately, will require the equivalent of three 44-in. (112-cm) stairs and the larger section will require five such exits. The horizontal exits will serve as one of the three exits required for the smaller section and two of the five exits required for the larger section. Therefore, only two 44-in. (112-cm) stairs from the smaller section and three 44-in. (112-cm) stairs from the larger section will be required, if the exits can be arranged to meet the requirements for the 150-ft (45-m) travel distance allowed from any point in a sprinklered building. Thus, the total number of stairs required for the building will be five, as compared with eight if no horizontal exit had been provided.

Another option would be the use of two 56-in. (142-cm) stairs from the larger section, which would reduce the total number of stairways required from the floor to four [*see Figure A-5-2.4.1(c)*]. However, if the building were further subdivided by a second fire wall meeting the requirements for a horizontal exit, no further reduction in stairways would be permitted in order not to exceed the maximum one-half of exiting via horizontal exits.

**A-5-2.4.3.3** Fusible link actuated automatic-closing doors do not qualify as horizontal exits under these provisions, as smoke might pass through the opening before there is sufficient time to release the hold-open device.

Such doors are also subject to the objection that once closed they are difficult to open and would inhibit orderly egress.

**A-5-2.4.3.5** For further information see NFPA 105, *Recommended Practice for the Installation of Smoke- and Draft-Control Door Assemblies (see Appendix B).*

**A-5-2.5.3.4** This is to prohibit closets and similar spaces under ramps within the enclosure. It is not to be interpreted to prohibit an enclosed ramp beneath another flight.

**A-5-2.5.3.5** The guards required by 5-2.2.6 for the unenclosed sides of ramps will usually meet this requirement where the ramp is not more than three stories high. Special architectural treatment, including application of such devices as metal or masonry screens and grilles, will usually be necessary to comply with the intent of the requirements for ramps over three stories in height.

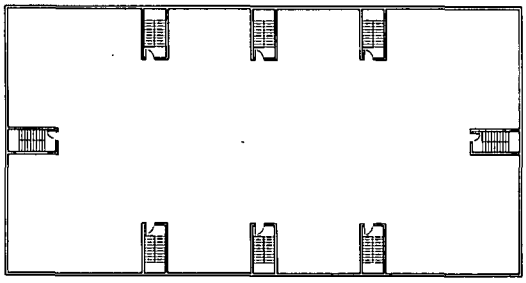


**Figure A-5-2.4.1(a) Eight Exits, None Via Horizontal Exit, Required to Provide the Necessary Egress Capacity.**

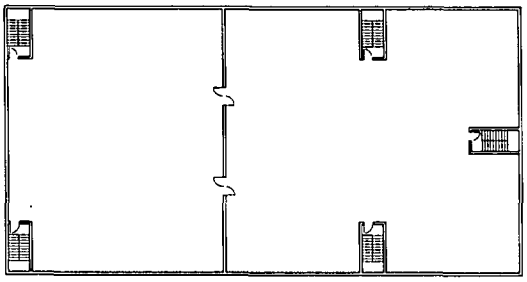


**Figure A-5-2.4.1(b) Number of Stairs Reduced by Three Through Use of Two Horizontal Exits; Same Egress Capacity Provided.**

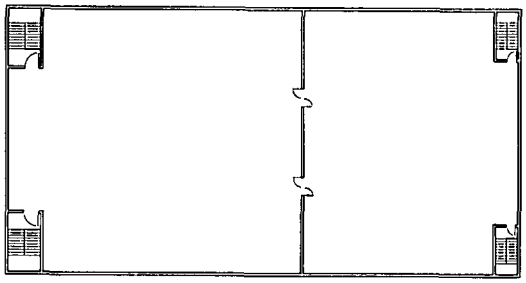


**Figure A-5-2.4.1(c) Number of Stairs Further Reduced, by Widening Stairs in Larger Compartment, but Not to Less Than One-Half the Required Number and Capacity of Exits from that Compartment.**

**A-5-2.6** An exit passageway serves as a horizontal means of exit travel that is protected from fire in a manner similar to an enclosed interior exit stair. Where it is desired to offset exit stairs in a multistory building, an exit passageway can be used to preserve the continuity of the protected exit by connecting the bottom of one stair to the top of the other stair that continues to the street floor. Probably the most important use of an exit passageway is to satisfy the requirement that exit stairs shall discharge directly outside from multistory buildings. Thus, if it is impractical to locate the stair on an exterior wall, an exit passageway can be connected to the bottom of the stair to convey the occupants safely to an outside exit door. In buildings of extremely large area, such as shopping malls and some factories, the exit passageway can be used to advantage where the distance of travel to reach an exit would otherwise be excessive.

**A-5-2.8.7** Swinging stairs, although superior to fire escape ladders, are generally unsatisfactory for even emergency use. Although they are permitted by this *Code*, they should not be used where it is reasonably possible to terminate the fire escape stair at the ground.

**A-5-2.8.7.9** A latch is desirable to hold swinging stairs down after they have swung to the ground.

**A-5-2.11** Special consideration should be given prior to the application of such devices where children, the elderly, or physically disabled persons may have to utilize such devices. These devices present obstacles in ascent and descent that differ from stairs and ladders.

**A-5-3.1.1** It is important that the distribution of exit capacity among the exits approximates the normal occupant load distribution when the building is occupied to its capacity.

**A-5-3.1.2** The design of the normal occupant load is not necessarily a suitable criterion, as the greatest hazard may occur when an unusual crowd is present, a condition often difficult for authorities having jurisdiction to control by regulatory measures. The principle of this *Code* is to provide exits for the maximum probable number of occupants, rather than to attempt to limit the number of occupants to a figure commensurate with available exits; there are, however, limits of occupancy specified in certain special cases for other reasons.

The following table represents a compilation of the occupant load factors specified by the individual occupancies of Chapters 8 through 30.

**Occupant Load Factors**

| Use | Sq Ft | Sq M |
|---|---|---|
| Assembly | | |
| Less concentrated use without fixed seating | 15 net | 1.4 |
| Concentrated use without fixed seating | 7 net | .65 |
| Waiting space | 3 net | .28 |
| Library — stack areas | 100 gross | 9.3 |
| Library — reading areas | 50 net | 4.6 |
| Mercantile | | |
| Street floor and sales basement | 30 gross | 2.8 |
| Multiple street floors — each | 40 gross | 3.7 |
| Other floors | 60 gross | 5.6 |
| Storage, shipping | 300 gross | 27.9 |
| Malls | See 24-1.7.1 | |
| Educational | | |
| Classroom area | 20 net | 1.9 |
| Shops and other vocational areas | 50 net | 4.6 |
| Day-care centers | 35 net | 3.3 |
| Business (offices), industrial | 100 gross | 9.3 |
| Hotel and apartment | 200 gross | 18.6 |
| Health care | | |
| Sleeping departments | 120 gross | 11.1 |
| Inpatient treatment departments | 240 gross | 22.3 |
| Detention and correctional | 120 gross | 11.1 |

These figures, based on counts of typical buildings, represent the average maximum density of occupancy.

**A-5-3.2** For further information on stair capacity, see Chapter 2 of NFPA 101M, *Alternative Approaches to Life Safety (see Appendix B)*.

**A-5-5.1.2** See A-5-5.1.6.

**A-5-5.1.4** The following diagrams illustrate the method of measurement intended by 5-5.1.4.