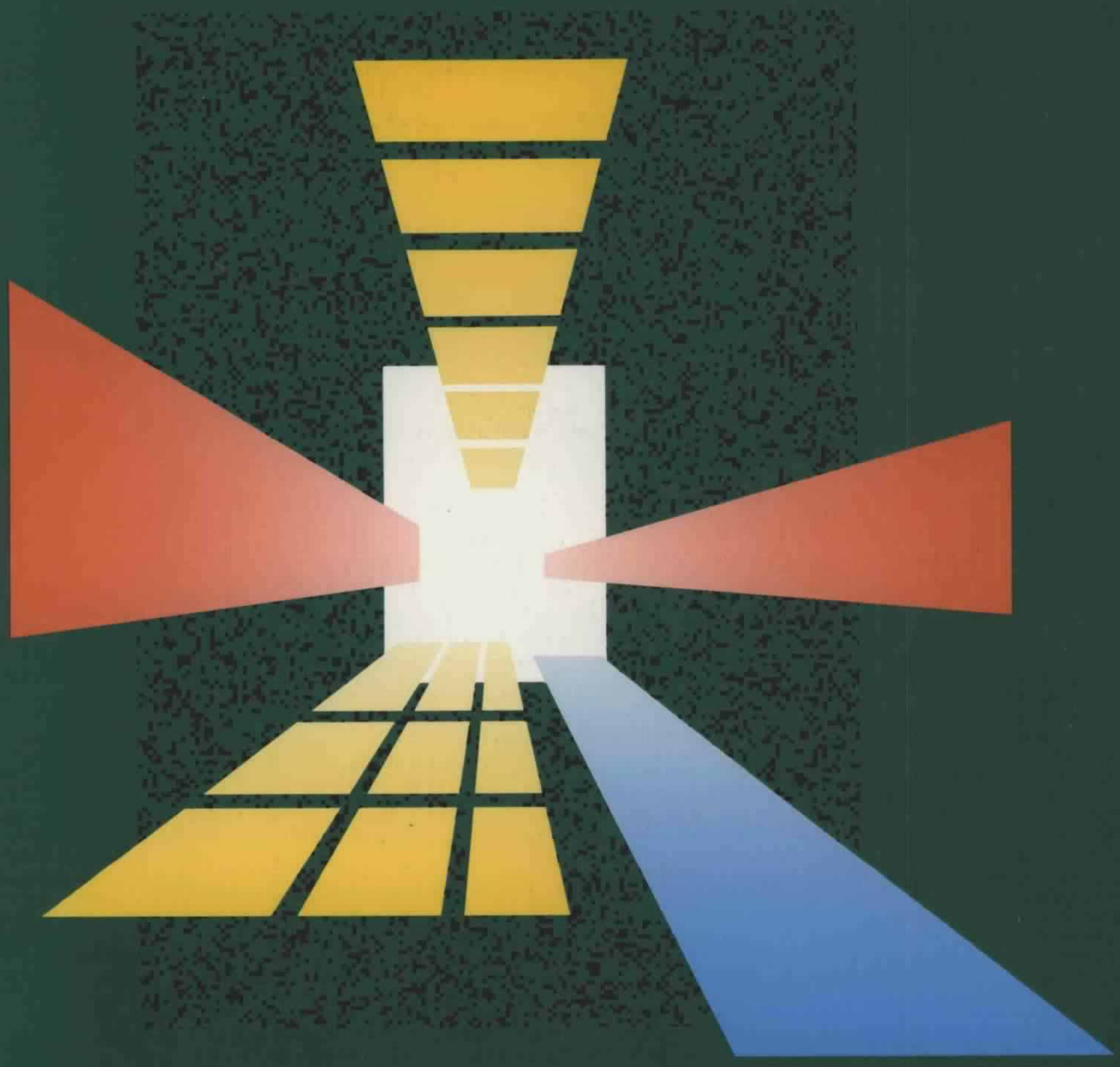
NFPA 101®

LIFE SAFETY CODE®

1991



National Fire Protection Association
1 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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NFPA *101*®

Code for Safety to Life from Fire in Buildings and Structures

1991 Edition

This 1991 Edition of the *Life Safety Code*® was adopted by the National Fire Protection Association on November 14, 1990 at its 1990 Fall Meeting in Miami, Florida. It was issued by the Standards Council on January 11, 1991 with an effective date of February 8, 1991. This 1991 edition supersedes the 1988 Code and all other previous editions.

Major changes for this edition include but are not limited to: Revisions to guard heights and locations as well as the opening sizes in handrails and guards; modifications regarding the continuity of horizontal exits and duct penetration in horizontal exits; new provisions for areas of refuge with mandates for areas of refuge in assembly and educational occupancies; modifications to the emergency lighting illumination levels; new material on egress requirements for mechanical equipment, boiler, and furnace rooms; a reorganization of the requirements for fire barriers; new provisions for mezzanines in Chapters 5 and 6; reorganization of the requirements for hazardous areas in Section 6-4 and rewrites of hazardous area requirements for Chapters 14, 15, 16, 17, 18, and 19; revisions to aisles in Chapters 8 and 9 for clarity as well as including specific provisions for aisle accessways; revisions for the requirements of exhibit booths in Chapters 8 and 9; mandate for automatic sprinklers in all new health care facilities (including the use of quick response or residential sprinklers in patient sleeping zones); revisions to the door latching requirements in both new and existing health care occupancies; a mandate for automatic sprinklers in all new hotels and apartments as well as all existing high-rise hotels and apartments with some exceptions; a mandate for all new board and care facilities to be sprinklered and for all new lodging and rooming houses to be sprinklered with some exceptions; splitting the requirements for board and care facilities into a chapter for new and a chapter for existing and renumbering board and care to be Chapters 22 and 23; moving one- and two-family dwellings from Chapter 22 to Chapter 21; a complete cleanup of the requirements for the means of escape in one- and two-family dwellings as well as recognition in hotels and apartment buildings that apartments and guest rooms meet means of escape requirements rather than means of egress requirements; new provisions for combined mercantile and parking structures; revisions to shopping mall egress capacity figures; complete revisions to the requirements for contents and furnishings in Chapter 31. All significant changes and requirements have been identified by a vertical line in the margin.

This 1991 Edition has been approved by the American National Standards Institute.

Notice

Following issuance of this 1991 edition of NFPA *101®*, *Life Safety Code®*, by the NFPA Standards Council, certain appeals were filed with the NFPA Board of Directors.

The appeals request the following:

1. That revised 5-10.4.1.2 covering the performance requirements for directional indicators be returned to the specification requirements in the 1988 edition of the *Code* for arrow designators.

2. That proposed 12-3.4.5.2, as published in Proposal 101-422 in the 1990 NFPA Fall Meeting Technical Committee Reports, be added to the *Code*. This would require that patient sleeping rooms be provided with a smoke detector in accordance with 7-6.2.9 connected to the building electrical service and that such detectors provide an audible and visual alarm at the nursing station attending that room.

3. That new Exception No. 2 to 12-3.7.3 and 13-3.7.3, indicating that smoke dampers in duct penetrations of smoke barriers in fully ducted HVAC systems are not required where an approved supervised automatic sprinkler system has been provided, be deleted from the *Code*.

NFPA will announce the dispositions of the appeals when they have been determined. Anyone wishing to receive automatically the dispositions of the appeals should notifiy in writing the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA, 02269-9101.

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

In 1977 the Committee on Safety to Life was reorganized as a Technical Committee with an Executive Committee and standing subcommittees responsible for various chapters and sections. The 1981 edition contained major editorial changes including reorganization within the occupancy chapters to make them parallel to each other, and the splitting of requirements for new and existing buildings into separate chapters. 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 contained a major change in the method of determining egress capacity with the deletion of the traditional units of exit width and the substitution of a straight linear approach to calculating egress capacity. Also, revisions to the method of measuring travel distance, 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 were moved from NFPA 101 into a new document, NFPA 101M.

The 1991 edition contains numerous new requirements for mandatory sprinklers in new health care facilities, hotels, apartment buildings, lodging and room houses, and board and care facilities, as well as mandatory sprinkler requirements for existing high-rise hotels and apartment buildings. The requirements for board and care facilities were split into two chapters: Chapter 22 for new and Chapter 23 for existing. New criteria for mezzanines have been added, as well as new requirements for contents and furnishings.

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

NFPA *101®*

Code for Safety to Life from Fire in Buildings and Structures

1991 Edition

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

Information on referenced publications can be found in Chapter 32 and Appendix B.

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 firesafety 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 Where 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 OBJECTIVE

1-4.1* The objective of this *Code* is to provide a reasonable level of safety by reducing the probability of injury and loss of life from the effects of fire and other emergencies having the potential for similar consequences with due consideration for functional requirements. This objective is accomplished within the context of the physical facilities, type of activities undertaken, the provisions for the capabilities of the staff, and the needs of all occupants. The level of safety is defined by the combination of prevention, protection, egress, and other features enumerated in the individual occupancy chapters.

SECTION 1-5 APPLICATION

1-5.1 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.

1-5.2 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.

1-5.3 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*.

1-5.4* 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.

1-5.5 Additions. Additions shall conform to the provisions for new construction.

1-5.6* 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.

1-5.7 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.

1-5.8 Where specific requirements contained in Chapters 8 through 30 differ from general requirements contained in Chapters 1 through 7, the requirements of Chapters 8 through 30 shall govern.

1-5.9 Provisions in Excess of Code Requirements. Nothing in this *Code* shall be construed to prohibit a better type of building construction, additional exits, or otherwise safer conditions than are specified by the minimum requirements of this *Code*.

SECTION 1-6 EQUIVALENCY CONCEPTS

1-6.1* 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 as alternatives 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.

1-6.2 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 that which, in the judgment of the authority having jurisdiction, would be provided by compliance with the corresponding provisions contained in this *Code*.

1-6.3 Buildings with alternative fire protection features accepted by the authority having jurisdiction shall be considered as conforming with the *Code*.

SECTION 1-7 OCCUPANCY

(*See also Section 31-1.*)

1-7.1 No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*.

1-7.2 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.

1-7.3* 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.

1-7.4* 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, shall be permitted only if such building or structure conforms with the requirements of this *Code* applying to new construction for the proposed new use.

SECTION 1-8 MAINTENANCE

(*See also Section 31-1.*)

1-8.1 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 and other safeguards sufficient to permit the prompt escape of occupants or furnish other means to provide a reasonable degree of safety for 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 or for that period of time needed to defend in place in case of fire or other emergency.

2-3 Every building or structure shall be provided with exits and other safeguards of kinds, numbers, locations, and capacities appropriate to the individual building or structure, with due regard to the character of the occupancy, the capabilities of the occupants, the number of persons exposed, the fire protection available, the height and type of construction of the building or structure, and other factors necessary to provide all occupants with a reasonable degree of safety.

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. Exits shall be accessible to the extent necessary to assure reasonable safety for occupants having impaired mobility.

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 every exit 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 emergency procedures. 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, and area where their size, occupancy, and arrangement endanger occupants attempting to use a single means of egress that is blocked by fire or smoke. The two means of egress shall be arranged to minimize the possibility that both may be rendered 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

Accessible Area of Refuge. (*See Section 5-1.*)

Accessible Means of Egress. Accessible means of egress is a path of travel that is usable by a person with a severe mobility impairment and that leads to a public way or an area of refuge.

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

Aisle Accessway. (*See Section 8-1 or 9-1.*)

Ambulatory Health Care Centers. (*See Section 12-1 or 13-1.*)

Anchor Store. (*See Section 25-1.*)

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

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

Area. See Floor Area.

Area of Refuge.* An area of refuge is an accessible space protected from fire or smoke, separated from all other spaces in the same building or an adjacent building that permits a delay in egress travel from any level.

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 and Section 8-1 or 9-1.*)

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 22-1 or 23-1.*)

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.

Covered Mall. (*See Section 25-1.*)

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 (W/cm^2).

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

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

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

Direct Exit. (*See Section 14-1 or 15-1.*)

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

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

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

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

Evacuation Capability. (*See Section 22-1 or 23-1.*)

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

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

Existing. That which is already in existence on the date when this *Code* goes into effect, such 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. Exits include exterior exit doors, exit passageways, horizontal exits, and separated exit stairs or ramps.

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

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

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

Exposition Faciltiy. (*See Section 8-1 or 9-1.*)

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*.

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.

Flow Time. (*See Section 8-1 or 9-1.*)

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

Fly Gallery. (*See Section 8-1 or 9-1.*)

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

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

Gross Leasable Area. (*See Section 25-1.*)

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

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

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. Those areas of structures or buildings posing a degree of hazard greater than that normal to the general occupancy of the building or structure, such as those areas used for the storage or use of combustibles or flammables, toxic, noxious, or corrosive materials, or use of heat-producing appliances. *(Also see Section 22-1 or 23-1.)*

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

High Hazard Areas. Those areas of structures or buildings 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 those 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 Section 5-1.*)

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.*)

Labeled. Equipment or materials to which has been attached a label, symbol or other identifying mark of an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Leg Drop. (*See Section 8-1 or 9-1.*)

Life Safety Evaluation. (*See Section 8-1 or 9-1.*)

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/lb (8.14×10^6 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 $\frac{1}{8}$ 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.

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

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

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.

Multipurpose Assembly Occupancy. (*See Section 8-1.*)

Noncombustible. A material that, in the form in which it is used and under the conditions anticipated, will not aid combustion 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 21-1.*)

Open-Air Mercantile Operations. (*See Section 25-1.*)

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 where at least one side is open to the outer air. (*See 5-2.2.*)

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

Personal Care. (*See Section 22-1 or 23-1.*)

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

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

Plastic, Cellular or Foamed. Cellular or foamed plastic material means a heterogeneous system comprised of at least two phases, one of which is a continuous polymeric organic material, and the second of which is deliberately introduced for the purpose of distributing gas in voids

throughout the material, and foamed and unfoamed polymeric or monomeric precursors (prepolymer, if used) plasticizers, fillers, extenders, catalysts, blowing agents, colorants, stabilizers, lubricants, surfactants, pigments, reaction control agents, processing aids, and flame retardants.

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

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

Platform, Temporary. (*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.

Point of Safety. (*See Section 22-1 or 23-1.*)

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 Section 5-1 and 5-2.5.*)

Resident. (*See Section 22-1 or 23-1.*)

Residential Board and Care. (*See Section 22-1 or 23-1.*)

Residential Housing Area. (*See Section 14-1 or 15-1.*)

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

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

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

Sally Port (Security Vestibule). (*See Section 14-1 or 15-1.*)

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 Ramp. (*See Section 5-1.*)

Separated Exit Stair. (*See Section 5-1.*)

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.

Smoke Protected Assembly Seating. (*See Section 8-1 or 9-1.*)

Special Amusement Building. (*See Section 8-1 or 9-1.*)

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

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

Staff. (*See Section 22-1 or 23-1.*)

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

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

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

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

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

Stage Scenery. (*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.

Story of Exit Discharge. (*See Section 11-1.*)

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 the 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.*)

Thermal Barrier. (*See Section 22-1 or 23-1.*)

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

Tower. (*See Section 30-1.*)

Underground Structure. (*See Section 30-1.*)

Vehicle. (*See Section 30-1.*)

Vertical Opening. An opening through a floor or roof.

Vessel. (*See Section 30-1.*)

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 be 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 twelve 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 are those used to house individuals under varied degrees of restraint or security and, as such, are occupied by persons who are mostly incapable of self-preservation because security measures are not under the occupants' control.

Detention and correctional occupancies include:

Adult correctional institutions	Juvenile training schools
Adult local detention facilities	Juvenile community residential centers
Adult community residential centers	Adult and juvenile work camps
Juvenile detention facilities	Adult and juvenile substance abuse centers

Chapters 14 and 15 address the residential housing areas of the detention and correctional occupancy as defined by 14-1.3(d) and 15-1.3(d). Other uses within detention and correctional facilities, such as gymnasiums or industries, shall be in accordance with the appropriate chapter of the *Code*. (*See 14-1.2.1 and 15-1.2.1.*)

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) One- and two-family dwellings (*Chapter 21*).

(e) Board and care facilities (*Chapters 22 and 23*).

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
Department stores
Drugstores
Supermarkets
Shopping centers

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 for similar purposes. Business occupancies include:

City halls
College and university instructional buildings, classrooms under 50 persons, and instructional laboratories
Courthouses
Dentists' offices
Doctors' offices
General offices
Laboratories for basic or applied research not including hazardous chemicals
Outpatient clinics, ambulatory
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* that apply to the predominant 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:

Dry cleaning plants
Factories of all kinds
Food processing plants
Gas plants
Hangars (for servicing/maintenance)
Laboratories involving hazardous chemicals
Laundries
Power plants
Pumping stations
Refineries
Sawmills
Telephone exchanges

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
Bulk oil storage
Cold storage
Freight terminals
Grain elevators
Hangars (for storage only)
Parking structures
Stables
Truck and marine terminals
Warehouses

Minor storage incidental to another occupancy shall be treated as part of the predominant 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
Towers
Underground structures
Vehicles
Vessels
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 1-5.7.*)

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 likely. (*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 Chapter 1 and Section 31-1.)*

5-1.2 Definitions.

5-1.2.1 Accessible Area of Refuge. An accessible area of refuge is an area of refuge that complies with the accessible route requirements of ANSI A117.1, *Buildings and Facilities—Providing Accessibility and Usability for Physically Handicapped People*.

5-1.2.2* Accessible Means of Egress. Accessible means of egress is a path of travel that is usable by a person with a severe mobility impairment and that leads to a public way or an area of refuge.

5-1.2.3* Area of Refuge. An area of refuge is a space protected from the effects of fire, either by means of separation from other spaces in the same building or by virtue of location in an adjacent building, thereby permitting a delay in egress travel from any level.

5-1.2.4 Common Path of Travel. Common path of travel is 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.

5-1.2.5* 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.

5-1.2.6 Exit Access. Exit access is that portion of a means of egress that leads to an exit.

5-1.2.7 Exit Discharge. Exit discharge is that portion of a means of egress between the termination of an exit and a public way.

5-1.2.8* 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 originating from the area of incidence and areas communicating therewith. *(See 5-2.4.)*

5-1.2.9 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.

5-1.2.10 Ramp. A ramp is a walking surface in an accessible space that has a slope steeper 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 counted are above or below the story where 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 could interfere with its uses as an exit and, if so designated, as an area of refuge.

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 a fire barrier having a 1-hour fire resistance rating in accordance with 6-2.3.

Exception No. 1: Existing buildings.

Exception No. 2: As otherwise provided 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 vertical 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.

Exception No. 1: As provided in 5-2.1.6.

Exception No. 2: 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, including the accumulation of snow and ice.

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, used as a component in a means of egress shall conform to the general requirements of Section 5-1 and to the special requirements of this subsection. Such an 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.

5-2.1.1.3 For the purpose of Section 5-2, a building is considered to be 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 for purposes of calculating capacity, 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.

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 persons in wheelchairs 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 21.

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 is permitted to 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 is 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 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 21.

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 that reads "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 shall be permitted to be equipped with horizontal sliding or vertical rolling grilles or doors.

Exception No. 4: Horizontal sliding doors complying with 5-2.1.14.

Exception No. 5: 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 and industrial and storage areas contain low or ordinary hazard contents.

Exception No. 6: Revolving doors complying with 5-2.1.10.

5-2.1.4.2 Doors shall swing in the direction of exit travel where used in an exit enclosure or where serving a high hazard area.

Exception: Doors from individual living units that open directly into an exit enclosure need not swing in the direction of egress travel.

5-2.1.4.3* 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 providing 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.

5-2.1.4.4 The forces required to fully open any door manually in a means of egress shall not exceed 15 lbf (67 N) to release the latch, 30 lbf (133 N) to set the door in motion, and 15 lbf (67 N) to open the door to the minimum required width. 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: Horizontal sliding doors in detention and correctional occupancies as provided by Chapters 14 and 15.

Exception No. 3: Power-operated doors as provided in 5-2.1.9.

5-2.1.4.5 Screen and Storm Doors. No screen door or storm door used in a means of egress shall swing against the direction of exit travel where doors are required to swing in the direction of exit travel.

5-2.1.5 Locks, Latches, and 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 shall be permitted to 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 that reads "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 stair enclosure door shall allow reentry from the stair enclosure to the interior of the building, or an automatic release shall be provided to unlock all stair enclosure 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 stair enclosures shall be permitted to 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 stair enclosure, and

(c) There shall be not more than four floors intervening between floors where it is possible to leave the stair enclosure, 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 stair 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.

Exception No. 4: Stair enclosures serving a building permitted to have a single exit in accordance with Chapters 8 through 30.

Exception No. 5: Stairs serving not more than four stories.

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 shall be permitted to 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 be permitted to have two additional releasing operations. Existing security devices other than automatic latching devices shall not be located more than 60 in. (152 cm) in height above the finished floor. Automatic latching devices shall not be located more than 48 in. (122 cm) above the finished floor.

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 release 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 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 3 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 $\frac{1}{8}$ 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 releasing device. 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 shall be permitted to 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 Chapter 9 of NFPA 72E, Standard on Automatic Fire Detectors. 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 means of 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 actuated by sensing devices upon the approach of a person or doors with power-assisted manual operation, the design shall be such that in the 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 5-2.1.4.4 except that the force required 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) of the revolving door.

Exception No. 1 to (e): Revolving doors shall be permitted 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 shall be permitted 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 shall be permitted 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 16 1/2 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 16 1/2 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 is not required, 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 is not required, 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 panic hardware is installed on balanced doors, the panic hardware shall be of the push-pad 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 complying with 5-2.1.14.2 shall be permitted under the following conditions:

(a) Where serving elevator lobbies,

(b) In a means of egress serving an occupant load of less than 50,

(c) In horizontal exits or smoke barriers where permitted by Chapters 8 through 30.

5-2.1.14.2 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 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*.

(e) The door shall be operable by force not to exceed 15 lbf (67 N) applied to the operating device in the direction of egress.

5-2.2 Stairs.

5-2.2.1 General. Stairs, either interior or exterior, used as a component in the means of egress shall conform 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 continue to be used 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 or below handrail height on each side	44 in. (112 cm) 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 onto stairs without a landing that is at least the width of door	No

Exception: Existing stairs in existing buildings shall be permitted to 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 or below handrail height on each side	44 in. (112 cm)	44 in. (112 cm) 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. (25.4 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 onto stairs without a landing that is at least the width of door	No	No

5-2.2.2.2* Tread Slope. Tread slope shall not exceed ¼ in./ft (2.1 cm/m) (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, shall be permitted 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 shall be permitted 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 shall be permitted to 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 shall be permitted 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 Stair Details.

5-2.2.3.1 All stairs serving as required means of egress shall be of permanent fixed construction.

5-2.2.3.2 Each new stair, platform, and landing used in buildings more than three stories in height and in new buildings required by this *Code* to be of Type I or Type II construction shall be of noncombustible material throughout.

Exception: Handrails.

5-2.2.3.3 Stairs 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.

5-2.2.3.4* Stair treads shall be uniformly slip resistant and shall be free of projections or lips that could trip stair users.

5-2.2.3.5 Treads of stairs and landing floors shall be solid.

Exception: Industrial occupancies as provided in Chapter 28.

5-2.2.3.6 Stairs shall be so arranged as to make clear the direction of egress to a public way. Stairs that continue beyond the level of exit discharge shall be interrupted at the level of exit discharge by partitions, doors, or other effective means.

Exception: Stairs that continue one-half story beyond the level of exit discharge need not be so interrupted where the exit discharge is obvious.

5-2.2.4 Guards and Handrails.

5-2.2.4.1 Guards. Means of egress such as stairs, 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.

Exception: Existing handrails meeting the requirements of 5-2.2.4.5 shall be permitted to serve as guards.

5-2.2.4.2* 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 5-2.2.4.5.*)

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

5-2.2.4.3 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.

5-2.2.4.4 The design of guards and handrails and the hardware for attaching handrails to guards, balusters, or walls shall be such that there are no projections that may engage loose clothing. Openings in guards shall be designed to prevent loose clothing from becoming wedged in such openings.

5-2.2.4.5* Handrail Details.

(a) Handrails on stairs shall be not less than 34 in. (86 cm) nor more than 38 in. (96 cm) above the surface of the tread, measured vertically to the top of the rail from the leading edge of the tread.

Exception No. 1 to (a): Required handrails that form part of a guard shall be permitted to have a maximum height of 42 in. (107 cm) measured vertically to the top of the rail from the leading edge of the tread.

Exception No. 2 to (a): Existing required 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 rail from the leading edge of the tread.

Exception No. 3 to (a): Additional handrails that are lower or higher than the main handrail shall be permitted.*

(b)* New handrails shall provide a clearance of at least $1\frac{1}{2}$ in. (3.8 cm) between the handrail and the wall to which they are 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 4 in. (10.1 cm) in diameter cannot pass through any openings in such handrail.

Exception No. 1 to (f): The triangular openings formed by the riser, tread, and bottom element of a guardrail at the open side of the stair shall be of such a size that a sphere 6 in. (15.2 cm) in diameter cannot pass through.

Exception No. 2 to (f): 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).

5-2.2.4.6 Guard Details.

(a) The height of guards required by 5-2.2.4.1 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): Existing guards within dwelling units shall be not less than 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 4 in. (10.1 cm) in diameter cannot pass through any opening.

Exception No. 1 to (c): The triangular openings formed by the riser, tread, and bottom element of the guardrail at the open side of a stair shall be of such size that a sphere 6 in. (15.2 cm) in diameter cannot pass through.

Exception No. 2 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. 3 to (c): Approved existing open guards.

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 located in climates where balconies may be subject to accumulation of snow or ice, one step, not to exceed 8 in. (20.3 cm), shall 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 egress from the roof, and where all other reasonable requirements for life safety are maintained. (*Also see 5-7.5.*)

5-2.2.6 Enclosure and Protection of Stairs.

5-2.2.6.1 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.

5-2.2.6.2* 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 have greater than a 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 roofline, whichever is lower.

Exception: Existing stairways.

5-2.2.6.3 Separation and Protection of Outside Stairs. Outside stairs shall be separated from the interior of the building by walls with the fire resistance rating required for enclosed stairs with fixed or self-closing opening protectives. This construction shall extend vertically from the ground to a point 10 ft (3 m) above the topmost landing of the stairs or to the roofline, whichever is lower, and at least 10 ft (3 m) horizontally.

Exception No. 1: Outside stairs serving an exterior exit access balcony that has two remote outside stairways or ramps.

Exception No. 2: Outside stairs serving not more than two stories, including the story of exit discharge, shall be permitted to be unprotected where there is a remotely located second exit.

Exception No. 3: In existing buildings, outside stairs serving not more than three stories, including the story of exit discharge, shall be permitted to be unprotected where there is a remotely located second exit.

Exception No. 4: 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 3/4-hour fire protection rated assemblies.

5-2.2.6.4 All openings below an outside stair shall be protected with an assembly having a 3/4-hour fire protection rating:

(a) Where located in a court, the smallest 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.

5-2.2.6.5 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.*)

5-2.2.6.6 Signs. Stairs serving four or more stories shall be provided with a sign within the enclosure at each floor 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 inside the enclosure 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.

5-2.3 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 created 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 rated enclosure and shall be considered 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 using 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 5-2.2.6.3.

(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. Controlling dampers are permitted in duct openings 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 0.10 in. 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 shall be a minimum of 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) Water flow 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-contained generator set to operate whenever there is a loss of power in the normal house current. The generator shall be located 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 shall be permitted to be used for such stair shaft and vestibule power supply.

5-2.4 Horizontal Exits.

5-2.4.1* Application. Horizontal exits shall be permitted to be substituted for other exits to the 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 no horizontal exits existed.

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 Fire Compartments.

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 No. 1: Where a fire barrier is used to provide a horizontal exit in any story of a building, such fire barrier is not required 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 construction having a fire resistance rating at least equal to that of the horizontal exit fire barrier.

(b) Vertical openings between the story with the horizontal exit and the open fire area story shall be enclosed with construction having a fire resistance rating at least equal to that of the horizontal exit fire barrier.

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

Exception No. 2: One-hour fire rated barriers as permitted in detention and correctional occupancies in accordance with Chapters 14 and 15.

5-2.4.3.2 Where fire barriers serving horizontal exits terminate at outside walls and the outside walls for a distance of 10 ft (3 m) on each side of the horizontal exit are at an angle of less than 180 degrees, the outside walls shall be 1-hour fire-resistance rated fire barriers with ¾-hour fire protection rated opening protectives for a distance of 10 ft (3 m) on each side of the horizontal exit.

Exception: Existing horizontal exits.

5-2.4.3.3 Fire barriers forming horizontal exits shall not be penetrated by ducts.

Exception No. 1: Existing penetrations protected by approved and listed fire dampers.

Exception No. 2: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

Exception No. 3: Duct penetrations in detention and correctional occupancies as allowed by Chapters 14 and 15 that are protected by combination fire dampers/smoke leakage-rated dampers that meet the smoke damper actuation requirements of 6-3.5.

5-2.4.3.4 Any opening in such fire barriers, whether or not such opening serves as an exit, shall be protected as provided in 6-2.3.5.

5-2.4.3.5 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.

5-2.4.3.6 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 any 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.

5-2.4.3.7* Doors in horizontal exits shall be designed and installed to minimize air leakage.

5-2.4.3.8* 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 have guards and handrails in conformity with the requirements of 5-2.2.

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 need swing in the direction of travel.

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), is 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 having a ¾-hour fire protection rating.

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

5-2.5 Ramps.

5-2.5.1 General. A ramp, either interior or outside, used as a component in a means of egress shall conform 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 steeper than 1 in 15 need not be provided with landings.

5-2.5.3 Ramp Details.

5-2.5.3.1 All ramps serving as required means of egress shall be of permanent fixed construction.

5-2.5.3.2 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.

5-2.5.3.3 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.

5-2.5.3.4 A ramp shall have a slip-resistant surface.

5-2.5.3.5 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 Guards and Handrails. Guards complying with 5-2.2.4 shall be provided for ramps. Handrails complying with 5-2.2.4 shall be provided for ramps with a slope exceeding 1 in 15. The height of handrails and guards shall be measured vertically to the top of the guard or rail from the walking surface adjacent thereto.

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 located 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), is permitted below the level of the inside floor.

5-2.5.5.2* 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.

5-2.5.6 Enclosure and Protection of Ramps.

5-2.5.6.1 Ramps shall be enclosed or protected as a stair in accordance with 5-2.2.6.

5-2.6* Exit Passageways.

5-2.6.1 General. Exit passageways such as hallways, corridors, passages, tunnels, underfloor passageways, or overhead passageways used as exit components shall conform to the general requirements of Section 5-1 and to the special requirements of this subsection.

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

Exception No. 1: Fire windows in accordance with 6-2.3.4 shall be permitted to be installed in such a separation in a building protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

Exception No. 2: Existing fixed wired glass panels in steel sash shall be permitted to be continued in use in such a separation in a building protected throughout by an approved sprinkler system in accordance with Section 7-7.

5-2.6.3 Stair Discharge. An exit passageway that serves as a discharge from a stair enclosure shall have the same fire resistance rating and opening protective fire protection rating as that required for the stair enclosure.

5-2.6.4 Width. The width of an exit passageway shall be adequate to accommodate the aggregate required capacity of all exits discharging through it.

Exception: As allowed by Chapters 24 and 25, an exit passageway in a covered mall building may independently accommodate occupant loads from the covered mall and the tenant spaces. (See 24-2.2.7 Exception and 25-2.2.7 Exception.)

5-2.6.5 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 to be used 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 shall be permitted 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 that continues in the same direction shall be permitted.

5-2.8.1.7 Either type shall be permitted to be parallel to or at right angles to buildings. Either type shall be permitted to 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 m) of any balcony, platform, walkway, or stairway constituting a component of the fire escape stair or within two stories or 20 ft (6 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 shall be permitted 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 5-2.8.4 A and subsequent sections. Replacement of fire escape stairs shall comply with the requirements of Table 5-2.8.4 B.

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 5-2.2.4.

Exception: Existing handrails on existing fire escape stairs shall be permitted to 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 5-2.2.4, 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).

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 of 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	0.5 in. (1.3 cm) per person, if access by door; 1.0 in. (2.5 cm) per person 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 of 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	0.5 in. (1.3 cm) per person, if access by door; 1.0 in. (2.5 cm) per person if access by climbing over windowsill	10

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) located one step from the pivot shall not cause the stairs to swing downward, and a weight of 150 lb (68 kg) located 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 5-2.2.4 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, totaling no 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, totaling no more than three 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 the edition of this Code that was 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.

5-2.9.3 The lowest rung of any ladder shall be not more than 12 in. (30.5 cm) above the level of the surface beneath it.

5-2.10 Slide Escapes.

5-2.10.1 General.

5-2.10.1.1 A slide escape shall be permitted 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 shall be permitted to 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, totaling no 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, totaling no more than three in number.

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

(a) Handrails shall be provided on both sides of alternating tread devices in accordance with 5-2.2.4.5; 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 angle of the device shall be between 50 and 68 degrees to horizontal; and

(e) The height of the riser shall not exceed 9.5 in. (24.1 cm); and

(f) Treads shall have a minimum projected tread depth of 5.8 in. (14.7 cm) measured in accordance with 5-2.2 with each tread providing 9.5 in. (24.1 cm) of depth including tread overlap; and

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

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

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

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

5-2.12 Areas of Refuge.

5-2.12.1* Application.

5-2.12.1.1. Areas of refuge shall be provided where required by Chapters 8 through 30.

5-2.12.2 General Requirements for Areas of Refuge.

5-2.12.2.1 Every required portion of an area of refuge shall be accessible from the space it serves by an accessible means of egress.

5-2.12.2.2* Every area of refuge shall be sufficient in size to provide at least two accessible, level, floor areas each 30 in. by 48 in. (76 cm × 122 cm) in area. These minimum areas shall not reduce the required width of the means of egress. For any area of refuge less than 1000 sq ft (93 sq m) in size, it shall be demonstrated by calculation or test that the refuge area can maintain tenable conditions when exposed to the maximum expected fire conditions for a period of 15 minutes, unless determined otherwise by the authority having jurisdiction.

5-2.12.2.3* Every area of refuge shall provide access to an exit or to a fire fighter service elevator. Such access shall not require returning to the building space from which egress was begun. Where this required exit includes steps, the minimum clear width of landings and stair flights measured between handrails shall be 48 in. (122 cm).

Exception: For stairs where egress is in the descending direction, the minimum clear width shall be 44 in. (112 cm) if approved alternative measures are provided that do not require carrying occupied wheelchairs on the stairs.

5-2.12.2.4* Elevators intended for use from areas of refuge shall be approved for fire fighter service as provided in ASME/ANSI A17.1, *Safety Code for Elevators and Escalators*, and shall be operated by fire service personnel. Such elevators and the areas of refuge serving them shall be identified. Information on alternative egress routes shall be posted. Every area of refuge using a fire fighter service elevator for egress shall be provided with a two-way communication system between the area of refuge and a central control point used for emergency management of the elevator.

5-2.12.2.5* A barrier shall be provided between every area of refuge and the adjoining building spaces from which egress is begun. Such barriers, and any openings in them, shall be designed and installed to minimize air leakage and retard the passage of smoke. Unless the area of refuge is a required horizontal exit, the barrier shall consist of an assembly having at least a 1-hour fire resistance rating.

Exception No. 1: For separations other than those for exits, no fire-resistance rating is required if the building is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

Exception No. 2: One-half hour fire resistance rating for existing barriers.

5-2.12.2.6 Any opening in required barriers for areas of refuge shall be protected according to 6-2.3.5.

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 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 shall be permitted to 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 increased 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.

5-3.1.6 Where any required egress capacity from a balcony or mezzanine passes through the room below, that required capacity shall be added to the required egress capacity of the room in which it is located.

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 3 1/2 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]
Health Care Sprinklered	0.3 [0.8]	0.2 [0.5]
Health Care Nonsprinklered	0.6 [1.5]	0.5 [1.3]
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 balcony, mezzanine, story, or portion thereof shall be two.

Exception No. 1: Where a single means of egress is permitted by Chapters 8 through 30.

Exception No. 2: A mezzanine or balcony shall be permitted to have a single means of egress provided the common path of travel limitations of Chapters 8 through 30 are not exceeded.

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.

5-4.1.4 Doors other than the hoistway door and the elevator car door shall be prohibited at the point of access to an elevator car.

Exception: Doors that are readily openable from the car side without a key, tool, special knowledge, or effort.

5-4.1.5 Elevator lobbies shall have access to at least one exit. Such exit access shall not require the use of a key, tool, special knowledge, or effort.

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 leading directly to every exit shall be maintained 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 remotely located from each other and so arranged and constructed as to minimize any possibility that more than one may be blocked 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 at a distance from one another 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 supervised 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.

5-5.1.5* Interlocking or scissor stairs shall be permitted to 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, and 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 shall be permitted to 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 shall be permitted to pass through rooms or spaces subject to locking as provided in Chapters 14 and 15.

Exception No. 3: Exit access in mercantile occupancies shall be permitted to 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 shall be permitted to 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 5-2.2.4.

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 5-6.4.

5-6.2* The travel distance to an exit shall be measured on the floor or other walking surface along the centerline of the natural path of travel starting 1 ft (30.5 cm) from the most remote point subject to occupancy, 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 shall be permitted to terminate at a smoke barrier in existing detention and correctional occupancies as provided in Chapter 15.

5-6.3 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 an outside door or other exit in addition to the distance traveled to reach the stairway or ramp.

5-6.4 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.

5-6.5 Where any part of an exterior exit is within 10 ft (3 m) horizontal distance of any unprotected building opening, as permitted by 5-2.2.6.3 for outside stairs, the travel 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): 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 shall be permitted to 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. Stairs that continue beyond the level of exit discharge shall be interrupted at the level of exit discharge by partitions, doors, or other effective means.

Exception: Stairs that continue one-half story beyond the level of exit discharge need not be so interrupted where the exit discharge is 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 shall be not less than 1/5 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. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit.

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 illumination shall be provided for a period of 1½ hours in the event of failure of normal lighting. Emergency lighting facilities shall be arranged to provide initial illumination that is no less than an average of 1 footcandle (10 lx) and a minimum at any point of .1 footcandle (1 lx) measured along the path of egress at floor level. Illumination levels may decline to .6 footcandle (6 lx) average and a minimum at any point of .06 footcandle (.6 lx) at the end of the emergency lighting time duration. A maximum to minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

5-9.2.2* 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.

5-9.2.3 Emergency generators used to provide power to emergency lighting systems shall be installed, tested, and maintained in accordance with NFPA 110, *Emergency and Standby Power Systems*.

5-9.2.4* 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*.®

5-9.2.5 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 readily apparant 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 floor proximity exit signs are specifically required by Chapters 8 through 30, exit signs shall be placed near the floor level in addition to those signs required for doors or corridors by 5-10.1.2 and 5-10.1.3. These signs shall be sized and illuminated in accordance with the requirements of 5-10.2 and 5-10.3. 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 mounted 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 of the required exit sign of such a character as to so detract attention from the exit sign.

5-10.1.6 Where floor proximity egress path marking is specifically required by Chapters 8 through 30, a listed and approved floor proximity egress path marking system that is internally illuminated shall be installed within 8 in. (20.3 cm) of the floor. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors, or other such architectural features. The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration, and continuity of operation of the system shall be in accordance with 5-9.2.

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 3/4 in. (1.9 cm) wide. The word EXIT shall have letters of a width not less than 2 in. (5 cm) except the letter "I," and the minimum spacing between letters shall be not less than 3/8 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: Marking required by 5-10.1.6.

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 provide evenly illuminated letters shall have a minimum luminance of 0.06 footlamberts (0.21 cd/sq m) as measured by a color-corrected photometer.*

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 a directional indicator showing the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent. Directional signs shall be listed.

NOTICE: Following the issuance of this edition, an appeal was filed requesting that 5-10.4.1.2 revert to the wording in the 1988 edition of the *Code*. Refer to Page 101-II.

5-10.4.1.2* Directional Indicator. The directional indicator shall be located outside of the EXIT legend, not less than 3/8 in. (1 cm) from any letter, and may be integral to or separate from the sign body. The directional indicator shall be of a chevron type as shown in Figure 5-10.4.1.2 and shall be identifiable as a directional indicator at a minimum distance of 100 ft (30 m) under all space illumination conditions. The directional indicators shall not be located at the end of the sign opposite the direction indicated.

Exception: Existing approved signs.

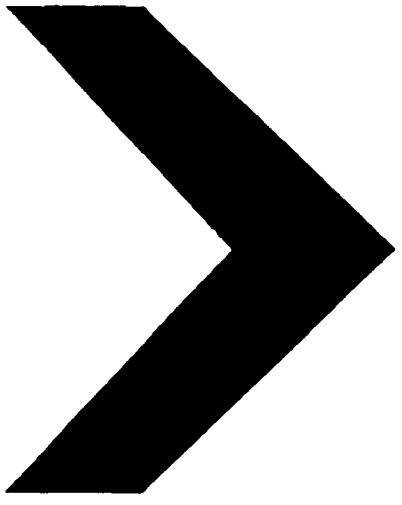

Figure 5-10.4.1.2

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 the word "NO" in letters 2 in. (5 cm) high with stroke width of 3/8 in. (1 cm) and the word EXIT in letters 1 in. (2.5 cm) high, with the word EXIT below the word 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./person (1.8 cm/person) where exit is by inside or outside stairs or 0.4 in. (1.0 cm) per person where exit is by doors at grade level, by horizontal exits, or by Class A ramps.

5-11.3 At least two means of egress 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.

SECTION 5-12 MECHANICAL EQUIPMENT ROOMS, BOILER ROOMS, AND FURNACE ROOMS.

5-12.1 Mechancial equipment rooms, boiler rooms, furnace rooms, and similar spaces shall be arranged to limit common path of travel to a maximum of 50 ft (15 m).

5-12.2 Stories used exclusively for mechanical equipment, furnaces, or boilers shall be permitted to have a single exit where the travel distance on that story does not exceed the common path of travel limitations.

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 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*. Fire barriers shall be continuous in accordance with 6-2.2.2.

Exception No. 1: Structural elements need only have the fire resistance rating required for the construction classification of the building where supporting nonbearing wall or partition assemblies having a required fire resistance rating of 1 hour or less and that do not serve as exit enclosures or protection of vertical openings.

Exception No. 2: Assemblies calculated to have equivalent fire resistance provided that the calculations are based on the conditions of acceptance and the fire exposure specified in NFPA 251, Standard Methods of Fire Tests of Building Construction and Materials.*

6-2.3.2 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) 3/4-hour fire resistance rating.

(d) 1/2-hour fire resistance rating.

(e) 20-minute fire resistance rating.

6-2.3.3 Door assemblies in fire barriers shall be of an approved type with appropriate rating for the location in which installed and shall comply with the following:

(a) Fire doors 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*.

Exception to (a): As permitted in 6-2.3.5.

(b) Fire doors shall be self-closing or automatic-closing in accordance with 5-2.1.8 and, where used within the means of egress, shall comply with the provisions of 5-2.1.

6-2.3.4 Fire window assemblies shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with appropriate rating for the location in which installed. Fire windows shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Windows*, and shall comply with the following:

(a) Fire windows used in fire barriers 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*.

(b) Fire windows used in fire barriers shall not exceed 25 percent of the area of the fire barrier in which they are used.

Exception No. 1: Existing installations of wired glass in approved metal frames.

Exception No. 2: Fire rated glazing material may be installed in approved existing frames.

6-2.3.5* 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 — 1 1/2-hour fire protection rating.

(b) 1-hour fire barrier — 1-hour fire protection rating where used for vertical openings or exit enclosures or 3/4-hour fire protection rating where used for other than vertical openings or exit enclosures.

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 or smoke barriers 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) 3/4-hour fire barrier — 20-minute fire protection rating.

(d) 1/2-hour fire barrier — 20-minute fire protection rating.

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

6-2.3.6 Penetrations and Miscellaneous Openings in Fire Barriers.

6-2.3.6.1* Openings in fire barriers for air-handling ductwork or air movement shall be protected in accordance with 7-2.1.

6-2.3.6.2* 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.

6-2.4 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 6-2.4.5.

Exception No. 2: As permitted by 6-2.4.6.

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 6-2.4.5.

Exception No. 2: As permitted by 6-2.4.6.

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.

Exception No. 6: Enclosure is not requuired for pneumatic tube conveyors protected in accordance with 6-2.3.6.2.

6-2.4.3 Enclosure of vertical openings (shafts) that do not extend to the bottom or the top of the building or structure shall be enclosed at the lowest and/or highest level of the shaft, respectively, with construction in accordance with 6-2.4.4.

Exception: Shafts may terminate in a room or space having a use related to the purpose of the shaft provided that the room or space is separated from the remainder of the building by construction having a fire resistance rating and opening protectives in accordance with 6-2.4.4 and 6-2.3.5.

6-2.4.4* 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 — 1/2-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.

6-2.4.5 Where permitted by Chapters 8 through 30, unenclosed floor openings forming a communicating space between floor levels shall be 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 No. 1 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 shall be permitted to serve as the required separation.

Exception No. 2 to (d): Fully sprinklered residential housing units of detention and correctional occupancies in accordance with 14-3.1.1 Exception No. 3 and 15-3.1.1 Exception No. 3.

(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 single floor area in determining the required exit capacity.

(g)* Each occupant within the communicating space shall have access to at least one exit without having to traverse another story within the communicating space.

(h) Each occupant not in the communicating space shall have access to at least one exit without having to enter the communicating space.

6-2.4.6* Atriums. Where permitted by Chapters 8 through 30, an atrium shall be permitted 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 6-2.3.5. Access to exits is permitted to be within the atrium. Exit discharge in accordance with 5-7.2 is permitted to 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.

(f)* In new construction, if a mechanical system is installed to meet the requirements of (e) above, the mechanical 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 6-2.3.5(b) Exception No. 2.*]

Exception No. 1 to (g): Any three levels of the building shall be permitted to open directly to the atrium without enclosure.

Exception No. 2 to (g): Glass walls shall be permitted 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 shall be glass or other material that will resist the passage of smoke. Doors shall be self-closing or automatic-closing upon detection of smoke.*

6-2.4.7 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.*)

6-2.4.8 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 buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, escalator or moving walk openings shall be permitted to 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 buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, escalators or moving walk openings shall be permitted to be protected by rolling steel shutters appropriate for the fire resistance rating of the vertical opening protected. The shutters shall close automatically upon 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 ensure that they remain in proper operating condition. The shutters shall operate at a speed of not more than 30 ft/min (.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 Mezzanines.

6-2.5.1 General. A mezzanine shall not be counted as a story for the purpose of determining the allowable number of stories.

6-2.5.2 Area Limitations.

6-2.5.2.1 The aggregate area of mezzanines within a room shall not exceed one-third the open area of the room in which the mezzanines are located. Enclosed space shall not be included in a determination of the size of the room in which the mezzanine is located.

Exception No. 1: Special purpose industrial occupancies.

Exception No. 2: Multilevel residential housing areas in detention and correctional occupancies in accordance with Chapters 14 and 15 are exempt from the provisions of 6-2.5.2 and 6-2.5.3.

6-2.5.2.2 There is no limit on the number of mezzanines in a room.

6-2.5.2.3 For purposes of determining the allowable mezzanine area, the area of mezzanines shall not be included in the area of the room.

6-2.5.3 Openess. All portions of a mezzanine shall be open to and unobstructed from the room in which the mezzanine is located with the exception of walls not more than 42 in. (107 cm) high, columns, and posts.

Exception No. 1: Mezzanines or portions thereof need not be open to the room in which they are located, provided the occupant load of the aggregate area of the enclosed space does not exceed 10.

Exception No. 2: A mezzanine having two or more means of egress need not open into the room in which it is located if at least one of the means of egress provides direct access to an exit at the mezzanine level.

6-2.6 Concealed Spaces.

6-2.6.1* 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.)

6-2.6.2 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; this includes 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 shall be permitted to 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*, openings shall be protected as follows:

(a) Door opening protectives shall have a fire protection rating of not less than 20 minutes where tested in accordance with NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, without the hose stream test.

(b) Fire windows shall comply with 6-2.3.4.

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 in accordance with 5-2.1.8 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: Ducts or air-transfer openings that are part of an engineered smoke control system in accordance with Section 7-3.

Exception No. 2: 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: Where the air inlet or outlet openings in ducts are limited to a single smoke compartment.

Exception No. 4: Where ducts penetrate floors that serve as smoke barriers.

Exception No. 5: 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.

6-4.1.1* Protection from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure shall be provided as follows:

(a) Enclose the area with a fire barrier having a 1-hour fire resistance rating in accordance with Section 6-2, without windows, or

(b) Protect the area with automatic extinguishing systems in accordance with Section 7-7, or

(c) Apply both (a) and (b) above where the hazard is severe or where otherwise specified by Chapters 8 through 30.

6-4.1.2 In new construction where protection is provided with automatic extinguishing systems without fire-resistive separation, the space so protected shall be enclosed to resist the passage of smoke, and doors shall be self-closing or automatic-closing and resist the passage of smoke.

Exception No. 1: Mercantile occupancy general storage areas and stock rooms protected by automatic sprinklers in accordance with Section 7-7.

Exception No. 2: Hazardous areas in industrial occupancies protected by automatic extinguishing systems in accordance with 28-3.2.

6-4.1.3 Doors in barriers required to have a fire resistance rating shall have a ¾-hour fire protection rating and shall be self-closing or automatic-closing in accordance with 5-2.1.8.

6-4.2* Explosion Protection. Where hazardous processes or storage are of such a character as to introduce an explosion potential, an 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 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 shall be permitted 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 under actual fire conditions.

Exception No. 2: Cellular or foamed plastic shall be permitted 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/m^3) in density, is limited to $^1/_2$ 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 continue to be used.

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 W/sq cm as determined by the test described in 6-5.4.1.

Class II Interior Floor Finish. Critical radiant flux, minimum of 0.22 W/sq cm 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 shall be permitted to 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 shall be permitted to 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 shall be permitted in any location where Class B is required, and Class B interior wall and ceiling finish materials shall be permitted 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 shall be permitted 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 for Dust, Stock, and Vapor Removal or Conveying*; 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 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.

7-2.4 Ventilating systems in laboratories using chemicals shall be installed in accordance with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, or NFPA 99, *Standard for Health Care Facilities*, as appropriate.

SECTION 7-3 SMOKE CONTROL

7-3.1* Smoke control systems shall be permitted in lieu of other specific requirements in accordance with the provisions of Chapters 8 through 30. The purpose of such smoke control systems is to confine smoke to the general area of fire origin and maintain the means of egress system usable.

7-3.2 Maintenance and Testing. To assure operational integrity, the smoke control system shall have an approved maintenance and testing program.

SECTION 7-4 ELEVATORS, ESCALATORS, AND 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 ASME/ANSI 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 ASME/ANSI A17.3, *Safety Code for Existing Elevators and Escalators*.

7-4.4 All new elevators having a travel of 25 ft (7.6 m) or more shall conform to the Fire Fighters Service Requirements of ASME/ANSI A17.1, *Safety Code for Elevators and Escalators*.

7-4.5 All existing 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 Fire Fighters Service Requirements of ASME/ANSI A17.3, *Safety Code for Existing Elevators and Escalators*.

7-4.6 Where there are three or fewer elevator cars in a building, they shall be permitted to be located within the same hoistway enclosure. Where there are four elevator cars, they shall be divided in such a manner that at least two separate hoistway enclosures are provided. Where there are more than four elevators, not more than four elevator cars shall be located within a single hoistway enclosure.

Exception: Existing buildings.

7-4.7 Conveyors, elevators, dumbwaiters, and pneumatic conveyors serving various stories of a building shall not open to an exit. Service openings, where required to be open on more than one story at the same time for purposes of operation of the conveyor, shall be provided with closing devices in accordance with 5-2.1.8.

SECTION 7-5 RUBBISH CHUTES, INCINERATORS, AND LAUNDRY CHUTES

7-5.1 Rubbish chutes and laundry chutes 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 of such chutes shall open only to a room that is designed and used exclusively for that purpose. The room shall be separated from other spaces in accordance with Section 6-4.

Exception No. 1: Existing installations having properly enclosed service chutes and properly installed and maintained service openings shall be permitted to have inlets open to a corridor or normally occupied space.

Exception No. 2: Rubbish chutes and laundry chutes shall be permitted to open into rooms not exceeding 400 sq ft (37 sq m) in area used for storage provided the room is protected by automatic sprinklers.

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.

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 Fire detection, alarm, and communication systems installed in order to make use of an alternative allowed by this *Code* shall be considered "required" systems and shall meet the provisions of this *Code* applicable to required systems.

7-6.1.3* 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 warning of abnormal conditions, the summoning of appropriate aid, and the control of occupancy facilities to enhance protection of life.

7-6.1.4* 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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*;

NFPA 72E, *Standard on Automatic Fire Detectors*;

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 Systems*.

Exception: Existing installations may be continued in use, subject to the approval of the authority having jurisdiction.

7-6.1.5 All systems and components shall be approved for the purpose for which installed.

7-6.1.6 Fire alarm system installation wiring or other transmission paths shall be monitored for integrity in accordance with 7-6.1.4.

7-6.1.7* 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 7-6.1.4.

7-6.1.8 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*. Smoke detectors shall receive their operating power from the building electrical system. 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 No. 1: Battery-operated devices as permitted by other sections of this Code.

Exception No. 2: Battery-operated devices complying with the appropriate documents specified in 7-6.1.4 that achieve indication of missing battery or low battery power condition at a remote location.

Exception No. 3: 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 7-6.1.4.)

Exception No. 2: Except where prohibited by an occupancy chapter, occupant notification from a smoke detector alarm shall be permitted to be delayed up to 180 seconds, provided:

(a) The building is protected throughout by an approved automatic sprinkler system installed in accordance with Section 7-7, and

(b) The alarm signal shall be received at a constantly attended location on the premises, and

(c) Staff persons shall be trained to respond and investigate, and

(d) The system automatically notifies occupants at the end of the time period unless it is reset.

Exception No. 3: 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 activation of these detectors results in an audible supervisory signal.*

Exception No. 4: Duct detectors used for closing dampers or heating/ventilating/air conditioning system shutdown are not required to sound the building alarm.*

Exception No. 5: 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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*.

7-6.3.4 Notification signals for occupants to evacuate shall be by audible and visible signals.

Exception No. 1: Buildings not subject to occupancy by persons who are hearing impaired need not comply with the provisions for visible signals.

Exception No. 2: Existing buildings need not comply with the provisions for visible signals.

Exception No. 3: Visible signals need not be installed in each unit of a hotel or apartment building provided that those units designed for the hearing impaired are equipped with visible signals.

Exception No. 4: Other means of notification acceptable to the authority having jurisdiction may serve in lieu of 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.

Exception No. 3: Notification within the covered mall per 24-4.4.3.3 and 25-4.4.3.3.

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 Automatically transmitted or live voice evacuation or relocation instructions to occupants shall be permitted and shall be in accordance with NFPA 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*.

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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*, 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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*, or

(d) A remote station connection in accordance with NFPA 72, *Standard for the Installation, Maintenance, and Use of 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 shall be 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 Section 7-4, 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, alarm indicators, and manual communications capability shall be installed in a control center at a convenient location acceptable to the authority having jurisdiction.

7-6.7 Annunciation.

7-6.7.1 Where alarm annunciation is required by another section of this *Code*, it shall comply with the following provisions.

7-6.7.2 Alarm annunciation at the control center shall be by means of audible and visible indicators.

7-6.7.3 For the purposes of alarm annunciation, each floor of the building shall be considered, as a minimum, one zone.

Exception No. 1: Where otherwise permitted by another section of this Code.

Exception No. 2: Existing buildings.

7-6.7.4 If a floor area exceeds 20,000 sq ft (1,860 sq m), additional zoning shall be provided. The length of any zone shall not exceed 300 ft (91 m) in any direction.

Exception No. 1: Where the building is provided with automatic sprinklers throughout, installed in accordance with Section 7-7, the area of the alarm zone shall be permitted to coincide with the allowable area of the sprinkler zone.

Exception No. 2: Where otherwise permitted by another section of this Code.

7-6.7.5 A system trouble signal shall be annunciated at the control center by means of an audible and visible indicator.

7-6.7.6 A system supervisory signal shall be annunciated at the control center by means of audible and visible indicators.

7-6.7.7 Where the system serves more than one building, each building shall be considered separately.

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 No. 1: NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, shall be permitted for use as specifically referenced in Chapters 16 through 23 of this Code.

Exception No. 2: NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes, shall be permitted for use as provided in Chapters 20 through 23 of this Code.

7-7.1.2 Sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gpm/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.

7-7.1.4 Automatic sprinkler systems installed in order to make use of an alternative allowed by this *Code* shall be considered "required" systems and shall meet the provisions of this *Code* applicable to required systems.

7-7.2 Supervision.

7-7.2.1* Where supervised automatic sprinkler systems are required by another section of this *Code*, a distinct supervisory signal shall be provided to indicate a condition that would 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 tanks, and air pressure on dry-pipe valves. Supervisory signals shall sound and be displayed either at a location within the protected building that is constantly attended by qualified personnel or at an approved remotely located receiving facility.

7-7.2.2 Alarm Signal Transmission. Where supervision of automatic sprinkler systems is provided in accordance with another provision 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 connection shall be installed in accordance with 7-6.1.4.

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 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*.

Exception: For buildings less than 150 ft (45 m) in height with supervised sprinkler systems installed throughout, combined system water demand need not exceed the larger of the following:*

(a) Five hundred gpm (1,900 L/min) for light hazard or 1,000 gpm (3,800 L/min) for ordinary hazard sprinkler system classification, or

(b) The sprinkler system demand including hose stream requirements.

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 1-5.7.)*

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 shall be permitted to 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.*

8-1.2.5 Combined Assembly and Residential Occupancies.

8-1.2.5.1 No dwelling unit of a residential occupancy shall have its sole means of egress pass through any assembly occupancy in the same building.

8-1.2.5.2 No multiple-dwelling unit of a residential occupancy shall be located above an assembly occupancy.

Exception No. 1: Where the dwelling unit of the residential occupancy and exits therefrom are separated from the assembly occupancy by construction having a fire resistance rating of at least 1 hr.

Exception No. 2: Where the assembly occupancy is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

8-1.3 Special Definitions.

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

Assembly Occupancies. Occupancies that include, but are not limited to, all buildings or portions of buildings used for gatherings of 50 or more persons for such purposes as deliberation, worship, entertainment, dining, amusement, or awaiting transportation.

Cyclorama. The name generally used for 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.

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

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

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

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

Flow Time. 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 that supports 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 for the actors, but also to mask. They may also be called "wings."

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

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 for similar purposes wherein there are no overhead drops, pieces of scenery, or stage effects other than lighting and a screening valance.

Platform, Permanent. A platform erected within an area for more than 30 days.

Platform, Temporary. A platform erected within an area for not 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 that is temporary, permanent, or mobile that contains a device or system that conveys passengers or provides a walkway along, around, or over a course in any direction as a form of amusement so arranged that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available due to the mode of conveyance through the building or structure. 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, which 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. A valance, light trough, the main curtain, and a single backdrop may be retractable without the stage being considered a legitimate stage.

(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	Number of Levels Above LED: LED	1	2	3	4 and 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† OneLevel 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

NOTE: For the purpose of this table, a mezzanine is not counted as a level.

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 net 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 net sq m).

(c) Bleachers, pews, and similar bench-type seating: one person per 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 gross sq m).

(f) *Libraries.* In stack areas: one person per 100 gross sq ft (9.3 gross sq m); in reading rooms: one person per 50 net sq ft (4.6 net 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*) shall be permitted to 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 shall be permitted 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.

Exception: Ramps serving only stages or nonpublic areas and ramped aisles shall be permitted to have a slope not steeper than 1 in 8.

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, in accordance with 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 where 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, exits shall be permitted to be distributed around the perimeter of the building provided the total exit width furnishes a minimum of 100 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 a minimum of one-half 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: In assembly occupancies where there is no well defined main entrance/exit, exits shall be permitted to be distributed around the perimeter of the building provided the total exit width furnishes a minimum of 100 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 remotely located from each other as practicable.

8-2.4.2 Every Class B assembly occupancy shall have at least two separate means of egress as remotely located from each other as practicable and, if of an occupant load 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 that provide access to two separate and independent exits located in different directions.

8-2.4.4 Balconies or mezzanines having an occupant load not greater than 50 shall be permitted to be served by a single means of egress and such means of egress shall be permitted to 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 shall be permitted to 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 shall be permitted for the first 20 ft (6.1 m) from any point.

Exception No. 2: A common path of travel shall be permitted for the first 75 ft (23 m) for balconies or mezzanines in accordance with 8-2.4.4.

Exception No. 3: As provided in 8-2.5.6.4.

8-2.5.2 Areas accessible to people with severe mobility impairment shall have a minimum of two accessible means of egress.

Exception No. 1: Assembly occupancies protected throughout by approved supervised automatic sprinkler systems in accordance with Section 7-7.

Exception No. 2: If the accessible means of egress provide(s) the most direct routes (route) from the accessible areas, and if the fire protection system, the physical arrangement of the space, and the facility operation are all approved by the authority having jurisdiction, the authority having jurisdiction shall permit a reduction in the required number of accessible means of egress.

8-2.5.3 Means of egress shall not be permitted through kitchens, storerooms, restrooms, closets, or hazardous areas as described in 8-3.2.

8-2.5.4 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 without passing through adjacent fixed seating areas.

8-2.5.5 General Requirements for Aisles and Aisle Accessways Serving Seating.

8-2.5.5.1* The width of aisle accessways and aisles shall provide sufficient egress capacity for the number of persons accommodated by the catchment area served by the aisle accessway or aisle in accordance with 8-2.3.1. Where aisle accessways or aisles converge to form a single path of egress travel, the required egress capacity of that path shall not be less than the combined required capacity of the converging aisle accessways and aisles.

8-2.5.5.2 Those portions of aisle accessways and aisles where egress is possible in either of two directions shall be uniform in required width.

Exception: Those portions of aisle accessways where the required width, not including the seat space described by 8-2.5.5.3. does not exceed 12 in. (30.5 cm).

8-2.5.5.3* Where nonfixed seating is located between a table and an aisle accessway or aisle, the measurement of required clear width of the aisle accessway or aisle shall be made to a line 19 in. (48.3 cm) away from edge of the table. The 19-in. (48.3-cm) distance shall be measured perpendicularly to the edge of the table.

8-2.5.5.4 In the case of side boundaries, other than nonfixed seating at tables, for aisle accessways or aisles, the clear width shall be measured to boundary elements such as walls, guardrails, handrails, edges of seating, tables, and side edges of treads, with the measurement made horizontally to the vertical projection of the elements resulting in the smallest width measured perpendicularly to the line of travel.

8-2.5.6* Aisle Accessways Serving Seating Not at Tables.

8-2.5.6.1* To determine the required clear width of aisle accessways between rows of seating, horizontal measurements shall be made (between vertical planes) from the back of one seat to the front of the most forward projection of the seat immediately behind it. Where the entire row consists of 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.

8-2.5.6.2 The aisle accessway between rows of seating shall have a clear width of not less than 12 in. (30.5 cm), and this minimum shall be increased as a function of row length in accordance with 8-2.5.6.3 and 8-2.5.6.4.

Exception: If used by not more than four persons, there is no minimum clear width requirement for the portion of the aisle accessway having a length not exceeding 6 ft (1.8 m) measured from the center of the seat farthest from the aisle.

8-2.5.6.3* Rows of seating served by aisles or doorways at both ends shall have no more than 100 seats per row. The 12 in. (30.5 cm) minimum clear width of aisle accessway between such rows shall be increased by 0.3 in. (0.8 cm) for every seat over a total of 14, but need not exceed 22 in. (55.9 cm).

8-2.5.6.4 Rows of seating served by an aisle or doorway at one end only shall have a path of travel not exceeding 30 ft (9.1 m) in length from any seat to a point where a person has a choice of two paths of travel to separate exits. The 12 in. (30.5 cm) minimum clear width of aisle accessway between such rows shall be increased by 0.6 in. (1.6 cm) for every seat over a total of 7.

8-2.5.6.5 Chairs without dividing arms shall have their capacity determined by allowing 18 in. (45.7 cm) per person.

8-2.5.6.6 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.

8-2.5.6.7 Rows of seating including tablet-arm chairs shall only be permitted if the clear width of aisle accessways complies with the requirements of 8-2.5.6 when the tablet is in the usable position.

Exception: Tablet arms shall be permitted to be measured in the stored position where the tablet arm automatically returns to the stored position when raised manually to a vertical position in one motion and falls to the stored position by force of gravity.

8-2.5.7* Aisle Accessways Serving Seating at Tables.

8-2.5.7.1* The minimum required clear width of aisle accessway shall be 12 in. (30.5 cm) measured in accordance with 8-2.5.5.3 and increased as a function of length in accordance with 8-2.5.7.2.

Exception: If used by not more than four persons, there is no minimum clear width requirement for the portion of aisle accessway having a length not exceeding 6 ft (1.8 m) and located farthest from an aisle.

8-2.5.7.2* The minimum required clear width of aisle accessway measured in accordance with 8-2.5.5.3 and 8-2.5.5.4 shall be increased beyond the 12-in. (30.5-cm) requirement by 0.5 in. (1.3 cm) for each additional 12 in. (30.5 cm) or fraction thereof beyond 12 ft (3.7 m) of aisle accessway length measured from the center of the seat farthest from an aisle.

8-2.5.7.3 The path of travel shall not exceed 30 ft (9.1 m) from any seat to the point where a person has a choice of two or more paths of travel to separate exits. The path of travel along the aisle accessway shall not exceed 36 ft (10.9 m) from any seat to the closest aisle or egress doorway.

8-2.5.8 Aisles Serving Seating Not at Tables

8-2.5.8.1 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 over a total of 7 in the row.

8-2.5.8.2 The minimum clear width of aisles shall be sufficient to provide egress capacity in accordance with 8-2.3.2 but shall be 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 and seating or a guardrail 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 or guardrail and seating where the aisle does not serve more than five rows on one side.

8-2.5.8.3* Aisle Stairs and Ramps. Aisles having a gradient steeper than 1 in 20 but not steeper than 1 in 8 shall consist of a ramp. Aisles having a gradient steeper than 1 in 8 shall consist of an aisle stair.

8-2.5.8.4 Aisle Stair Treads.

(a) There shall be no variation exceeding $^3/_{16}$ in. (0.5 cm) in the depth of adjacent treads.

(b)* Treads shall be a minimum of 11 in. (27.9 cm).

8-2.5.8.5 Aisle Stair Risers.

(a) Riser heights shall be a minimum of 4 in. (10.2 cm).

(b) Riser heights shall not exceed 8 in. (20.3 cm).

Exception No. 1 to (b): Where the gradient of an aisle is steeper than 8 in. (20.3 cm) in rise in 11 in. (27.9 cm) of run (to maintain necessary sight lines in the adjoining seating area), the riser height may exceed 8 in. (20.3 cm) but shall not exceed 9 in. (22.9 cm).

Exception No. 2 to (b): Folding and telescopic seating in accordance with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.

(c) Riser heights shall be designed to be uniform in each aisle, and the construction-caused nonuniformities shall not exceed $^3/_{16}$ in. (0.5 cm) between adjacent risers.

Exception to (c): Riser height shall be permitted to be nonuniform only for the purpose of accommodating necessary changes in gradient to maintain sight lines within a seating area and shall be permitted to exceed $^3/_8$ in. (1 cm) in any flight. 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.

8-2.5.8.6* Aisle Handrails. Ramped aisles having a gradient exceeding 1 in 12 and aisle stairs shall be provided with handrails at one side or along the centerline.

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 a 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: Handrails are not required for ramped aisles having a gradient not steeper than 1 in 8 and having seating on both sides.

Exception No. 2: The requirement for a handrail is satisfied by the use of a guard providing a rail that complies with the graspability requirements for handrails and is located at a consistent height between 34 in. (86 cm) and 42 in. (107 cm) measured vertically from the top of the rail to the leading edge (nosing) of stair treads or to the adjacent walking surface in the case of a ramp.

8-2.5.8.7* Aisle Marking. 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) in width.

Exception: The marking stripe is not required where tread surfaces and environmental conditions under all conditions of use are such that the location of each tread is readily apparent, particularly when viewed in descent.

8-2.5.9 Aisles Serving Seating at Tables.

8-2.5.9.1* Aisles that contain steps or that are ramped, such as the aisles serving dinner theatre style configurations, shall comply with the requirements of 8-2.5.8.

8-2.5.9.2* The minimum width of aisles serving seating at tables shall be 44 in. (112 cm) where serving an occupant load greater than 50 and 36 in. (91 cm) where serving an occupant load of 50 or less.

8-2.5.10 Approval of Layouts.

8-2.5.10.1 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 specifications 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 shall not exceed 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 5-2.2.6.3 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 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: Where the backs of seats located at 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. Vertical openings shall be enclosed or protected in accordance with Section 6-2.

Exception No. 1: Unprotected vertical openings connecting not more than three floors in accordance with 6-2.4.5 shall be permitted.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

Exception No. 3: Stairs or ramps shall be permitted to be unenclosed between balconies or mezzanines and main assembly areas located below provided the balcony or mezzanine is open to the main assembly area.*

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 shall be permitted to 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 shall be permitted to 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, shall be permitted to 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 platforms or regular stages having a floor area not exceeding 1000 sq ft (93 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, shall be protected to guard against falling onto the stage. A wire screen, if used under the glass, shall 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 shall be permitted to 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 shall be permitted to 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 in 8-3.2.1.7.

8-3.2.1.7 Proscenium Curtain. The proscenium opening of every legitimate stage shall be provided with a curtain made of approved materials constructed and mounted so as to intercept hot gases, flames, and smoke and to prevent a glow from a severe fire on the stage from showing on the auditorium side for a period of 30 minutes. The closing of the curtain from the full open position shall be effected in less than 30 seconds, but the last 8 ft (244 cm) of travel shall require not less than 5 seconds.

The proscenium curtain shall be constructed as follows:

(a) *Asbestos Fabrics.* Where not prohibited by applicable federal, state, or local law, a curtain may be made of one or more thicknesses of a minimum 2¾-lb/sq yd (1.5-kg/m^2) AAA grade wire-inserted asbestos fabric or of another wire-inserted asbestos fabric of greater fire resistance than 2¾-lb/sq yd (1.5-kg/m^2) AAA grade wire-inserted fabric. Nonasbestos portions of these fabrics, if any, shall be flame resistant treated so as not to support combustion.

(b) *Other Fabrics.* Curtains not meeting the above criteria shall be made of one or more thicknesses of a noncombustible fabric or a fabric with a noncombustible base material, which shall be permitted to be given a coating provided the modified fabric meets the criteria detailed in this section. Curtain fabrics shall have a minimum weight of 2⅜ lb/sq yd (1.3 kg/m^2).

(c) *Tensile Strength Requirements.* Curtain fabric shall have minimum tensile strength requirements of 400 lbf/in. (540 N/m) in both the warp and fill directions.

(d) *Wire-Insertion Reinforcement Requirements.* The fabric shall be reinforced with noncorrosive wire intertwined with the base fiber at a minimum rate of 1 wire per yarn. Wire is not required and fabric weight shall be permitted to be less than 2⅜ lb/sq yd (1.3 kg/m^2) if it can be substantiated by approved tests that it is equivalent in strength and durability.

(e) *Fire Test.* A sample curtain with a minimum of two vertical seams shall be subjected to the standard fire test specified in NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials*, as applicable to nonbearing walls and partitions for a period of 30 minutes. The curtain shall overlap the furnace edges by an amount that is appropriate to seal the top and sides. It shall have a bottom pocket containing a minimum 4 lb/linear ft (5 kg/m) of batten. The unexposed surface of the curtain shall not glow, and neither flame nor smoke shall penetrate the curtain during the test period. Unexposed surface temperature and hose stream test requirements are not applicable to this proscenium firesafety curtain test.

(f) *Smoke Test.* Curtain fabrics shall have a smoke density of no greater than 25 when tested in accordance with NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*. The curtain fabric shall be tested in the condition in which it is to be used.

The complete installation of every proscenium curtain shall be subjected to operating tests, and any theatre in which a proscenium curtain is placed shall not be open to public performance until after the proscenium curtain has been accepted and approved by the authority having jurisdiction. The curtain is to be kept in the normally closed position when each day's performances are completed.

The curtain shall be automatic-closing without the use of applied power. The curtain 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 shall have a system of automatic sprinklers at the ceiling, in usable spaces under the stage, in auxiliary spaces, and in dressing rooms, storerooms, and workshops. Where there is a stage gridiron, sidewall sprinklers rated at 135°F (57°C) 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.

Exception: Regular and thrust stages less than 1000 sq ft (93 sq m) in area.

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 are not required to 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 Section 3-2*) 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.

In theaters, motion picture theaters, and television stage settings, with or without horizontal projections, and simulated caves and caverns of foamed plastic, any single fuel package shall have a maximum heat release rate of 100 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes.*

8-3.2.1.12 Standpipes. Regular stages over 1000 sq ft (93 sq m) in area and all legitimate stages shall be equipped with a Class III standpipe located on the stage at each side 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 projections 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 are not required to 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 shall be permitted to 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 supply sufficient air whether or not other systems are in operation.

(b) *Exhaust Air.* Projection booths shall be permitted to 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 sufficient 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 shall be permitted to 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 shall be permitted to 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 shall be permitted to 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 shall be permitted to 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 shall 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 abutting required exits. All such rooms shall be separated from other parts of the building by fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour or protected by an automatic extinguishing system in accordance with Section 6-4.

8-3.2.3.2 Adequate vents to the outside air shall be provided in accordance with Section 6-4.

8-3.2.3.3 Rooms or spaces for the storage, processing, or use of material specified in this section shall be protected in accordance with the following:

(a)* Boiler and furnace rooms, 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 fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour, or such rooms or spaces shall be protected by an automatic extinguishing system as required in Section 6-4.

Exception to (a): Rooms enclosing air-handling equipment.*

(b) Laundries, maintenance shops, including woodworking and painting areas, 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 fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour and shall also be protected by an automatic extinguishing system as required in Section 6-4.

(c) Where automatic extinguishing is used to meet the requirements of this section, protection shall be permitted to 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 shall 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. Class A and 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 7-6.1 and this section.

Exception No. 1: Assembly occupancies that are a part of a mixed occupancy (see 1-5.7) shall be permitted to be served by a common fire alarm system provided the individual requirements of each occupancy are met.

Exception No. 2: Voice communication or public address systems complying with 8-3.4.3.3 are not required to comply with 7-6.1.

8-3.4.2 Initiation.

8-3-4.2.1 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 by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides fire detection throughout the building.

Exception No. 2: Initiation by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides fire detection and protection throughout the building.

8-3.4.2.2* In all Class A and in all Class B assembly occupancies, automatic detection shall be provided in all hazardous areas that are not normally occupied.

Exception: Areas that are protected throughout by an approved automatic sprinkler system in accordance with 7-7.1.

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 when occupied for purposes of initiating emergency action.

8-3.4.3.2 Occupant notification shall be by means of voice announcements, either live or prerecorded, initiated by the person in the constantly attended location.

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, a fire alarm system in accordance with Section 7-6 that is initiated by manual stations in accordance with 7-6.2.1(a) or other approved means of initiation and that automatically provides prerecorded evacuation instructions in accordance with 7-6.3.8 shall be used.

8-3.5 Extinguishment Requirements. (*Also 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 all stories below the story containing the assembly occupancy, and

(c) In the case of an assembly occupancy located below the level of exit discharge, throughout all stories 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 and not part of a mixed occupancy. (See 1-5.7.)

Exception No. 2: Assembly occupancies consisting of a single multipurpose room of less than 12,000 sq ft (1,100 sq m) and not used for exhibition or display.*

Exception No. 3: Gymnasiums, skating rinks, and 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 and 6-2.3.

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 5-5.1.7) 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, minimum 1-hour rated 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 provide 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 5-3.3 or NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.

8-4.4 Special Provisons for Exposition Facilities.

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 consisting of a smoke barrier having a fire resistance rating of 1 hour and protected by an automatic extinguishing system shall be provided for combustible materials not on display, including combustible packing crates used to ship exhibitors' supplies and products.

8-4.4.3 Exhibits.

8-4.4.3.1 Exhibits shall comply with 8-4.4.3.2 through 8-4.4.3.11.

8-4.4.3.2 The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not be greater than 50 ft (15 m).

8-4.4.3.3 The upper deck of multilevel exhibits greater than 300 sq ft (27.9 sq m) in area shall have at least two remote means of egress.

8-4.4.3.4 Exhibit booths shall be constructed of:

(a) Noncombustible or limited-combustible materials.

(b) Wood greater than 1/4 in. (.6 cm) nominal thickness or wood not greater than 1/4 in. (.6 cm) nominal thickness that is pressure treated fire retardant wood meeting the requirements of NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials*.

(c)* Flame-retardant materials complying with NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*; both small and large scale tests.

(d) Textile wall covering such as carpeting having napped, tufted, looped, or similar surface used as wall or ceiling finish complying with 6-5.2.3.

(e) Plastic that is limited to a Class A or Class B interior wall and ceiling finish.

(f) Foamed plastics and materials containing foamed plastics having a maximum heat release rate for any single fuel package of 100 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

(g) Cardboard, honeycombed paper, and other combustible materials having a maximum heat release rate for any single fuel package of 150 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

8-4.4.3.5 Curtains, drapes, and decorations shall comply with 31-1.4.

8-4.4.3.6 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. Foamed plastics and materials containing foamed plastics used as decorative objects such as, but not limited to, mannequins, murals, and signs shall have a maximum heat release rate for any single fuel package of 150 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

Exception: Where the aggregate area of such materials is less than 10 percent of the individual floor or wall area, such materials may be used subject to the approval of the authority having jurisdiction.

8-4.4.3.7 The following shall be protected by automatic extinguishing systems:

(a) Single level exhibit booths greater than 300 sq ft (27.9 sq m) and covered with a ceiling.

(b) The first level of multilevel exhibit booths.

(c) The second level of multilevel exhibit booths where the second level is covered with a ceiling.

(d) A single exhibit or group of exhibits with ceilings that do not require sprinklers shall be separated by a minimum of 10 ft (3 m) where the aggregate ceiling exceeds 300 sq ft (27.9 sq m).

The water supply and piping for the sprinkler system may be of approved temporary means taken from an existing domestic water supply, an existing standpipe system, or an existing sprinkler system.

Exception No. 1: Ceilings that are constructed of open grate design or listed dropout ceilings in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, shall not be considered ceilings within the context of this section.

Exception No. 2: 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.

Exception No. 3: Where fire protection of multilevel exhibit booths is consistent with the criteria developed through a life safety evaluation of the exhibition hall, subject to approval of the authority having jurisdiction. (See A-8-2.3.2.)

8-4.4.3.8 Open flame devices within exhibit booths shall comply with 31-2.3.

8-4.4.3.9 Cooking and food warming devices in exhibit booths shall comply with 31-2.4 and the following:

(a) Gas fired devices.

(1) Natural gas fired devices shall be installed in accordance with 7-1.1.

Exception to (a) (1): Compressed natural gas may be used where permitted by the authority having jurisdiction.

(2) The use of LP-Gas cylinders is prohibited.

Exception to (a) (2): Nonrefillable cylinders may be used where permitted by the authority having jurisdiction.

(b) Devices shall be isolated from the public by at least 4 ft (122 cm) or by a barrier between the devices and the public.

(c) Multi-well cooking equipment using combustible oils or solids shall comply with 7-2.3.

(d) Single-well cooking equipment using combustible oils or solids shall:

(1) Have lids available for immediate use.

(2) Be limited to 288 sq in. (.19 sq m) of cooking surface.

(3) Be placed on noncombustible surface materials.

(4) Be separated from each other by a minimum horizontal distance of 2 ft (61 cm).

Exception to (d) (4): Multiple single-well cooking equipment where the aggregate cooking surface area does not exceed 288 sq in. (.19 sq m)

(5) Be kept a minimum horizontal distance of 2 ft (61 cm) from any combustible material.

(e) A 20 B:C fire extinguisher shall be provided within the booth for each device, or an approved automatic extinguishing system shall be provided.

8-4.4.3.10 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.*)

8-4.4.3.11 Plans for the exposition, in an acceptable form, shall be submitted to the authority having jurisdiction for approval prior to the move-in of any exhibit. The plan shall show all details of the proposed exposition. No exposition shall occupy any exposition facility without approved plans.

8-4.4.4 Vehicles. Vehicles on display within an exposition facility 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 not be more than one-half full or contain more than 10 gal (37.9 L) of fuel, whichever is less.

(b) At least one battery cable shall be removed from the batteries used to start the vehicle engine. The disconnected battery cable shall then be taped.

(c) Batteries used to power auxiliary equipment shall be permitted to be kept in service.

(d) Fueling or defueling of vehicles shall be prohibited.

(e) 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.

8-4.4.6 Alternatives. (*See Section 1-6, "Equivalency Concepts."*)

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. (*Also see 8-2.5.2.*)

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 movable 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, Escalators, and Conveyors. Elevators, escalators, and 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 be approved for continued use 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, explosion, 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 shall be upgraded if the addition results in a change of assembly classification. (See 9-1.4.1.)

9-1.1.3 An assembly occupancy that has an occupant load increase that results in a change of assembly classification *(see 9-1.4.1)* shall meet the requirements for new assembly occupancies.

9-1.2 Mixed Occupancies. *(See also 1-5.7.)*

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 shall be permitted to 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.*

9-1.2.5 Combined Assembly and Residential Occupancies.

9-1.2.5.1 No dwelling unit of a residential occupancy shall have its sole means of egress pass through any assembly occupancy in the same building.

9-1.2.5.2 No multiple-dwelling unit of a residential occupancy shall be located above an assembly occupancy.

Exception No. 1: Where the dwelling unit of the residential occupancy and exits therefrom are separated from the assembly occupancy by construction having a fire resistance rating of at least 1 hour.

Exception No. 2: Where the assembly occupancy is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

Exception No. 3: As permitted in 9-1.2.5.3.

9-1.2.5.3 A building with not more than two dwelling units of residential occupancy above an assembly occupancy shall be permitted provided that the assembly occupancy is protected by an automatic fire detection system in accordance with Section 7-6.

9-1.3 Special Definitions.

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

Assembly Occupancies. Occupancies that include, but are not limited to, all buildings or portions of buildings used for gatherings of 50 or more persons for such purpose as deliberation, worship, entertainment, dining, amusement, or awaiting transportation.

Cyclorama. The name generally used for 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.

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

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

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

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

Flow Time. 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 that supports 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 for the actors, but also to mask. They may also be called "wings."

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

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 for similar purposes wherein there are no overhead drops, pieces of scenery, or stage effects other than lighting and a screening valance.

Platform, Permanent. A platform erected within an area for more than 30 days.

Platform, Temporary. A platform erected within an area for not 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 that is temporary, permanent, or mobile that contains a device or system that conveys passengers or provides a walkway along, around, or over a course in any direction as a form of amusement so arranged that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available due to the mode of conveyance through the building or structure. 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, which 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. A valance or light trough, the main curtain, and a single backdrop may be retractable without the stage being considered a legitimate stage.

(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	Number of Levels Above LED: LED	1	2	3	4 and 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

NOTE: For the purpose of this table, a mezzanine is not counted as a level.

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 (0.65 net 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 net sq m).

(c) Bleachers, pews, and similar bench-type seating: one person per 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 gross sq m).

(f) *Libraries.* In stack areas: one person per 100 gross sq ft (9.3 gross sq m); in reading rooms: one person per 50 net sq ft (4.6 net sq m).

Exception: The authority having jurisdiction may permit occupancy by a 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 number of persons greater 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*) shall be permitted to 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 shall be permitted to 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 shall be permitted.

9-2.2.9 Fire Escape Stairs. Fire escape stairs complying with 5-2.8 shall be 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,

in accordance with 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 where 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

		Inch of Clear Width Per Seat Served	
No. of Seats	Nominal Flow Time (sec)	Stairs	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

		Inch of Clear Width Per Seat Served	
No. of Seats	Nominal Flow Time (sec)	Stairs	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, exits shall be permitted to be distributed around the perimeter of the building provided the total exit width furnishes a minimum of 100 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 a minimum of one-half 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: In assembly occupancies where there is no well defined main entrance/exit, exits shall be permitted to be distributed around the perimeter of the building provided the total exit width furnishes a minimum of 100 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 remotely located from each other as practicable.

9-2.4.2 Every Class B assembly occupancy shall have at least two separate means of egress as remotely located from each other as practicable and, if of an occupant load 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 that provide access to two separate and independent exits located in different directions.

9-2.4.4 Balconies or mezzanines having an occupant load not greater than 50 shall be permitted to be served by a single means of egress and such means of egress shall be permitted to 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 shall be permitted to 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 remotely located 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 shall be permitted for the first 20 ft (6.1 m) from any point.

Exception No. 2: A common path of travel shall be permitted for the first 75 ft (23 m) for balconies or mezzanines in accordance with 9-2.4.4.

Exception No. 3: As provided in 9-2.5.6.4.

9-2.5.2 Reserved.

9-2.5.3 Means of egress shall not be permitted through kitchens, storerooms, restrooms, closets, or hazardous areas as described in 9-3.2.

9-2.5.4 Reserved.

9-2.5.5 General Requirements for Aisles and Aisle Accessways Serving Seating.

9-2.5.5.1* The width of aisle accessways and aisles shall provide sufficient egress capacity for the number of persons accommodated by the catchment area served by the aisle accessway or aisle in accordance with 9-2.3.1. Where aisle accessways or aisles converge to form a single path of egress travel, the required egress capacity of that path shall not be less than the combined required capacity of the converging aisle accessways and aisles.

9-2.5.5.2 Those portions of aisle accessways and aisles where egress is possible in either of two directions shall be uniform in required width.

Exception: Those portions of aisle accessways where the required width, not including the seat space described by 9-2.5.4.4, does not exceed 12 in. (30.5 cm).

9-2.5.5.3* Where nonfixed seating is located between a table and an aisle accessway or aisle, the measurement of required clear width of the aisle accessway or aisle shall be made to a line 19 in. (48.3 cm) away from edge of the table. The 19-in. (48.3-cm) distance shall be measured perpendicularly to the edge of the table.

9-2.5.5.4 In the case of side boundaries other than nonfixed seating at tables, for aisle accessways or aisles, the clear width shall be measured to boundary elements such as walls, guardrails, handrails, edges of seating, tables, and side edges of treads, with the measurement made horizontally to the vertical projection of the elements resulting in the smallest width measured perpendicularly to the line of travel.

9-2.5.6* Aisle Accessways Serving Seating Not at Tables.

9-2.5.6.1* To determine the required clear width of aisle accessways between rows of seating, horizontal measurements shall be made (between vertical planes) from the back of one seat to the front of the most forward projection of the seat immediately behind it. Where the entire row consists of 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.

9-2.5.6.2 The aisle accessway between rows of seating shall have a clear width of not less than 12 in. (30.5 cm), and this minimum shall be increased as a function of row length in accordance with 9-2.5.6.3 and 9-2.5.6.4.

Exception: If used by not more than four persons, there is no minimum clear width requirement for the portion of the aisle accessway having a length not exceeding 6 ft (1.8 m) measured from the center of the seat farthest from the aisle.

9-2.5.6.3* Rows of seating served by aisles or doorways at both ends shall have no more than 100 seats per row. The 12 in. (30.5 cm) minimum clear width of aisle accessway between such rows shall be increased by 0.3 in. (0.8 cm) for every seat over a total of 14, but need not exceed 22 in. (55.9 cm).

9-2.5.6.4 Rows of seating served by an aisle or doorway at one end only shall have a path of travel not exceeding 30 ft (9.1 m) in length from any seat to a point where a person has a choice of two paths of travel to separate exits. The 12 in. (30.5 cm) minimum clear width of aisle accessway between such rows shall be increased by 0.6 in. (1.6 cm) for every seat over a total of 7.

9-2.5.6.5 Chairs without dividing arms shall have their capacity determined by allowing 18 in. (45.7 cm) per person.

9-2.5.6.6 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.

9-2.5.6.7 Rows of seating including tablet-arm chairs shall only be permitted if the clear width of aisle accessways complies with the requirements of 9-2.5.6 when the tablet is in the usable position.

Exception: Tablet arms shall be permitted to be measured in the stored position where the tablet arm automatically returns to the stored position when raised manually to a vertical position in one motion and falls to the stored position by force of gravity.

9-2.5.7* Aisle Accessways Serving Seating at Tables.

9-2.5.7.1* The minimum required clear width of aisle accessway shall be 12 in. (30.5 cm) measured in accordance with 9-2.5.5.3 and increased as a function of length in accordance with 9-2.5.7.2.

Exception: If used by not more than four persons, there is no minimum clear width requirement for the portion of aisle accessway having a length not exceeding 6 ft (1.8 m) and located farthest from an aisle.

9-2.5.7.2* The minimum required clear width of aisle accessway measured in accordance with 9-2.5.5.3 and 9-2.5.5.4 shall be increased beyond the 12-in. (30.5-cm) requirement by 0.5 in. (1.3 cm) for each additional 12 in. (30.5 cm) or fraction thereof beyond 12 ft (3.7 m) of aisle accessway length measured from the center of the seat farthest from an aisle.

9-2.5.7.3 The path of travel shall not exceed 30 ft (9.1 m) from any seat to the point where a person has a choice of two or more paths of travel to separate exits. The path of travel along the aisle accessway shall not exceed 36 ft (10.9 m) from any seat to the closest aisle or egress doorway.

9-2.5.8 Aisles Serving Seating Not at Tables

9-2.5.8.1 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 over a total of 7 in the row.

9-2.5.8.2 The minimum clear width of aisles shall be sufficient to provide egress capacity in accordance with 9-2.3.2 but not less than:

(a) 42 in. (107 cm) for stairs having seating on each side.

Exception to (a): 30 in. (76 cm) for catchment areas having no more than 60 seats.

(b) 36 in. (91 cm) for stairs having seating on only one side.

Exception to (b): 30 in. (76 cm) for catchment areas having no more than 60 seats.

(c) 20 in. (51 cm) between a handrail and seating or a guardrail where the aisle is subdivided by a handrail.

(d) 42 in. (107 cm) for level or ramped aisles having seating on both sides.

Exception to (d): 30 in. (76 cm) for catchment areas having no more than 60 seats.

(e) 36 in. (91 cm) for level or ramped aisles having seating on only one side.

Exception to (e): 30 in. (76 cm) for catchment areas having no more than 60 seats.

(f) 23 in. (58 cm) between a handrail or guardrail and seating where aisle does not serve more than five rows on one side.

9-2.5.8.3* Aisle Stairs and Ramps. Aisles having a gradient steeper than 1 in 20 but not steeper than 1 in 8 shall consist of a ramp. Aisles having a gradient steeper than 1 in 8 shall consist of an aisle stair.

9-2.5.8.4 Aisle Stair Treads.

(a)* There shall be no variation exceeding $^3/_{16}$ in. (0.5 cm) in the depth of adjacent treads.

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).

9-2.5.8.5 Aisle Stair Risers.

(a) Riser heights shall be a minimum of 4 in. (10.2 cm).

(b) Riser heights shall not exceed 8 in. (20.3 cm).

Exception No. 1 to (b): Where the gradient of an aisle is steeper than 8 in. (20.3 cm) in rise in 11 in. (27.9 cm) of run (to maintain necessary sight lines in the adjoining seating area), the riser height may exceed 8 in. (20.3 cm) but shall not exceed 11 in. (27.9 cm).

Exception No. 2 to (b): Folding and telescopic seating in accordance with NFPA 102, Standard for Assembly Seating, Tents, and Membrane Structures.

(c) Riser heights shall be designed to be uniform in each aisle, and the construction-caused nonuniformities shall not exceed $^3/_{16}$ in. (0.5 cm) between adjacent risers.

Exception to (c): Riser height shall be permitted to be nonuniform only for the purpose of accommodating necessary changes in gradient to maintain necessary sight lines within a seating area and shall be permitted to exceed $^3/_8$ in. (1.0 cm) in any flight. 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.

9-2.5.8.6* Aisle Handrails. Ramped aisles having a gradient exceeding 1 in 12 and aisle stairs shall be provided with handrails at one side or along the centerline.

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 a 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: Handrails are not required for ramped aisles having a gradient not steeper than 1 in 8 and having seating on both sides.

Exception No. 2: The requirement for a handrail is satisfied by the use of a guard providing a rail that complies with the graspability requirements for handrails and is located at a consistent height between 34 in. (86 cm) and 42 in. (107 cm) measured vertically from the top of the rail to the leading edge (nosing) of stair treads or to the adjacent walking surface in the case of a ramp.

Exception No. 3: Handrails are not required where risers do not exceed 7 in. (17.8 cm) in height.

9-2.5.8.7* Aisle Marking. 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) in width.

Exception: The marking stripe is not required where tread surfaces and environmental conditions under all conditions of use are such that the location of each tread is readily apparent, particularly when viewed in descent.

9-2.5.9 Aisles Serving Seating at Tables.

9-2.5.9.1* Aisles that contain steps or are ramped, such as the aisles serving dinner theatre style configurations, shall comply with the requirements of 9-2.5.8.

9-2.5.9.2* The minimum width of aisles serving seating at tables shall be 44 in. (112 cm) where serving an occupant load greater than 50 and 36 in. (91 cm) where serving an occupant load of 50 or less.

9-2.5.10 Approval of Layouts.

9-2.5.10.1 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 specifications 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 shall not exceed 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 5-2.2.6.3 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 located at 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 shall be permitted to continue to be used.

SECTION 9-3 PROTECTION

9-3.1 Protection of Vertical Openings. Vertical openings shall be enclosed or protected in accordance with Section 6-2.

Exception No. 1: Unprotected vertical openings connecting not more than three floors in accordance with 6-2.4.5 shall be permitted.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

Exception No. 3: Stairs or ramps shall be permitted to be unenclosed between balconies or mezzanines and main assembly areas located below provided the balcony or mezzanine is open to the main assembly area.*

Exception No. 4: Existing wood lath and plaster, existing 1/2-in. (1.3-cm) gypsum wallboard, existing installations of 1/4-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, shall be protected to guard against falling onto the stage. A wire screen, if used under the glass, shall 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 shall be permitted to 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 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 prevent flame from a fire on the stage from becoming visible from the auditorium side for a 5-minute period where the curtain is of asbestos. Other materials shall be permitted if they have passed a 30-minute fire test in a small scale 3 ft × 3 ft (91 cm × 91 cm) furnace 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 No. 1: In lieu of the protection required herein, all the following shall 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 by fusible elements in case of fire, 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.

Exception No. 2: Proscenium curtains complying with 8-3.2.1.7.

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 1000 sq ft (93 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, sidewall sprinklers rated at 135°F (57°C) 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 9-3.2.1.9.

(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 Section 3-2*) 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 over 1,000 sq ft (93 sq m) 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 projections 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 are not required to 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 shall be permitted to 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 supply sufficient air whether or not other systems are in operation.

(b) *Exhaust Air.* Projection booths shall be permitted to 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 sufficient 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 shall be permitted to 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 shall be permitted to 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 shall be permitted to 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 shall be permitted to 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 shall be permitted in each projection booth.

(c) Appurtenant electrical equipment, such as rheostats, transformers, and generators, shall be permitted to 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 abutting required exits. All such rooms shall be separated from other parts of the building by fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour or shall be protected by automatic extinguishing systems in accordance with Section 6-4.

9-3.2.3.2 Adequate vents to the outer air shall be provided in accordance with Section 6-4.

9-3.2.3.3 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) Boiler and furnace rooms, laundries, maintenance shops including woodworking and painting areas, 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 fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour, or such rooms or spaces shall be protected by an automatic extinguishing system as required in Section 6-4.

Exception to (a): Rooms enclosing air-handling equipment.*

(b) Rooms or spaces used for processing or use of combustible supplies in quantities deemed hazardous by the authority having jurisdiction, hazardous materials, or for flammable or combustible liquid in quantities deemed hazardous by recognized standards shall be separated from the remainder of the building by fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 1 hour and shall also be protected by an automatic extinguishing system as required in Section 6-4.

(c) Where automatic extinguishing is used to meet the requirements of this section, protection shall be permitted to 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 shall 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 Communication Systems.

9-3.4.1 General. Class A and 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 1-5.7) shall be permitted to 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 judgement of the authority having jurisdiction, adequate alternative provisions exist or are provided for the discovery of a fire condition and for alerting the occupants promptly.

9-3.4.2 Initiation.

9-3.4.2.1 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 by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides fire detection throughout the building.

Exception No. 2: Initiation by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides fire detection and protection throughout the building.

9-3.4.2.2* In all Class A and in all Class B assembly occupancies, automatic detection shall be provided in all hazardous areas that are not normally occupied.

Exception: Areas that are protected throughout by an approved automatic sprinkler system in accordance with 7-7.1.

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 when occupied for purposes of initiating emergency action.

9-3.4.3.2 Occupant notification shall be by means of voice announcements, either live or prerecorded, initiated by the person in the constantly attended location.

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, a fire alarm system in accordance with Section 7-6 that is initiated by manual stations in accordance with 7-6.2.1(a) or other approved means of initiation and that automatically provides prerecorded evacuation instructions in accordance with 7-6.3.8 shall be used.

9-3.5 Extinguishment Requirements. (*Also 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 (1,400 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 Provisons for Exposition Facilities.

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 consisting of a smoke barrier having a fire resistance rating of 1 hour and protected by an automatic extinguishing system shall be provided for combustible materials not on display, including combustible packing crates used to ship exhibitors' supplies and products.

9-4.4.3 Exhibits.

9-4.4.3.1 Exhibits shall comply with 9-4.4.3.2 through 9-4.4.3.11.

9-4.4.3.2 The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not be greater than 50 ft (15 m).

9-4.4.3.3 The upper deck of multilevel exhibits greater than 300 sq ft (27.9 sq m) in area shall have at least two remote means of egress.

9-4.4.3.4 Exhibit booths shall be constructed of:

(a) Noncombustible or limited-combustible materials.

(b) Wood greater than ¼ in. (.6 cm) nominal thickness or wood not greater than ¼ in. (.6 cm) nominal thickness that is pressure treated fire retardant wood meeting the requirements of NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials*.

(c)* Flame-retardant materials complying with NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*; both small and large scale tests.

(d) Textile wall covering such as carpeting having napped, tufted, looped, or similar surface used as wall or ceiling finish complying with 6-5.2.3.

(e) Plastic that is limited to a Class A or Class B interior wall and ceiling finish.

(f) Foamed plastics and materials containing foamed plastics having a maximum heat release rate for any single fuel package of 100 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

(g) Cardboard, honeycombed paper, and other combustible materials having a maximum heat release rate for any single fuel package of 150 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

9-4.4.3.5 Curtains, drapes, and decorations shall comply with 31-1.4.

9-4.4.3.6 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. Foamed plastics and materials containing foamed plastics used as decorative objects such as, but not limited to, mannequins, murals, and signs shall have a maximum heat release rate for any single fuel package of 150 kW when tested in accordance with UL 1975, *Standard for Fire Tests for Foamed Plastic Used for Decorative Purposes*.

Exception: Where the aggregate area of such materials is less than 10 percent of the individual floor or wall area, such materials may be used subject to the approval of the authority having jurisdiction.

9-4.4.3.7 The following shall be protected by automatic extinguishing systems:

(a) Single level exhibit booths greater than 300 sq ft (27.9 sq m) and covered with a ceiling.

(b) The first level of multilevel exhibit booths.

(c) The second level of multilevel exhibit booths where the second level is covered with a ceiling.

(d) A single exhibit or group of exhibits with ceilings that do not require sprinklers shall be separated by a minimum of 10 ft (3 m) where the aggregate ceiling exceeds 300 sq ft (27.9 sq m).

The water supply and piping for the sprinkler system may be of approved temporary means taken from an existing domestic water supply, an existing standpipe system, or an existing sprinkler system.

Exception No. 1: Ceilings that are constructed of open grate design or listed dropout ceilings in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, shall not be considered ceilings within the context of this section.

Exception No. 2: 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.

Exception No. 3: Where fire protection of multilevel exhibit booths is consistent with the criteria developed through a life safety evaluation of the exhibition hall, subject to approval of the authority having jurisdiction. (See A-9-2.3.2.)

9-4.4.3.8 Open flame devices within exhibit booths shall comply with 31-2.3.

9-4.4.3.9 Cooking and food warming devices in exhibit booths shall comply with 31-2.4 and the following:

(a) Gas fired devices.

(1) Natural gas fired devices shall be installed in accordance with 7-1.1.

Exception to (a) (1): Compressed natural gas may be used where permitted by the authority having jurisdiction.

(2) The use of LP-Gas cylinders is prohibited.

Exception to (a) (2): Nonrefillable cylinders may be used where permitted by the authority having jurisdiction.

(b) Devices shall be isolated from the public by at least 4 ft (122 cm) or by a barrier between the devices and the public.

(c) Multi-well cooking equipment using combustible oils or solids shall comply with 7-2.3.

(d) Single-well cooking equipment using combustible oils or solids shall:

(1) Have lids available for immediate use.

(2) Be limited to 288 sq in. (.19 sq m) of cooking surface.

(3) Be placed in noncombustible surface materials.

(4) Be separated from each other by a minimum horizontal distance of 2 ft (61 cm).

Exception to (d) (4): Multiple single-well cooking equipment where the aggregate cooking surface area does not exceed 288 sq in. (.19 sq m)

(5) Be kept a minimum horizontal distance of 2 ft (61 cm) from any combustible material.

(e) A 20 B:C fire extinguisher shall be provided within the booth for each device, or an approved automatic extinguishing system shall be provided.

9-4.4.3.10 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.*)

9-4.4.3.11 Plans for the exposition, in an acceptable form, shall be submitted to the authority having jurisdiction for approval prior to the move-in of any exhibit. The plan shall show all details of the proposed exposition. No exposition shall occupy any exposition facility without approved plans.

9-4.4.4 Vehicles. Vehicles on display within an exposition facility 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 not be more than one-half full or contain more than 10 gal (37.9 L) of fuel, whichever is less.

(b) At least one battery cable shall be removed from the batteries used to start the vehicle engine. The disconnected battery cable shall then be taped.

(c) Batteries used to power auxiliary equipment shall be permitted to be kept in service.

(d) Fueling or defueling of vehicles shall be prohibited.

(e) 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.

9-4.4.6 Alternatives. (*See Section 1-6, "Equivalency Concepts."*)

9-4.5 Special Provisions for the Handicapped. (Reserved.)

9-4.6* Special Provisions for Amusement Buildings.

9-4.6.1 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.

9-4.6.2* 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 movable or portable, sprinkler water supply may be by an approved temporary means.

9-4.6.3 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.

9-4.6.4 Exit Marking.

9-4.6.4.1 Exit marking shall be in accordance with Section 5-10.

9-4.6.4.2 Exit marking in mobile special amusement buildings shall be of the luminescent, self-luminous, or electroluminescent type.

9-4.6.4.3 Low level exit signs shall be provided in accordance with 5-10.1.4.

9-4.6.4.4* 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.

9-4.6.5 Interior Finish. Interior finish shall be Class A throughout in accordance with Section 6-5.

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, Escalators, and Conveyors. Elevators, escalators, and 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 facilities that do not meet the definition of an educational occupancy 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, Noninstructional — 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 1-5.7 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 8-1.2, 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 by the school occupant load (and therefore not subject to simultaneous occupancy), the same exit capacity shall be permitted to 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 shall be permitted to serve both sections.

10-1.3 Special Definitions.

Common Atmosphere. A common atmosphere is the atmosphere that 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. These include 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 [maximum 5-ft (152-cm)] partitions, or similar furnishings.

Separate Atmosphere. A separate atmosphere is the atmosphere that 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 four or more hours per day or more than twelve hours per week.

10-1.4.2 Educational occupancies include part-day preschools, 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 Day-care facilities, whether for adults or children, shall meet the requirements of Section 10-7, 10-8, or 10-9 as appropriate.

Exception: Day-care facilities whose purpose is primarily educational as indicated in 10-1.4.2.

10-1.4.5 Adult day-care shall include any building or portion thereof used for nonsleeping purposes for less than 24 hours per day to house four or more adults requiring care, maintenance, and supervision by other than their relative(s). Clients shall be ambulatory or semiambulatory and shall not be bedridden. They shall not exhibit behavior that is harmful to themselves or others.

10-1.4.6 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 1-5.7.)*

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 shall be permitted.

10-2.2.2.4 Door Closure. Any exit door that is 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.

10-2.2.2.6 Horizontal sliding doors shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.1. The doors shall be operable by force not to exceed 15 lbf (67 N) applied to the operating device in the direction of egress.

10-2.2.2.7 Horizontal sliding doors shall be permitted in smoke barriers in accordance with 5-2.1.14.1. In addition, the doors shall be operable by a force not to exceed 15 lbf (67 N) applied to the operating device in the direction of egress.

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 Minimum Corridor Width.

10-2.3.2.1 Exit access corridors shall be not less than 6 ft (183 cm) clear width.

10-2.3.2.2 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 Means of egress shall be arranged in accordance with Section 5-5. No common path of travel shall exceed 75 ft (23 m); no dead end shall exceed 20 ft (6.1 m).

10-2.5.2 Every room that is normally occupied shall have an exit access door leading directly to an exit access corridor or exit.

Exception No. 1: If there is an exit door opening directly to the outside or to an exterior balcony or corridor as described in 10-2.5.6.

Exception No. 2: One room may intervene between a normally occupied student room and an exit access corridor provided:

(1) The total travel from a room served by an intervening room and the corridor door or exit shall not exceed 75 ft (23 m), and

(2) Clothing, personal effects, or other materials deemed hazardous by the authority having jurisdiction shall be stored in metal lockers provided they do not obstruct the exit access, or the intervening room shall be sprinklered in accordance with Section 7-7, and either

(3) The intervening room shall have approved fire detection installed that will activate the building alarm, or

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

10-2.5.3 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 remotely located from each other as practicable. Such doorways shall provide access to separate exits, but where egress is through corridors, they shall be permitted to open upon a common corridor leading to separate exits located in opposite directions.

10-2.5.4 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.

10-2.5.5 Aisles. 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.

10-2.5.6* Exterior Corridors or Balconies.

10-2.5.6.1 Exterior exit access shall comply with 5-5.3.

10-2.5.6.2* 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.

10-2.5.6.3 The floors of balconies (exterior corridors) and stairs shall be solid, without openings, and shall comply with requirements for outside stairs with respect to balustrades or railings, width and pitch of stairs, and other details. However, they 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 shall be permitted to 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: Travel distance shall not exceed 200 ft (60 m) in educational occupancies protected throughout by an approved automatic sprinkler system installed in accordance with Section 7-7.

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 interior or windowless portions of buildings.

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 locations of exits are 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 greater than 250 sq ft (23.2 sq m) 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 shall 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. Such windows shall be accessible by the fire department and shall open into an area having access to a public way.

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: In rooms located higher than three stories above grade, the openable clear height, width, and area of the window may be modified to the dimensions necessary for ventilation.

10-2.11.2 Areas accessible to people with severe mobility impairment shall have a minimum of two accessible means of egress.

Exception No. 1: Educational occupancies protected throughout by approved supervised automatic sprinkler systems in accordance with Section 7.7.

Exception No. 2: If the accessible means of egress provide(s) the most direct routes (route) from the accessible areas and if the fire protection system, the physical arrangement of the space, and the facility operation are all approved by the authority having jurisdiction, the authority having jurisdiction shall permit a reduction in the required number of accessible means of egress.

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 No. 1: 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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

Exception No. 3: Stairway enclosures shall not be required for a stairway that serves only one adjacent floor except a basement and that is not connected with stairways serving other floors and that is 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 shall be protected by an automatic extinguishing system as required 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 required 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 shall be permitted to 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 shall be permitted to be in accordance with 7-7.1.2. Doors to janitor closets shall be permitted to 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) in height shall be Class A, B, or C.

Exception: The exposed portions of structural members complying with the requirements for Type IV (2HH) construction shall be permitted.*

10-3.3.2 Interior Floor Finish. No requirements.

10-3.4 Detection, Alarm, and Communication 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 are not required 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 shall be constructed of fire barriers having not less than a 1-hour fire resistance rating in accordance with 6-2.3. Corridors shall comply with 6-2.2.2.

Exception No. 1: Such corridor protection shall not be required where all spaces normally subject to student occupancy have at least one door opening directly to the outside or to an exterior exit access balcony or corridor in accordance with 10-2.5.6.

Exception No. 2: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with Section 7-7, corridor walls are not required to be rated provided such walls, in conjunction with openings 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.

Exception No. 4: Lavatories need not be separated from corridors provided they are separated from all other spaces by fire barriers having not less than a 1-hour fire resistance rating in accordance with 6-2.3.

10-3.6.2 Clothing and personal effects shall not be stored in corridors and lobbies.

Exception: Metal lockers shall be permitted in corridors for storage of clothing and personal effects provided 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 (2,800 sq m); or

(b) The length or width of the building exceeds 300 ft (91 m).

Exception No. 1: Where all spaces normally subject to student occupancy have at least one door opening directly to the outside or to an exterior or exit access balcony or corridor in accordance with 10-2.5.6.

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 (2,800 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 doors 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 that is capable of smoke control or smoke exhaust functions and that provides 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.

10-4.3.1. Flexible and open plan buildings shall comply with the requirements of this chapter and 10-4.3.2 through 10-4.3.4.

10-4.3.2 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.

10-4.3.3 Flexible plan schools may have walls and partions rearranged periodically only if revised plans or diagrams have been approved by the authority having jurisdiction.

10-4.3.4 Flexible plan buildings shall be evaluated while all folding walls are extended and in use as well as when they are in the retracted position.

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, Escalators, and Conveyors. Elevators, escalators, and 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 (RESERVED)

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 group shall apply unless the area housing the younger group is maintained as a separate fire area.

Exception: Staff-to-client ratios listed in 10-7.1.1.1 shall be based on the number of clients in each age category.*

10-7.1.2 Mixed Occupancies.

(a) *General.* Where centers are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers constructed in accordance with 6-2.3.

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 constructed in accordance with Section 6-3. The smoke barrier shall be so located that it has an exit located on each side.

(2) The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

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 through 5	X	X	X	X
	6 and older	X	X	X	X
II (111), III (211), V (111)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X	X†	N.P.
IV (2HH)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X†	N.P.	N.P.
II (000)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X†	N.P.	N.P.
III (200), V (000)	0 through 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 shall be permitted to 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. Means of egress shall be in accordance with Chapter 5 and this section.

10-7.2.2 Means of Egress Components.

10-7.2.2.1 Components of means of egress shall be limited to the types described in 10-7.2.2.2 through 10-7.2.2.7.

10-7.2.2.2 Doors.

(a) *General.* Doors shall comply with 5-2.1.

(b) *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.

(c) *Door Closure.* Any exit door designed to normally be kept closed shall comply with 5-2.1.8.

(d) *Locks and Latches.* Only one locking or latching device shall be permitted on a door or a leaf of a pair of doors.

(e) *Special Locking Arrangements.* Special locking arrangements complying with 5-2.1.6 shall be permitted.

(f)* *Closet Doors.* Every closet door latch shall be such that children can open the door from inside the closet.

(g) *Bathroom Doors.* 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.

10-7.2.2.3* Stairs shall comply with 5-2.2.

10-7.2.2.4 Smokeproof Enclosures. Smokeproof enclosures shall comply with 5-2.3.

10-7.2.2.5 Horizontial Exits.

(a) Horizontal exits shall comply with 5-2.4.

(b) Areas of refuge shall be provided by horizontal exits for occupants of day-care centers located above the fifth story.

10-7.2.2.6 Ramps. Ramps shall comply with 5-2.5.

10-7.2.2.7 Exit Passageways. Exit passageways shall comply with 5-2.7.

10-7.2.3 Capacity of Means of Egress.

10-7.2.3.1 Capacity of means of egress shall be in accordance with Section 5-3.

10-7.2.4 Number of Exits.

10-7.2.4.1 Each floor occupied by clients shall have not less than two remotely located 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 shall 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 story below the level of exit discharge. The interior stair shall be permitted to 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 shall be permitted to be via an unenclosed stairway separated from the level of exit discharge in accordance with 6-2.4.4. 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 level of 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).

10-7.2.5.2 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 remotely located from each other as practicable. Such doorways shall provide access to separate exits, but where egress is through corridors, they shall be permitted to open upon a common corridor leading to separate exits located in opposite directions.

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 shall be permitted to 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. Discharge from exits shall be arranged in accordance with Section 5-7.

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 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 shall 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 higher 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.

10-7.2.11.2 Areas accessible to people with severe mobility impairment shall have a minimum of two accessible means of egress.

Exception No. 1: Day-care occupancies provided throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

Exception No. 2: If the accessible means of egress provide(s) the most direct routes (route) from the accessible areas and if the fire protection system, the physical arrangement of the space, and the facility operation are all approved by the authority having jurisdiction, the authority having jurisdiction shall permit a reduction in the required number of accessible means of egress.

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 shall be protected by an automatic extinguishing system as required 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 required 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, protection in accordance with 7-7.1.2 shall be permitted.

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 shall be permitted to be in accordance with 7-7.1.2. Doors to janitor closets shall be permitted to 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 Communication 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 smoke 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 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 in the corridors of all floors occupied by the center. Detectors shall also be installed in lounges, recreation areas, and sleeping rooms in the center.

Exception: Centers housed in only one room.

10-7.3.5 Extinguishment Requirements. (*See 10-7.4.2.*)

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.

10-7.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

10-7.4.2 High Rise Buildings. High rise buildings that house day-care centers on floors more than 75 ft (23 m) above the lowest level of fire department vehicle access shall comply with Section 30-8.

10-7.4.3 Operating Features. (*See Chapter 31.*)

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 children under 6 years of age 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, Escalators, and Conveyors. Elevators, escalators, and 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 twelve clients, with no more than three clients under

age 2. 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) *General.* Where a group day-care home is located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers constructed in accordance with Section 6-2.3.

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 constructed in accordance with Section 6-3. The smoke barrier shall be so located that it has an exit located on each side.

(2) The door in the smoke barrier shall be not less than 36 in. (91 cm) wide.

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. Capacity of means of egress shall be in accordance with Section 5-3.

10-8.2.4 Number of Exits.

10-8.2.4.1 Each story occupied by clients shall have not less than two remotely located means of escape.

10-8.2.4.2 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 shall be permitted to 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 or folding stairs or through a trap door.

10-8.2.4.3 Where spaces on the story above the story 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 shall be permitted to be a window in accordance with 10-2.11.1.

10-8.2.4.4 Where clients are occupying 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 shall be permitted to 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 having at least a 20-minute fire protection rating and 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:

(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 to that room shall not exceed 50 ft (15 m).

Exception: The travel distance in (a) and (b) above shall be permitted to be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

10-8.2.7 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 story below shall be equipped with a door assembly having a 20-minute fire protection rating. Where the story above the story 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 corridors, stairways, lobbies, and 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 Communication 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: Homes that house 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 an apartment or office building, any corridors serving the group day-care home shall be provided with a smoke detection system in accordance with Section 7-6.

10-8.3.4.3 Single station smoke detectors in accordance with 7-6.2.9 powered by the building electrical system or system detectors with integral sounding devices in accordance with 7-6.1.4 shall be provided in all rooms used for sleeping.

10-8.4 Special Provisions.

10-8.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

10-8.4.2 High Rise Buildings. (Reserved.)

10-8.4.3 Operating Features. (*See Chapter 31.*)

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 children under 6 years of age 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 more than 3 but 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 caretaker's own children under age 6, with no more than two children under age 2.

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. The contents shall be classified as ordinary hazard in accordance with Section 4-2.

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. Capacity of means of egress shall be in accordance with Section 5-3.

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 shall be permitted to 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 or folding stairs or through a trap door.

10-9.2.4.2 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 shall be permitted to

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:

(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 to that room shall not exceed 50 ft (15 m).

Exception: The travel distance in (a) and (b) above shall be permitted to be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

10-9.2.7 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.

Exception: Bathroom doors shall be not less than 24 in. (64 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 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 Communication 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 that house 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 an apartment or office building, any corridors serving the family day-care home shall be provided with a smoke detection system in accordance with Section 7-6.

10-9.3.4.3 Single station smoke detectors in accordance with 7-6.2.9 powered by the building electrical system or system detectors with integral sounding devices in accordance with 7-6.1.4 shall be provided in all rooms used for sleeping.

10-9.4 Special Provisions.

10-9.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

10-9.4.2 High Rise Buildings. (Reserved.)

10-9.4.3 Operating Features. (*See Chapter 31.*)

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 children under 6 years of age from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to ensure 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 facilities that do not meet the definition of an educational occupancy 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, Noninstructional — 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 1-5.7 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 9-1.2, 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 by the school occupant load (and therefore not subject to simultaneous occupancy), the same exit capacity shall be permitted to 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 shall be permitted to serve both sections.

11-1.3 Special Definitions.

Common Atmosphere. A common atmosphere is the atmosphere that 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. These include 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 [maximum 5-ft (152-cm)] partitions, or similar furnishings.

Separate Atmosphere. A separate atmosphere is the atmosphere that 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 with the smallest elevation change 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 four or more hours per day or more than twelve hours per week.

11-1.4.2 Educational occupancies include part-day preschools, 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 Day-care facilities, whether for adults or children shall meet the requirements of Section 11-7, 11-8, or 11-9 as appropriate.

Exception: Day-care facilities whose purpose is primarily educational as indicated in 11-1.4.2.

11-1.4.5 Adult day-care shall include any building or portion thereof used for nonsleeping purposes for less than 24 hours per day to house four or more adults requiring care, maintenance, and supervision by other than their relative(s). Clients shall be ambulatory or semiambulatory and shall not be bedridden. They shall not exhibit behavior that is harmful to themselves or others.

11-1.4.6 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 shall be permitted.

11-2.2.2.4 Door Closure. Any exit door that is 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.

11-2.2.2.6 Horizontal sliding doors shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.1. The doors shall be operable by force not to exceed 15 lbf (67 N) applied to the operating device in the direction of egress.

11-2.2.2.7 Horizontal sliding doors shall be permitted in smoke barriers in accordance with 5-2.1.14.1. In addition, the doors shall be operable by a force not to exceed 15 lbf (67 N) applied to the operating device in the direction of egress.

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 Minimum Corridor Width.

11-2.3.2.1 Exit access corridors shall be not less than 6 ft (183 cm) clear width.

11-2.3.2.2 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 Means of egress shall be arranged in accordance with Section 5-5. No common path of travel shall exceed 75 ft (23 m); no dead end shall exceed 20 ft (6.1 m).

11-2.5.2 Every room that is normally occupied shall have an exit access door leading directly to an exit access corridor or exit.

Exception No. 1: If there is an exit door opening directly to the outside or to an exterior balcony or corridor as described in 11-2.5.6.

Exception No. 2: One room may intevene between a normally occupied student room and an exit access corridor provided:

(1) The total travel from a room served by an intervening room and the corridor door or exit shall not exceed 75 ft (23 m), and

(2) Clothing, personal effects, or other materials deemed hazardous by the authority having jurisdiction shall be stored in metal lockers provided they do not obstruct the exit access, or the intervening room shall be sprinklered in accordance with Section 7-7, and either

(3) The intervening room shall have approved fire detection installed that will activate the building alarm, or

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

Exception No. 3: Previously approved arrangements may continue to be used with the approval of the authority having jurisdiction.

11-2.5.3 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 remotely located from each other as practicable. Such doorways shall provide access to separate exits, but where egress is through corridors, they shall be permitted to open upon a common corridor leading to separate exits located in opposite directions.

11-2.5.4 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.

11-2.5.5 Aisles. 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.

11-2.5.6* Exterior Corridors or Balconies.

11-2.5.6.1 Exterior exit access shall comply with 5-5.3.

11-2.5.6.2* 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.

11-2.5.6.3 The floors of balconies (exterior corridors) and stairs shall be solid, without openings, and shall comply with requirements for outside stairs with respect to balustrades or railings, width and pitch of stairs, and other details. However, they 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 shall be permitted to 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: Travel distance shall not exceed 200 ft (60 m) in educational occupancies protected throughout by an approved automatic sprinkler system installed in accordance with Section 7-7.

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 interior or windowless portions of buildings.

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 locations of exits are 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 greater than 250 sq ft (23.2 sq m) 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 shall 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.

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: In rooms located higher 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. 4: 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) shall be permitted to be continued in use. Screen walls or devices in front of required windows shall not interfere with normal rescue requirements.

Exception No. 5: 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 No. 1: 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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

Exception No. 3: Stairway enclosure shall not be required for a stairway serving only one adjacent floor except a basement. Such stairways 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 shall be protected by an automatic extinguishing system as required 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 required 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 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 shall be permitted to 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 shall be permitted to be in accordance with 7-7.1.2. Doors to janitor closets shall be permitted to 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) in height shall be Class A, B, or 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 shall be permitted.*

11-3.3.2 Interior Floor Finish. No requirements.

11-3.4 Detection, Alarm, and Communication 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 are not required 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 story 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 story 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.

Exception: Where student occupancy occurs below the story of exit discharge, automatic sprinkler protection is not required, subject to the approval of the authority having jurisdiction, if windows for rescue and ventilation are provided in accordance with 11-2.11.1.

11-3.6 Interior Corridors.

11-3.6.1 Every interior corridor shall be constructed of fire barriers having not less than a 20 minute fire resistance rating in accordance with 6-2.3. Corridors shall comply with 6-2.2.2.

Exception No. 1: Such corridor protection shall not be required where all spaces normally subject to student occupancy have at least one door opening directly to the outside or to an exterior exit access balcony or corridor in accordance with 11-2.5.6.

Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system with valve supervision installed in accordance with Section 7-7, corridor walls are not required to be rated provided such walls in conjunction with openings therein and ceilings at which they terminate resist the passage of smoke.

Exception No. 3: Existing doors may be 1¾-in. (4.4-cm) thick solid bonded wood core doors or the equivalent.

Exception No. 4: Lavatories need not be separated from corridors provided they are separated from all other spaces by fire barriers having a 20-minute fire resistance rating in accordance with 6-2.3..

11-3.6.2 Clothing and personal effects shall not be stored in corridors and lobbies.

Exception: Metal lockers shall be permitted in corridors for storage of clothing and personal effects provided 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 where:

(a) The maximum area of a compartment, including the aggregate area of all floors having a common atmosphere, exceeds 30,000 sq ft (2,800 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 (2,800 sq m) with no dimension exceeding 300 ft (91 m).

11-3.7.3 Doors in such barriers shall be self-latching.

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.

11-4.3.1 Flexible and open plan buildings shall comply with the requirements of this chapter and 11-4.3.2 through 11-4.3.4.

11-4.3.2 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.

11-4.3.3 Flexible plan schools may have walls and partions rearranged periodically only if revised plans or diagrams have been approved by the authority having jurisdiction.

11-4.3.4 Flexible plan buildings shall be evaluated while all folding walls are extended and in use as well as when they are in the retracted position.

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, Escalators, and Conveyors. Elevators, escalators, and 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 (RESERVED)

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 group shall apply, unless the area housing the younger group is maintained as a separate fire area.

Exception: Staff-to-client ratios listed in 11-7.1.1.1 shall be based on the number of clients in each age category.*

11-7.1.2 Mixed Occupancies.

(a) *General.* Where centers are located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers constructed in accordance with 6-2.3.

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 constructed in accordance with Section 6-3. The smoke barrier shall be so located that it has an exit located on each side.

(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.

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.*)

11-7.1.6.2 Location. The story below the level of exit discharge shall be permitted to 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.

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 through 5	X	X	X	X
	6 and older	X	X	X	X
II (111) III (211) V (111)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X	X†	N.P.
IV (2HH)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X†	N.P.	N.P.
II (000)	0 through 5	X	X†	N.P.	N.P.
	6 and older	X	X†	N.P.	N.P.
III (200) V (000)	0 through 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.

11-7.2 Means of Egress Requirements.

11-7.2.1 General. Means of egress shall be in accordance with Chapter 5 and this section.

11-7.2.2 Means of Egress Components.

11-7.2.2.1 Components of means of egress shall be limited to the types described in 11-7.2.2.2 through 11-7.2.2.7.

11-7.2.2.2 Doors.

(a) *General.* Doors shall comply with 5-2.1.

(b) *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.

(c) *Door Closure.* Any exit door designed to normally be kept closed shall comply with 5-2.1.8.

(d) *Locks and Latches.* Only one locking or latching device shall be permitted on a door or a leaf of a pair of doors.

(e) *Special Locking Arrangements.* Special locking arrangements complying with 5-2.1.6 shall be permitted.

(f)* *Closet Doors.* Every closet door latch shall be such that children can open the door from inside the closet.

(g) *Bathroom Doors.* 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.

11-7.2.2.3* Stairs.

(a) Stairs shall comply with 5-2.2.

(b) Stairs shall be Class A.

Exception: Class B stairs shall be permitted where not used by clients.

11-7.2.2.4 Smokeproof Enclosures. Smokeproof enclosures shall comply with 5-2.3.

11-7.2.2.5 Horizontial Exits.

(a) Horizontal exits shall comply with 5-2.4.

(b) Areas of refuge shall be provided by horizontal exits for occupants of day care centers located above the fifth story.

Exception to (b): Buildings provided with smokeproof enclosures.

11-7.2.2.6 Ramps. Ramps shall comply with 5-2.5.

11-7.2.2.7 Exit Passageways. Exit passageways shall comply with 5-2.7.

11-7.2.3 Capacity of Means of Egress.

11-7.2.3.1 Capacity of means of egress shall be in accordance with Section 5-3.

11-7.2.4 Number of Exits.

11-7.2.4.1 Each floor occupied by clients shall have not less than two remotely located 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 shall 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 story below the level of exit discharge. The interior stair shall be permitted to 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 shall be permitted to be via an unenclosed stairway separated from the level of exit discharge in accordance with 6-2.4.4. 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 level of 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).

11-7.2.5.2 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 remotely located from

each other as practicable. Such doorways shall provide access to separate exits, but where egress is through corridors, they shall be permitted to open upon a common corridor leading to separate exits located in opposite directions.

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 shall be permitted to 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. Discharge from exits shall be arranged in accordance with Section 5-7.

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 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 shall 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 higher 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 shall be protected by an automatic extinguishing system as required 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 required 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 that resists the passage of smoke.

(e) Where automatic extinguishing is used to meet the requirements of this section, protection in accordance with 7-7.1.2 shall be permitted.

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 shall be permitted to be in accordance with 7-7.1.2. Doors to janitor closets shall be permitted to 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 Communication 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 smoke 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 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 in the corridors of all floors occupied by the center. Detectors shall also be installed in lounges, recreation areas, and sleeping rooms in the center.

Exception No. 1: Centers housed in only one room.

Exception No. 2: Centers housing clients 6 years of age or older if no sleeping facilities are provided.

11-7.3.5 Extinguishment Requirements.

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.

11-7.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

11-7.4.2 High Rise Buildings. (Reserved.)

11-7.4.3 Operating Features. (*See Chapter 31.*)

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 children under 6 years of age 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, Escalators, and Conveyors. Elevators, escalators, and 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 twelve clients, with no more than three clients under age 2. 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) *General.* Where a group day-care home is located in a building containing mixed occupancies, the occupancies shall be separated by 1-hour fire barriers constructed in accordance with Section 6-2.3.

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 constructed in accordance with Section 6-3. The smoke barrier shall be so located that it has an exit located on each side.

(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.

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. Capacity of means of egress shall be in accordance with Section 5-3.

11-8.2.4 Number of Exits.

11-8.2.4.1 Each story occupied by clients shall have not less than two remotely located means of escape.

11-8.2.4.2 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 shall be permitted to 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 or folding stairs or through a trap door.

11-8.2.4.3 Where spaces on the story above the story 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 shall be permitted to be a window in accordance with 11-2.11.1.

11-8.2.4.4 Where clients are occupying 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 shall be permitted to 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 having at least a 20-minute fire protection rating and 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:

(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 to that room shall not exceed 50 ft (15 m).

Exception: The travel distance in (a) and (b) above shall be permitted to be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

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 story below shall be equipped with a door assembly having a 20-minute fire protection rating. Where the story above the story 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) thick 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 Communication 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: Homes that house 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 an apartment or office building, any corridors serving the group day-care home shall be provided with a smoke detection system in accordance with Section 7-6.

11-8.3.4.3 Single station smoke detectors in accordance with 7-6.2.9 powered by the building electrical system or system detectors with integral sounding devices in accordance with 7-6.1.4 shall be provided in all rooms used for sleeping.

Exception: Existing battery-powered detectors rather than house electrical 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 ensure reliability of power to the detectors.

11-8.4 Special Provisions.

11-8.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

11-8.4.2 High Rise Buildings. (Reserved.)

11-8.4.3 Operating Features. (*See Chapter 31.*)

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 children under 6 years of age 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 more than 3 but 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 caretaker's own children under age 6, with no more than two children under age 2.

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. The contents shall be classified as ordinary hazard in accordance with Section 4-2.

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. Capacity of means of egress shall be in accordance with Section 5-3.

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 shall be permitted to 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 or folding stairs or through a trap door.

11-9.2.4.2 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 shall be permitted to 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:

(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 to that room shall not exceed 50 ft (15 m).

Exception: The travel distance in (a) and (b) above shall be permitted to be increased by 50 ft (15 m) in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7.

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 28 in. (71 cm) wide.

Exception: Bathroom doors shall be not less than 24 in. (64 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 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 Communication 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 that house 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 an apartment or office building, any corridors serving the family day-care home shall be provided with a smoke detection system in accordance with Section 7-6.

11-9.3.4.3 Single station smoke detectors in accordance with 7-6.2.9 powered by the building electrical system or system detectors with integral sounding devices in accordance with 7-6.1.4 shall be provided in all rooms used for sleeping.

Exception: 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 ensure reliability of power to the detectors.

11-9.4 Special Provisions.

11-9.4.1 Windowless or Underground Buildings. Windowless or underground buildings shall comply with Section 30-7.

11-9.4.2 High Rise Buildings. (Reserved.)

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 children under 6 years of age from hot surfaces and open flames. If solid partitions are used to provide such protection, provisions shall be made to ensure 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 1-5.)*

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 has been provided in accordance with Section 1-6.*

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 their 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(a). *(See Section 12-6 for requirements.)*

12-1.1.1.6 Buildings or sections of buildings that primarily house patients who, in the opinion of the governing body of the facility and the governmental agency having jurisdiction, are capable of judgment and appropriate physical action for self-preservation under emergency conditions may come under chapters of the *Code* other than 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 Chapter 18 or 22.

12-1.1.1.9 Health care occupancies shall include all buildings or parts thereof with occupancy as described in this chapter under 12-1.3, "Special Definitions."

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*.

12-1.1.1.11* The requirements of this chapter are based on the assumption that staff is available in all patient occupied areas to perform certain firesafety functions as required in other paragraphs of this chapter.

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 1-5.5 and 1-5.6.)*

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 and 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 shall be permitted to be held open if they meet the requirements of 12-2.2.2.6.

12-1.1.4.4 Conversions. Conversions shall comply with 1-7.4. 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* Renovations, Alterations, and Modernizations. Renovations, alterations, and modernizations shall comply to the extent practical, with requirements for new construction in accordance with 1-5.6. Where renovations, alterations, or modernizations are done in a nonsprinklered facility, the automatic sprinkler requirements of Chapter 12 shall apply to the smoke compartment undergoing the renovation, alteration or modernization. However, in such case where the building is not protected throughout by an approved automatic sprinkler system, the requirements of 13-1.6 and 13-2.3.2 shall also apply. Exception No. 2 to 12-3.7.3 shall be permitted only where adjacent smoke compartments are protected throughout by an approved supervised automatic sprinkler system in accordance with 12-3.5.2. Where minor renovations, alterations, modernizations, or repairs are done in a nonsprinklered facility, the requirements of 12-3.5.1 shall not apply, but in such cases the renovations, alterations, modernizations, or repairs shall not reduce life safety below that which existed before, nor below the requirements of Chapter 13 for nonsprinklered buildings.

12-1.1.4.6 Construction Operations. See 1-7.3 and Chapter 31 for life safety provisions during construction.

12-1.2 Mixed Occupancies. (*See also 1-5.7.*)

12-1.2.1* Sections of health care facilities shall be permitted to 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 centers, medical clinics, and similar facilities that are contiguous to health care occupancies but are primarily intended to provide outpatient services shall be permitted to be classified as a business occupancy or ambulatory health care occupancy provided the facilities are separated from the health care occupancy by not less than 2-hour fire resistance-rated construction and the facility is not intended to provide services simultaneously for four or more health care patients who are litterborne.

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 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 shall 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 means of egress 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) *Ambulatory Health Care Centers.* A building or part thereof used to provide services or treatment to four or more patients at the same time that meets the criteria of 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.

(2) Those facilities that provide, on an outpatient basis, surgical treatment requiring general anesthesia.

(b) *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. The term hospital, wherever used in this *Code*, shall include general hospitals, psychiatric hospitals, and specialty hospitals.

(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, physical limitation due to accident or illness, or mental limitations such as mental retardation/developmental disability, mental illness, or chemical dependency.

(d) *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. The term 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.

12-1.4 Classification of Occupancy. (*See Special 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, the number of stories shall be counted starting with the primary level of exit discharge and ending with 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 (13.7m)	4 or More Stories or ≥45 ft (13.7 m)
I(443) I(332) II(222)	X	X	X	X
II(111)	X	X	X	N.P.
II(000)	X	N.P.	N.P.	N.P.
III(211)	X	N.P.	N.P.	N.P.
III(200)	N.P.	N.P.	N.P.	N.P.
IV(2HH)	X	N.P.	N.P.	N.P.
V(111)	X	N.P.	N.P.	N.P.
V(000)	N.P.	N.P.	N.P.	N.P.

X: Permitted type of construction
N.P.: Not Permitted

Exception: Any building of Type I or Type II (222 or 111) construction shall be permitted to 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.

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 6-2.3.6.2 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: As modified in the following paragraphs.

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 shall 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 are permitted to 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 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. (See 12-1.1.1.7 and 12-2.2.2.5.)

Exception No. 2: Special locking arrangements complying with 5-2.1.6 shall be permitted provided not more than one such device is located in any egress path.*

12-2.2.2.5 Doors located in the means of egress that are permitted to be locked under other provisions of this chapter shall have adequate provisions made for the rapid removal of occupants by such reliable means as the remote-control of locks or by keying all locks to keys carried by staff at all times. Only one such locking device is permitted on each door.

Exception: Locks installed in accordance with 12-2.2.2.4 Exception No. 2.

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) shall be permitted to be held open only by an automatic release device that complies with

5-2.1.8. The automatic sprinkler system, the 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 are permitted to be equipped with hardware that prevents reentry in accordance with 5-2.1.5.2 Exception No. 1.

12-2.2.2.9 Horizontal sliding doors shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.2. Sliding doors that are not automatic-closing shall be limited to a single leaf and shall have a latch or other mechanism that will ensure that doors will not rebound into a partially open position if forcefully closed in an emergency.

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 net sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 net 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 net 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 shall be permitted 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 opposite directions from each other, with each door having a width of at least 44 in. (112 cm), 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 opposite directions from each other, with each door having a width of at least 34 in. (86 cm), 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 shall be permitted 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 0.3 in. (0.8 cm) per person, and the capacity of means of egress providing horizontal travel (without stairs) by means such as doors, ramps, or horizontal exits shall be 0.2 in. (0.5 cm) per person.

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 shall 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 inpatients shall 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 shall be not less than 34 in. (86 cm) wide.

Exception No. 2: Doors in exit stair enclosures shall be not less than 36 in. (91 cm) wide.

Exception No. 3: Doors serving newborn nurseries shall be not less than 36 in. (91 cm) wide.

Exception No. 4: A 36-in. (91-cm) door leaf shall be permitted 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 one of the following:

(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 shall be permitted 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 of the room at ground level.

Exception No. 2: Patient sleeping rooms shall be permitted to have one intervening room if the intervening room is not used to serve as an exit access for more than eight patient sleeping beds.

Exception No. 3: Special nursing suites are permitted to have one intervening room where the arrangment allows for direct and constant visual supervision by nursing personnel.

Exception No. 4: For rooms other than patients' sleeping rooms, one or more adjacent rooms shall be permitted to intervene in accordance with 12-2.5.7.

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 remotely located 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 remotely located from each other.

12-2.5.3 Any suite of rooms that complies with the requirements of this section shall be permitted to be subdivided with non-fire-rated, noncombustible, or limited-combustible partitions.

12-2.5.4 Intervening rooms shall not be hazardous areas as defined by 12-3.2.

12-2.5.5 Suites of sleeping rooms shall not exceed 5,000 sq ft (460 sq m).

12-2.5.6 Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 sq ft (930 sq m).

12-2.5.7 Suites of rooms, other than patient sleeping rooms, shall be permitted to have one intervening room if the travel distance within the suite to the exit access door is not greater than 100 ft (30 m) and shall be permitted to have two intervening rooms where the travel distance within the suite to the exit access door is not greater than 50 ft (15 m).

12-2.5.8 Every corridor shall provide access to at least two approved exits in accordance with Section 5-4 and Section 5-5 without passing through any intervening rooms or spaces other than corridors or lobbies.

12-2.5.9 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 150 ft (45 m);

(b) Between any point in a room and an exit shall not exceed 200 ft (60 m);

(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 sleeping 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 the requirements of (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*.

Exception: Self-luminous exit signs as permitted by 5-10.3.3 Exception No. 2.

12-2.11 Special Features. (Reserved.)

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, or other vertical opening between stories shall be enclosed in accordance with 6-2.4 with construction having the following minimum fire resistance ratings:

(a) 1-hour in buildings required to be of 1-hour construction.

(b) 1-hour for enclosures connecting not more than three floors.

(c) 2-hour for enclosures connecting more than three floors.

Exception No. 1: Vertical openings that are not concealed within the building construction 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. 2: 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. 3: Floor and ceiling openings for pipes or conduits where the opening around the pipes or conduits is sealed in an approved manner. (See 6-2.3.6.2.)

Exception No. 4: An atrium shall be permitted in accordance with 6-2.4.6. Exception No. 1 to 6-2.4.6(g) shall not apply to patient sleeping and treatment rooms.

12-3.1.2 A door in a stair enclosure shall be self-closing and shall normally be kept in a closed position .

Exception: Doors in stair enclosures 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. 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	1-hr
Employee locker rooms	See 12-3.6.3.3
Gift/retail shops	See 12-3.6.3.3
Handicraft shops	See 12-3.6.3.3
Laboratories that use hazardous materials that would cause classification as severe hazard in accordance with NFPA 99, *Health Care Facilities*	1-hr
Central/bulk laundries more than 100 sq ft (9.3 sq m) in area	1-hr
Paint shops employing hazardous substances and materials in quantities less than that which would cause classification as severe hazard	1-hr
Physical Plant Maintenance Shops	1-hr
Soiled linen rooms	1-hr
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.	See 12-3.6.3.3
Storage rooms more than 100 sq ft (9.3 sq m) storing combustible material	1-hr
Trash collection rooms	1-hr

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 shall be permitted to be:

(a) Open to a lobby or corridor if the gift shop is not greater than 500 sq ft (46.5 sq m), or

(b) Separated from a lobby or corridor with non-fire-rated walls.

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 or B in accordance with Section 6-5. The provisions of 6-5.7.1 shall not apply.

Exception No. 1: Walls and ceilings shall be Class A, B, or C 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 shall be Class A, B, or C.

12-3.3.2 Interior Floor Finish. No requirements.

12-3.4 Detection, Alarm, and Communication 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 and detection systems shall be provided with a secondary power supply in accordance with 7-6.1.4.

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 sprinkler system water flow alarms, detection devices, or detection systems required.

Exception: Fire alarm pull stations in patient sleeping areas are not required 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 required by 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 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: Corridor detection systems are not required within a smoke compartment where the compartment is fully protected by a supervised automatic sprinkler system equipped with quick response sprinklers.

NOTICE: Following the issuance of this edition, appeals were filed requesting the addition of a proposed new 12-3.4.5.2 requiring detectors in patient sleeping rooms. Refer to page 101-II.

12-3.4.5.2 Spaces Open to Corridors. (*See 12-3.6.1.*)

12-3.5 Extinguishment Requirements.

12-3.5.1* Buildings containing 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 nonsprinklered.

12-3.5.2* Listed quick response or listed residential sprinklers shall be used throughout smoke compartments containing patient sleeping rooms.

Exception No. 1: Standard response sprinklers shall be permitted for use in areas where quick response and residential sprinklers are prohibited from being installed by their listing.

Exception No. 2: Standard response sprinklers shall be permitted for use in hazardous areas protected in accordance with Section 12-3.2.1.

12-3.5.3 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 12-3.6.5. (*Also see 12-2.5.8.*)

Exception No. 1: Spaces shall be permitted to be unlimited in area and open to the corridor provided:

(a) The spaces are not used for patient sleeping rooms, treatment rooms, or hazardous areas, and

(b) The corridors onto which the spaces open in the same smoke compartment are protected by an electrically supervised automatic smoke detection system installed in accordance with 12-3.4, or the smoke compartment in which the space is located is protected throughout by quick response sprinklers, and

(c) The open space is protected by an electrically supervised automatic smoke detection system installed in accordance with 12-3.4, or the entire space is arranged and located to permit direct supervision by the facility staff from a nursing station or similar space, and

(d) The space does not obstruct access to required exits.

Exception No. 2: Waiting areas shall be permitted to be open to the corridor provided:

(a) The aggregate waiting area in each smoke compartment does not exceed 600 sq ft (55.7 sq m), and

(b) Each area is protected by an electrically supervised automatic smoke detection system installed in accordance with 12-3.4, or each area is arranged and located to permit direct supervision by the facility staff from a nursing station or similar space, and

(c) The area does not obstruct access to required exits.

Exception No. 3: Space for nurses' stations.*

Exception No. 4: Gift shops open to the corridor where protected in accordance with 12-3.2.5.

Exception No. 5: In a limited care facility, group meeting or multipurpose therapeutic spaces shall be permitted to open to the corridor provided:

(a) The space is not a hazardous area, and

(b) The space is protected by an electrically supervised automatic smoke detection system installed in accordance with 12-3.4, or the space is arranged and located to permit direct supervision by the facility staff from the nurses' station or similar location, and

(c) The area does not obstruct any access to required exits.

12-3.6.2 Construction of Corridor Walls.

12-3.6.2.1* Corridor walls shall form a barrier to limit the transfer of smoke. Such walls shall be permitted to terminate at the ceiling where the ceiling is constructed to limit the transfer of smoke. No fire resistance rating is required for corridor walls.

12-3.6.3* Corridor Doors.

12-3.6.3.1 Doors protecting corridor openings shall be constructed to resist the passage of smoke.

Exception: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.

12-3.6.3.2 Doors shall be provided with positive latching hardware. Roller latches are prohibited.

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-closing devices are not required on doors in corridor wall openings other than those serving required enclosures of vertical openings, exits, or hazardous areas.

12-3.6.3.4 Dutch doors shall be permitted 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 .

12-3.6.5 In other than smoke compartments containing patient sleeping rooms, miscellaneous openings such as mail slots, pharmacy pass-through windows, laboratory pass-through windows, and cashier pass-through windows shall be permitted in vision panels or doors without special protection provided the aggregate area of openings per room does not exceed 20 sq in. (.013 sq m) and the openings are installed at or below half the distance from the floor to the room ceiling.

12-3.7* Subdivision of Building Spaces.

12-3.7.1 Smoke barriers shall be provided as follows:

(a) To divide every story used by inpatients for sleeping or treatment into at least two smoke compartments, and

(b) To divide every story having an occupant load of 50 or more persons, regardless of use, into at least two smoke compartments, and

(c) To limit the size of each smoke compartment to an area not exceeding 22,500 sq ft (2,100 sq m), and

Exception to (c): The area of an atrium separated in accordance with 6-2.4.6 shall not be limited in size.

(d) To limit the travel distance from any point to reach a smoke barrier door to 200 ft (60 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 No. 1: Where an atrium is used, smoke barriers shall be permitted to terminate at an atrium wall constructed in accordance with Exception No. 2 to 6-2.4.6(g). A minimum of two separate smoke compartments shall be provided on each floor.

NOTICE: Following the issuance of this edition, an appeal was filed requesting the deletion of new Exception No. 2. Refer to page 101-II.

Exception No. 2: Dampers are not required in duct penetrations of smoke barriers in fully ducted HVAC systems.

12-3.7.4 At least 30 net sq ft (2.8 net sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 net 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 net 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 $1\frac{3}{4}$-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. (112 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 consisting of a fixed fire window assembly in accordance with 6-2.3.4 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 shall not exceed 60 in. (152 cm) above the floor.

Exception No. 2: Rooms intended for occupancy for less than 24 hours, such as those housing obstetrical labor beds, recovery beds, and observation beds in the emergency department, and newborn nurseries .

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 shall not exceed 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. Windowless buildings or windowless portions of buildings shall not be used for patient sleeping rooms. Windowless buildings or windowless portions of buildings shall comply with Section 30-7.

12-4.2 High Rise Buildings. High rise buildings shall comply with 30-8.2.

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 Power for alarms, emergency communication systems, and the illumination of generator set locations shall be in accordance with the life safety branch requirements of NFPA 99, *Standard for Health Care Facilities*.

12-5.1.3 Any health care occupancy as indicated in 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 Section 7-2 and shall be installed in accordance with the manufacturer's specifications.

Exception: As modified in 12-5.2.2.

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 shall be permitted 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 required above.

Exception No. 2: Fireplaces shall be permitted 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, Escalators, and Conveyors. Elevators, escalators, and 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 Chapter 26 and (this) Section 12-6, whichever is more stringent. The provisions of Sections 12-2 through 12-5 shall not apply to this section unless a specific requirement is referenced by this section.

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(a).

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, the number of stories shall be counted starting with the primary level of exit discharge and ending with 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 shall 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 shall be of Type I (443) or (332), Type II (222) or (111), Type III (211), Type IV (2HH), or Type V (111) construction. (*See 6-2.1.*)

Exception: Buildings constructed of Type II (000), III (200), or V (000) if protected throughout by an approved supervised 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: 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 prompt evacuation of the center can be achieved in case of fire or that the exposing occupancies and materials of construction present no threat of fire penetration from such occupancy to the ambulatory health care center or to the collapse of the structure.

12-6.1.7 Occupant Load. *(See 26-1.7.)*

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: As modified in the following paragraphs.

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 shall be permitted to 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 that are 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 maximum travel distance permitted in (a) or (b) above shall 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. (Reserved.)

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 Communication 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 shall be permitted to be protected in accordance with 7-7.1.2. 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.*)

12-6.3.6.1 In other than smoke compartments containing patient sleeping rooms, miscellaneous openings such as mail slots, pharmacy pass-through windows, laboratory

pass-through windows, and cashier pass-through windows may be installed in vision panels or doors without special protection provided the aggregate area of openings per room does not exceed 20 sq in. (.013 sq m) and the openings are installed at or below half the distance from the floor to the room ceiling.

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) thick solid bonded wood core or the equivalent and shall be equipped with positive latches. These doors shall be self-closing and kept in the closed position except when in use. Any vision panels shall be of fixed fire window assemblies in accordance with 6-2.3.4.

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.

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 fire window assemblies in accordance with 6-2.3.4.

12-6.3.7.5 At least 15 net sq ft (1.4 net 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 provided 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) thick 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.

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 shall be permitted 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, Escalators, and Conveyors. Elevators, escalators, and 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 1-5.)*

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 has been provided in accordance with Section 1-6.*

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 their 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(a). *(See Section 13-6 for requirements.)*

13-1.1.1.6 Buildings or sections of buildings that primarily house patients who, in the opinion of the governing body of the facility and the governmental agency having jurisdiction, are capable of judgment and appropriate physical action for self-preservation under emergency conditions may come under chapters of the *Code* other than 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 Chapter 19 or 23.

13-1.1.1.9 Health care occupancies shall include all buildings or parts thereof with occupancy as described in this chapter under 13-1.3, "Special Definitions."

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*.

13-1.1.1.11* The requirements of this chapter are based on the assumption that staff is available in all patient occupied areas to perform certain firesafety functions as required in other paragraphs of this chapter.

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 1-5.5 and 1-5.6.)*

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 and 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 shall be permitted to be held open if they meet the requirements of 13-2.2.2.6.

13-1.1.4.4 Conversions. Conversions shall comply with 1-7.4. 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* Renovations, Alterations, and Modernizations. Renovations, alterations, and modernizations shall comply, to the extent practical, with requirements for new construction in accordance with 1-5.6. Where such renovations, alterations, or modernizations are done in a nonsprinklered facility, the automatic sprinkler requirements of Chapter 12 shall apply to the smoke compartment undergoing the renovation, alteration, or modernization. However, in such case where the building is not protected throughout by an approved automatic sprinkler system, the requirements of 13-1.6 and 13-2.3.2 shall also apply. Exception No. 2 to 12-3.7.3 shall be permitted only where adjacent smoke compartments are protected throughout by an approved supervised automatic sprinkler system in accordance with 12-3.5.2. Where minor renovations, alterations, modernizations, or repairs are done in a nonsprinklered facility, the requirements of 12-3.5.1 shall not apply, but in such cases the renovations, alterations, modernizations, or repairs shall not reduce life safety below that which existed before, nor below the requirements of Chapter 13 for nonsprinklered buildings.

13-1.1.4.6 Construction Operations. See 1-7.3 and Chapter 31 for life safety provisions during construction.

13-1.1.5 Modification of Retroactive Provisions. (*See also Sections 1-5 and 1-6.*) 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 1-5.7.*)

13-1.2.1* Sections of health care facilities shall be permitted to 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 centers, medical clinics, and similar facilities that are contiguous to health care occupancies but are primarily intended to provide outpatient services shall be permitted to be classified as a business occupancy or ambulatory health care occupancy provided the facilities are separated from the health care occupancy by not less than 2-hour fire resistance-rated construction and the facility is not intended to provide services simultaneously for four or more health care patients who are litterborne.

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 shall 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 means of egress 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) *Ambulatory Health Care Centers.* A building or part thereof used to provide services or treatment to four or more patients at the same time that meets the criteria of 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.

(2) Those facilities that provide, on an outpatient basis, surgical treatment requiring general anesthesia.

(b) *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. The term hospital, wherever used in this *Code*, shall include general hospitals, psychiatric hospitals, and specialty hospitals.

(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, physical limitation due to accident or illness, or mental limitations such as mental retardation/developmental disability, mental illness, or chemical dependency.

(d) *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. The term 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.

13-1.4 Classification of Occupancy. (*See Special 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, the number of stories shall be counted starting with the primary level of exit discharge and ending with 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) I (332) II (222)	X	X	X	X
II (111)	X	X†	X†	N.P.
II (000)	X†	X†	N.P.	N.P.
III (211)	X†	X†	N.P.	N.P.
III (200)	X†	N.P.	N.P.	N.P.
IV (2HH)	X†	X†	N.P.	N.P.
V (111)	X†	X†	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 shall be permitted to 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 shall be permitted 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 6-2.3.6.2 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 shall 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 are permitted to 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 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. (See 13-1.1.1.7 and 13-2.2.2.5.)

Exception No. 2: Special locking arrangements complying with 5-2.1.6 shall be permitted provided not more than one such device is located in any egress path.*

13-2.2.2.5 Doors located in the means of egress that are permitted to be locked under other provisions of this chapter shall have adequate provisions made for the rapid

removal of occupants by such reliable means as the remote-control of locks or by keying all locks to keys carried by staff at all times. Only one such locking device is permitted on each door.

Exception No. 1: Locks installed in accordance with 13-2.2.2.4 Exception No. 2.

Exception No. 2: More than one lock may be permitted on each door subject to approval of the authority having jurisdiction.

13-2.2.2.6* Any door in an exit passageway, stairway enclosure, horizontal exit, smoke barrier, or hazardous area enclosure shall be permitted to 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.

13-2.2.2.9 Horizontal sliding doors shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.2. Sliding doors that are not automatic-closing shall be limited to a single leaf and shall have a latch or other mechanism that will ensure that doors will not rebound into a partially opened position if forceably closed in an emergency.

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 net sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 net 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 net 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 5-2.4.3.6.

(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 0.6 in. (1.5 cm) per person, and the capacity of means of egress providing horizontal travel (without stairs) by means such as doors, ramps, or horizontal exits shall be 0.5 in. (1.3 cm) per person.

Exception: The capacity of means of egress in health care occupancies protected throughout by an approved supervised automatic sprinkler system in accordance with 13-3.5.2 shall be 0.3 in. (0.8 cm) per person for travel by means of stairs and 0.2 in. (0.5 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 inpatients shall 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, and 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 one of the following:

(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 shall be permitted 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 of the room at ground level.

Exception No. 2: Patient sleeping rooms shall be permitted to have one intervening room if the intervening room is not used to serve as an exit access for more than eight patient sleeping beds.

Exception No. 3: Special nursing suites are permitted to have one intervening room where the arrangment allows for direct and constant visual supervision by nursing personnel.

Exception No. 4: For rooms other than patients' sleeping rooms, one or more adjacent rooms shall be permitted to intervene in accordance with 13-2.5.7.

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 remotely located 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 remotely located from each other.

13-2.5.3 Any suite of rooms that complies with the requirements of this section shall be permitted to be subdivided with non-fire-rated, noncombustible or limited-combustible partitions.

13-2.5.4 Intervening rooms shall not be hazardous areas as defined by 13-3.2.

13-2.5.5 Suites of sleeping rooms shall not exceed 5,000 sq ft (460 sq m).

13-2.5.6 Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 sq ft (930 sq m).

13-2.5.7 Suites of rooms, other than patient sleeping rooms, shall be permitted to have one intervening room if the travel distance within the suite to the exit access door is not greater than 100 ft (30 m) and shall be permitted to have two intervening rooms where the travel distance within the suite to the exit access door is not greater than 50 ft (15 m).

13-2.5.8* Every corridor shall provide access to at least two approved exits in accordance with Section 5-4 and Section 5-5 without passing through any intervening rooms or spaces other than corridors or lobbies.

Exception: Existing dead-end corridors may be continued to be used 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 maximum permitted travel distance in (a) or (b) above shall 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 sleeping 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 the requirements of (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 are not required in one story buildings with an occupancy of less than 30 persons.

13-2.11 Special Features. (Reserved.)

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, or 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: Vertical openings that are not concealed within the building construction 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. 2: 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. 3: Floor and ceiling openings for pipes or conduits where the opening around the pipes or conduits is sealed in an approved manner. (See 6-2.3.6.2.)

Exception No. 4: An atrium shall be permitted in accordance with 6-2.4.6. Exception No. 1 to 6-2.4.6(g) shall not apply to patient sleeping and treatment rooms in new or existing atriums.

13-3.1.2 A door in a stair enclosure shall be self-closing and shall normally be kept in a closed position .

Exception: Doors in stair enclosures 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 having a 1-hour fire resistance rating or provided with an automatic extinguishing system in accordance with 6-4.1. The automatic extinguishing shall be permitted to be in accordance with 13-3.5.5. Where the sprinkler option is used, the areas shall be separated from other spaces by smoke-resisting partitions and doors. The doors shall be equipped with self- or automatic-closers. 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 shall be permitted to be:

(a) Open to a lobby or corridor 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 Existing interior finish on walls and ceilings throughout shall be Class A or Class B in accordance with Section 6-5.

Exception: In buildings protected by an approved supervised automatic sprinkler system in accordance with 12-3.5.2, Class C interior finish shall be permitted to be continued to be used on walls and ceilings within rooms separated from the exit access corridors in accordance with 13-3.6.

13-3.3.2 Newly installed interior finish on walls and ceilings throughout shall be Class A in accordance with Section 6-5.

Exception No. 1: Walls and ceilings shall be permitted to have Class A or B interior finish in individual rooms having a capacity of not more than 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 shall be permitted to be Class A or B.

13-3.3.3 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.

Exception: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 12-3.5.2, no interior floor finish requirements shall apply.

13-3.4 Detection, Alarm, and Communication 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 are not required 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 required by 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 system 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 12-3.5.2.

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* Where this *Code* permits exceptions for fully sprinklered buildings utilizing quick response sprinklers, the system shall be:

(a) Installed throughout the building in accordance with Section 7-7, and

(b) Electrically connected to the fire alarm system, and

(c) Fully supervised, and

(d) Equipped with listed quick response or listed residential sprinklers throughout all smoke compartments containing patient sleeping rooms.

Exception No. 1 to (d): Standard response sprinklers shall be permitted for use in areas where quick response and residential sprinklers are prohibited from being installed by their listing.

Exception No. 2 to (d): Standard response sprinklers shall be permitted for use in hazardous areas protected in accordance with Section 13-3.2.1.

13-3.5.4 For renovations or modernization projects where supervised automatic sprinkler protection is installed in smoke compartments in accordance with Section 7-7, exceptions allowed for fully sprinklered buildings shall be permitted within the sprinklered smoke compartment.

13-3.5.5 Isolated hazardous areas shall be permitted to be protected in accordance with 7-7.1.2. 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.

13-3.5.6 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 13-3.6.5. (*Also see 13-2.5.8.*)

Exception No. 1: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 13-3.5.3 shall be permitted to 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) The corridors onto which the spaces open in the same smoke compartment are protected by an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, or the smoke compartment in which the space is located is protected throughout by quick response sprinklers, and

(c) The open space is protected by an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, or the entire space is arranged and located to permit direct supervision by the facility staff from a nurses' station or similar space, and

(d) The space does not obstruct access to required exits.

Exception No. 2: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 13-3.5.3, waiting areas shall be permitted to be open to the corridor provided:

(a) The aggregate waiting area in each smoke compartment does not exceed 600 sq ft (55.7 sq m), and

(b) Each area is protected by an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, or each area is arranged and located to permit direct supervision by the facility staff from a nursing station or similar space.

(c) The area does not obstruct access to required exits.

Exception No. 3: Spaces for nurses' stations.*

Exception No. 4: Gift shops open to the corridor where protected in accordance with 13-3.2.5.

Exception No. 5: Limited care facilities in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 13-3.5.3 shall be permitted to have group meeting or multipurpose therapeutic spaces open to the corridor provided:

(a) The space is not a hazardous area, and

(b) The space is protected by an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, or the space is arranged and located to permit direct supervision by the facility staff from the nurses' station or similar location, and

(c) The area does not obstruct access to required exits.

Exception No. 6: Spaces other than patient sleeping rooms, treatment rooms, and hazardous areas shall be permitted to be open to the corridor and unlimited in area provided:

(a) 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

(b) Each space is located to permit direct supervision by the facility staff, 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. 7: Waiting areas shall be permitted to 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 is equipped with an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, and

(d) The area does not obstruct any access to required exits.

Exception No. 8: In a limited care facility, group meeting or multipurpose therapeutic spaces, other than hazardous areas, under continuous supervision by facility staff shall be permitted to be open to the corridor provided:

(a) Each area does not exceed 1,500 sq ft (140 sq m), and

(b) Not more than one such space is permitted per smoke compartment, and

(c) The area is located to permit direct supervision by the facility staff, and

(d) The area is equipped with an electrically supervised automatic smoke detection system installed in accordance with 13-3.4, and

(e) The area does not obstruct any access to required exits.

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 in accordance with 13-3.5.2, a corridor shall be permitted to be separated from all other areas by non-fire-rated partitions and shall be permitted to terminate at the ceiling where the ceiling is constructed to limit the transfer of smoke.

Exception No. 2: Existing corridor partitions shall be permitted to 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: Existing corridor partitions shall be permitted to terminate at monolithic ceilings that resist the passage of smoke where 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 fire window assemblies in accordance with 6-2.3.4 shall be permitted in corridor walls.

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 13-3.5.2.

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) thick 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 13-3.5.2, the door construction requirements noted above are not mandatory, 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 that is acceptable to the authority having jurisdiction. The device used shall be capable of keeping the door fully closed if a force of 5 lbf (22 N) is applied at the latch edge of the door. Roller latches are prohibited on corridor doors in buildings not fully protected by an approved automatic sprinkler system in accordance with 13-3.5.1.

Exception No. 1: Existing roller latches demonstrated to keep the door closed against a force of 5 lbf (22 N) may be kept in service if acceptable to the authority having jurisdiction.

Exception No. 2: Doors to toilet rooms, bathrooms, shower rooms, sink closets, and similar auxiliary spaces that do not contain flammable or combustible materials.

13-3.6.3.3 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.

13-3.6.3.4 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.

13-3.6.3.5 Fixed fire window assemblies in accordance with 6-2.3.4 shall be permitted 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 13-3.5.2.

13-3.6.3.6 Dutch doors shall be permitted 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 shall be permitted to have ventilating louvers or be undercut.

13-3.6.5 In other than smoke compartments containing patient sleeping rooms, miscellaneous openings such as mail slots, pharmacy pass-through windows, laboratory pass-through windows, and cashier pass-through windows shall be permitted in vision panels or doors without special protection provided the aggregate area of openings per room does not exceed 20 sq in. (.0135 sq m) and the openings are installed at or below half the distance from the floor to the room ceiling.

13-3.7 Subdivision of Building Spaces.

13-3.7.1 Smoke barriers shall be provided to divide every story used for sleeping rooms for more than 30 patients into at least two smoke compartments. The maximum size of any such smoke compartment shall not exceed 22,500 sq ft (2,100 sq m), and the travel distance from any point to reach a required smoke barrier door shall not exceed 200 ft (60 m).

Exception No. 1: Where neither the length nor width of the smoke compartment exceeds 150 ft (45 m), the travel distance to reach the smoke barrier door shall not be limited.

Exception No. 2: The area of an atrium separated in accordance with Section 6-2.4.6 shall not be limited in size.

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 No. 1: Where an atrium is used, smoke barriers shall be permitted to terminate at an atrium wall constructed in accordance with Exception No. 2 to 6-2.4.6(g). A minimum of two separate smoke compartments shall be provided on each floor.

NOTICE: Following the issuance of this edition, an appeal was filed requesting the deletion of new Exception No. 2. Refer to page 101-II.

Exception No. 2: Dampers are not required in duct penetrations of smoke barriers in fully ducted HVAC systems where an approved supervised automatic sprinkler system in accordance with 13-3.5.3 has been provided for smoke compartments adjacent to the smoke barrier.

13-3.7.4 At least 30 net sq ft (2.8 net sq m) per patient in a hospital or nursing home or 15 net sq ft (1.4 net 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 net 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 1¾-in. (4.4-cm) thick solid bonded wood core doors as a minimum.

Exception: Doors shall be permitted to have fixed fire window assemblies in accordance with 6-2.3.4.

13-3.7.6* Doors in smoke barriers shall comply with 6-3.4 and shall be self-closing or automatic-closing in accordance with 13-2.2.2.6. Such doors in smoke barriers shall not be required to swing with exit travel. Positive latching hardware is not required.

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 shall not exceed up to 60 in. (152 cm) above the floor.

Exception No. 2: Rooms intended for occupancy for less than 24 hours, such as those housing obstetrical labor beds, recovery beds, and observation beds in the emergency department, and newborn nurseries.

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.

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 shall be permitted 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 required above.

Exception No. 2: Fireplaces shall be permitted to 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, Escalators, and Conveyors. Elevators, escalators, and 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 Chapter 27 and (this) Section 13-6, whichever is more stringent. The provisions of Sections 13-2 through 13-5 shall not apply to this section unless a specific requirement is referenced by this section.

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(a).

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, the number of stories shall be counted starting with the primary level of exit discharge and ending with 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 shall 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 shall be of Type I (443) or (332), Type II (222) or (111), Type III (211), Type IV (2HH), or Type V (111) construction. (*See 6-2.1.*)

Exception: Buildings constructed of Type II (000), III (200), or V (000) if protected throughout by an approved supervised 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: 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 prompt evacuation of the center can be achieved in case of fire or that the exposing occupancies and materials of construction present no threat of fire penetration from such occupancy to the ambulatory health care center or to the collapse of the structure.

13-6.1.7 Occupant Load. (*See 26-1.7.*)

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 shall be permitted to 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 that are 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 maximum travel distance permitted in (a) or (b) above shall 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. (Reserved.)

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 Communication 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. 1 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 shall be permitted to be protected in accordance with 7-7.1.2. 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.

13-6.3.6.1 In other than smoke compartments containing patient sleeping rooms, miscellaneous openings such as mail slots, pharmacy pass-through windows, laboratory pass-through windows, and cashier pass-through windows may be installed in vision panels or doors without special protection provided the aggregate area of openings per room does not exceed 20 sq in. (.013 sq cm) and the openings are installed at or below half the distance from the floor to the room ceiling.

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) thick solid bonded wood core or the equivalent and shall be equipped with positive latches. These doors shall be self-closing and kept in the closed position except when

in use. Any vision panels shall be of fixed fire window assemblies in accordance with 6-2.3.4.

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.

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 fire window assemblies in accordance with 6-2.3.4.

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) thick 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.

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 shall be permitted 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, Escalators, and Conveyors. Elevators, escalators, and 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 REQUIREMENTS

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 Chapter 16, 18, or 20.

Exception No. 2: Facilities determined to have equivalent safety provided in accordance with Section 1-6.*

14-1.1.3 Detention and correctional occupancies are those used for purposes such as correctional institutions, detention facilities, community residential centers, training schools, work camps, and substance abuse centers 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 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, and

(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 of Chapter 15 by a fire barrier having at least a 2-hour fire resistance rating constructed to the requirements of the addition. Doors in these partitions shall normally be kept closed.

Exception: Doors shall be permitted to 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 shall be permitted to be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve residents for sleeping purposes, and

(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 Nondetention or noncorrectional 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, and the direct exit has no openings to *other* areas.

(b) *Fire Barrier.* See Chapters 3 and 6.

(c) *Fire Compartment.* See Chapters 3 and 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) *Sally Port (Security Vestibule).* A compartment provided with two or more doors where the intended purpose is to prevent continuous and unobstructed passage by allowing the release of only one door at a time.

(f) *Smoke Barrier.* See Chapters 3 and 6.

(g) *Smoke Compartment.* See Chapters 3 and 6.

14-1.4 Classification of Occupancy.

14-1.4.1* 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 that meet 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 with 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	>3 Story and not more than 75 ft (23 m) in Height	>75 ft (23 m) in Height
I (443) I (332) II (222)	X	X	X	X	X	X†
II (111)	X††	X	X††	N.P.	N.P.	N.P.
III (211) IV (2HH) V (111)	X††	X††	X††	N.P.	N.P.	N.P.
II (000) III (200) V (000)	X†	X†	X†	N.P.	N.P.	N.P.

X: Permitted types of construction
X†: Permitted if the entire building is protected throughout by an approved supervised 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 REQUIREMENTS

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.

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 shall be permitted to 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)* Ducts shall be allowed to penetrate horizontal exits in accordance with Exception No. 3 to 5-2.4.3.3 if protected by combination fire dampers/smoke leakage-rated dampers that meet the smoke damper actuation requirements of 6-3.5.

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 shall be permitted to intervene. Where sleeping rooms directly adjoin a dayroom or group activity space that is utilized for access to an exitway, such sleeping rooms shall be permitted to open directly to the dayroom or space and shall 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 shall be permitted for the first 100 ft (30 m) in a building protected throughout by an approved automatic sprinkler system in accordance with 14-3.5.3.

14-2.5.4 A sally port shall be permitted in a means of egress where there are provisions for continuous and unobstructed travel through the sally port 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 maximum permitted travel distance in (a) or (b) above shall 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 maximum permitted travel distance in (c) above shall 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 shall be permitted to 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 shall be permitted to discharge through the level of exit discharge. The requirements of 5-7.2 are waived provided that not more than 50 percent of the exits discharge 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 are not required in sleeping 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 shall be permitted to 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 shall be permitted to 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 shall be permitted to be locked with key locks 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 control release used in a means of egress shall be provided with reliable means of operation, remotely located from the resident living areas, to release locks on all doors.

Exception: Provisions for remote control locking and unlocking of occupied rooms in Use Condition IV are not required 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 control unlocking. Unlocking of all necessary locks shall be accomplished with no more than two separate keys. (See 14-3.7.7 for smoke barrier doors.)

14-2.11.7 All remote-control 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 control 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 unlocked by means of remote control under emergency conditions shall not automatically relock when closed unless specific action is taken at the remote control 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 egress.

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 6-2.4.5, 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. Residential housing areas subdivided in accordance with 14-3.8.1 are permitted to be considered as part of the communicating space.

Exception No. 4: Atriums in accordance with 6-2.4.6 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* Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated:

Area Description	Separation/Protection
Areas not incidental to resident housing	2-hr
Boiler and fuel-fired heater rooms	2-hr or 1-hr and sprinklers
Commercial cooking equipment	In accordance with 7-2.3
Commissaries	1-hr or sprinklers
Employee locker rooms	1-hr or sprinklers
Hobby/handicraft shops	1-hr or sprinklers
Central or bulk laundries over 100 sq ft (9.3 sq m)	1-hr and sprinklers
Maintenance shops	1-hr or sprinklers
Padded cells	1-hr and sprinklers
Soiled linen rooms	1-hr and sprinklers
Storage rooms > 50 sq ft (4.6 sq m) in area but <100 sq ft (9.3 sq m) in area storing combustible material	1-hr or sprinklers
Storage rooms ≥ 100 sq ft (9.3 sq m) storing combustible materials	1-hr and sprinklers
Trash collection rooms	1-hr and sprinklers

Exception: 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 Where cooking facilities are protected in accordance with 7-2.3, kitchens shall not be required to be provided with roomwide protection.

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 Communication Systems.

14-3.4.1 General.

14-3.4.1.1 Detection and correctional occupancies shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*.

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 shall be permitted to be locked provided that staff is present within the subject area when occupied and has keys readily available to unlock the boxes.

Exception No. 2: Manual fire alarm boxes shall be permitted to be located in a staff location, provided that the staff location is attended when the building is occupied and that the staff attendant 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 are permitted to 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 are not required in sleeping rooms with four 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 14-3.5.3, smoke detectors are not required except in corridors, common spaces, and sleeping rooms with more than four occupants.

Exception No. 3: Other arrangements and positioning of smoke detectors shall be permitted to prevent damage or tampering, or for other purposes, provided the function for detecting any fire is fulfilled and the placement 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 1-6 of this Code.

14-3.5 Extinguishment Requirements.

14-3.5.1* High rise buildings shall comply with 14-4.3.

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 shall be permitted to be locked.*

Exception No. 2: Portable fire extinguishers shall be permitted to 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 nonsprinklered buildings over two stories in height.

Exception No. 1: One-inch (2.5-cm) diameter formed hose on hose reels shall be permitted to provide Class II service.

Exception No. 2: Separate Class I and Class II systems shall be permitted 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 so as to divide every story used for sleeping by residents, or any other story having an occupant load of 50 or more persons, into at least two compartments.

Exception No. 1: Protection shall be permitted to be accomplished with horizontal exits. (See 5-2.4.)

Exception No. 2: Smoke compartments having direct exit to (a) a public way, (b) a building separated from the resident housing area by a 2-hour fire resistance rating or 50 ft (15 m) of open space, or (c) a secured open area having a holding space located 50 ft (15 m) from the housing area that provides 15 sq ft (1.4 sq m) or more of refuge area for each person (resident, staff, visitors) that may be present at the time of a 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 applicable use condition.*

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 a maximum of 100 ft (30 m),

2. From any point in a room to a maximum of 150 ft (45 m).

Exception to (b): The maximum permitted travel distance shall 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.

14-3.7.4 Openings in smoke barriers shall be protected in accordance with Section 6-3.

Exception: There is no restriction on the total number of vision panels in any barrier (e.g., a smoke barrier may consist of fire-rated glazing panels mounted in a security grille arrangement).

14-3.7.5 At least 6 net sq ft (.56 net 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.

14-3.7.6 Doors shall provide resistance to the passage of smoke. Swinging doors shall be self-latching, or the opening resistance of the door shall be a minimum of 5 lbf (22 N).

14-3.7.7 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 applicable 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.

14-3.7.8 Vision panels shall be provided in smoke barriers at points where the barrier crosses an exit access corridor.

14-3.7.9 Smoke dampers shall be provided in accordance with 6-3.5.

Exception: Other arrangements and positioning of smoke detectors shall be permitted to prevent damage or tampering or may be used for other purposes, provided the function of detecting any fire is fulfilled and the placement 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 found on the following page.

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 ST ≤50 ft† >50 ft† (15 m) (15m)	NR ST ≤50 ft† >50 ft† (15 m) (15 m)	ST	NR ST ≤50 ft† >50 ft† (15 m) (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 in accordance with this chart in other than required enclosures of exits or hazardous areas shall be substantial doors and of construction that will resist fire for at least 20 minutes. Wired glass or minimum 45-min 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 in accordance with this chart shall be substantial doors and 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 shall 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 subdivided by open construction (any combination of grating doors and grating walls or solid walls) may be considered one room if housing not more than 16 persons. 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. In Use Conditions II and III, open dormitories may house more than 16 persons as permitted by other sections of this chapter.

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. High rise buildings shall comply with 30-8.2.

14-4.4 Operating Features. (*See Chapter 31.*)

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.

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 shall be permitted 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 required 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, Escalators, and Conveyors. Elevators, escalators, and 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 REQUIREMENTS

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 Chapter 17, 19, or 20.

Exception No. 2: Facilities determined to have equivalent safety provided in accordance with Section 1-6.*

15-1.1.3 Detention and correctional occupancies are those used for purposes such as correctional institutions, detention facilities, community residential centers, training schools, work camps, and substance abuse centers 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 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, and

(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 of Chapter 15 by a fire barrier having at least a 2-hour fire resistance rating constructed to the requirements of the addition. Doors in these partitions shall normally be kept closed.

Exception: Doors shall be permitted to 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 shall be permitted to be classified as other occupancies if they meet all of the following conditions:

(a) They are not intended to serve residents for sleeping purposes, and

(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 Nondetention or noncorrectional 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, and the direct exit has no openings to *other* areas.

(b) *Fire Barrier.* See Chapters 3 and 6.

(c) *Fire Compartment.* See Chapters 3 and 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) *Sally Port (Security Vestibule).* A compartment provided with two or more doors where the intended purpose is to prevent continuous and unobstructed passage by allowing the release of only one door at a time.

(f) *Smoke Barrier.* See Chapters 3 and 6.

(g) *Smoke Compartment.* See Chapters 3 and 6.

15-1.4 Classification of Occupancy.

15-1.4.1* 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 Requirements.

15-1.6.1 For the purpose of 15-1.6, stories shall be counted starting with 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 following types of building construction shown in Table 15-1.6.3. (*See 6-2.1.*)

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) I (332) II (222)	X	X	X	X	X
II (111)	X††	X	X††	X†	X†
III (211) IV (2HH) V (111)	X††	X	X††	X†	X†
II (000) III (200) V (000)	X††	X††	X†	X†	X†

X: Permitted types of construction
X†: Permitted if the entire building is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 7-7
X††: X† applies in buildings where Use Condition V is used

Exception No. 1: Any building of Type I or Type II (222 or 111) construction shall be permitted to 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 2 1/2 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 shall be disregarded.

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 REQUIREMENTS

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.

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 shall be permitted to 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)* Ducts shall be allowed to penetrate horizontal exits in accordance with Exception No. 3 to 5-2.4.3.3 if protected by combination fire dampers/smoke leakage-rated dampers that meet the smoke damper actuation requirements of 6-3.5.

(d) A door in a horizontal exit is not required to swing with travel as specified in 5-2.4.3.6.

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 shall be permitted to intervene. Where sleeping rooms directly adjoin a dayroom or group activity space that is utilized for access to an exitway, such sleeping room shall be permitted to open directly to the dayroom or space and may be separated in elevation by a one-half or full story height. (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 shall be permitted for the first 100 ft (30 m) in a building protected throughout by an approved automatic sprinkler system in accordance with 15-3.5.3.

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 sally port shall be permitted in a means of egress where there are provisions for continuous and unobstructed travel through the sally port 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 maximum permitted travel distance in (a) or (b) above shall 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 maximum permitted travel distance in (c) above shall 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 shall be permitted to 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 shall be permitted to discharge through the level of exit discharge. The requirements of 5-7.2 are waived provided that not more than 50 percent of the exits discharges 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 are not required 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 provided in 15-2.11.2 through 15-2.11.8.

15-2.11.2 Doors shall be permitted to 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 fewer residents shall be permitted to be a minimum of 19 in. (48.3 cm) in clear width.

15-2.11.4 Doors in a means of egress shall be permitted to 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 shall be permitted to be locked with key locks 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 control release used in means of egress shall be provided with a reliable means of operation, remotely located from the resident living area, to release locks on all doors.

Exception: Provisions for remote control locking and unlocking of occupied rooms in Use Condition IV are not required 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 control unlocking. Unlocking of all necessary locks shall be accomplished with no more than two separate keys. (See 15-3.7.7 for smoke barrier doors.)

15-2.11.7 All remote-control 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 control manual mechanical release is provided.

Exception to (a): The combination of emergency power-operated release of selected individual doors and remote control manual mechanical ganged release shall be allowed without mechanical release means at each door.

(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.

Exception No. 2: Multilevel residential housing areas in accordance with 15-3.1.2.

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 6-2.4.5, 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. Residential housing areas subdivided in accordance with 15-3.8.1 are permitted to be considered as part of the communicating space.

Exception No. 4: Atriums in accordance with 6-2.4.6 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 required minimum fire resistance rating of enclosures in detention and correctional occupancies protected throughout by an approved automatic sprinkler system shall be 1 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 shall be considered as a single-story building provided that:

(a) 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:

1. Use Condition IV or V.

2. 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 cells, or

(b) 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* Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated:

Area Description	Separation/Protection
Areas not incidental to resident housing	2-hr
Boiler and fuel-fired heater rooms	1-hr or sprinklers
Commercial cooking equipment	In accordance with 7-2.3
Commissaries	1-hr or sprinklers
Employee locker rooms	1-hr or sprinklers
Hobby/handicraft shops	1-hr or sprinklers
Central or bulk laundries over 100 sq ft (9.3 sq m)	1-hr or sprinklers
Maintenance shops	1-hr or sprinklers
Padded cells	1-hr and sprinklers
Soiled linen rooms	1-hr or sprinklers
Storage rooms > 50 sq ft (4.6 sq m) in area storing combustible material	1-hr or sprinklers
Trash collection rooms	1-hr or sprinklers

Exception: When, in the opinion of the authority having jurisdiction, such areas are no longer incidental to resident housing, they shall be separated by 2-hour fire barriers in conjunction with automatic sprinkler protection.

15-3.2.2 Where cooking facilities are protected per 7-2.3, kitchens shall not be required to be provided with roomwide protection.

15-3.3 Interior Finish.

15-3.3.1 Interior wall and ceiling finish in corridors and exits and any space not separated from 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 continue to be used provided they have been evaluated based upon tests performed in accordance with 6-5.3.1.

15-3.4 Detection, Alarm, and Communication Systems.

15-3.4.1 General.

15-3.4.1.1 Detention and correctional occupancies shall be provided with a fire alarm system in accordance with Section 7-6, except as modified below.

15-3.4.1.2 All required fire alarm systems shall be electrically supervised.

Exception: Existing nonelectrically supervised systems shall be permitted 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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*.

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 shall be permitted to be locked provided that staff is present within the subject area when occupied and has keys readily available to unlock the boxes.

Exception No. 2: Manual fire alarm boxes shall be permitted to be located in a staff location, provided that the staff location is attended when the building is occupied and that the staff attendant 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 are permitted to 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 No. 1: Any smoke detectors required by this chapter are not required to transmit an alarm to the fire department.

Exception No. 2: Where staff is provided at a constantly attended location that has the capability to promptly notify the fire department or has direct communication with a control room having direct access to the fire department. The fire plan as required by 31-5.1.3 shall include procedures for logging of alarms and immediate notification of 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 are not required in sleeping rooms with four 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 15-3.5.3, smoke detectors are not required except in corridors, common spaces, and sleeping rooms with more than four occupants.

Exception No. 3: Other arrangements and positioning of smoke detectors shall be permitted to prevent damage or tampering, or for other purposes, provided the function for detecting any fire is fulfilled and the placement 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 1-6 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 shall be permitted to be locked.*

Exception No. 2: Portable fire extinguishers shall be permitted to 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 nonsprinklered buildings over two stories in height.

Exception No. 1: One-inch (2.5-cm) diameter formed hose on hose reels shall be permitted to provide Class II service.

Exception No. 2: Separate Class I and Class II systems shall be permitted 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 so as to divide every story used for sleeping by ten or more residents, or any other story having an occupant load of 50 or more persons, into at least two compartments.

Exception No. 1: Protection shall be permitted to be accomplished with horizontal exits. (See 5-2.4.)

Exception No. 2: Smoke compartments having direct exit to (a) a public way, (b) a building separated from the resident housing area by a 2-hour fire resistance rating or 50 ft (15 m) of open space, or (c) a secured open area having a holding space located 50 ft (15 m) from the housing area that provides 15 sq ft (1.4 sq m) or more of refuge area for each person (resident, staff, visitors) that may be present at the time of a 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 applicable use condition.*

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 a maximum of 100 ft (30 m),

2. From any point in a room to a maximum of 150 ft (45 m).

Exception to (b): The maximum permitted travel distance shall 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.

15-3.7.4 Openings in smoke barriers shall be protected in accordance with Section 6-3.

Exception: There is no restriction on the total number of vision panels in any barrier (e.g., a smoke barrier may consist of fire-rated glazing panels mounted in a security grille arrangement.

15-3.7.5 At least 6 net sq ft (.56 net 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.

15-3.7.6 Doors shall provide resistance to the passage of smoke. Swinging doors shall be self-latching, or the opening resistance of the door shall be a minimum of 5 lbf (22 N). Such doors are not required to swing with exit travel.

15-3.7.7 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 applicable 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.

15-3.7.8 Vision panels shall be provided in smoke barriers at points where the barrier crosses an exit access corridor.

15-3.7.9 Smoke dampers shall be provided in accordance with 6-3.5.

Exception: Other arrangements and positioning of smoke detectors shall be permitted to prevent damage or tampering or may be used for other purposes, provided the function of detecting any fire is fulfilled, and the placement 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 found on the following page.

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.

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.

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.

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 ST††† ≤50 ft† >50 ft† (15 m) (15 m)	NR ST†† ≤50 ft† >50 ft† (15 m) (15 m)	ST†††	NR ST†† ≤50 ft† >50 ft† (15 m) (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) Multitiered cell blocks meeting the requirements of 15–3.1.3.
†††May be NR in multitiered open cell blocks meeting the requirements of 15–3.1.3.
NOTE 1: Doors in openings in partitions required to be fire resistive in accordance with this chart in other than required enclosures of exits or hazardous areas shall be substantial doors and of construction that will resist fire for at least 20 minutes. Wired glass or minimum 45–min 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 in accordance with the chart shall be substantial doors and 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 shall 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 subdivided by open construction (any combination of grating doors and grating walls or solid walls) may be considered one room if housing not more than 16 persons. 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. In Use conditions II and III, open dormitories may house more than 16 persons as permitted by other sections of this chapter.

Exception: Approved suspended unit heaters shall be permitted 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 required 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, Escalators, and Conveyors. Elevators, escalators, and 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 1-5. *(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 1-5.7 of this *Code* shall be applicable.

16-1.2.2 For requirements on mixed mercantile and residential occupancies, see 24-1.2; for mixed assembly and residential, see 8-1.2; and for mixed business and residential, see 26-1.2.

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. Dormitories include buildings or spaces in buildings where group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room or a series of closely associated rooms under joint occupancy and single management, with or without meals, but without individual cooking facilities. Examples are college dormitories, fraternity houses, and military barracks.

Hotels. Hotels include buildings or groups of buildings under the same management in which there are more than 16 sleeping accommodations primarily used by transients (those who occupy accommodations for less than 30 days) for lodging 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 the same transient occupancy as 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 Means of egress from guest rooms/guest suites to the outside of the building shall be in accordance with Chapter 5 and this chapter. Means of escape within the guest room/guest suite shall comply with the provisions of Section 21-2 for one- and two-family dwellings. For the purpose of application of the requirements of Chapter 21, guest room/guest suite is synonymous with dwelling or living unit.

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, exit enclosures shall have a fire resistance rating of not less than 1 hour, and the fire protection rating of doors shall be not less than 1 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.

16-2.2.2.5 Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted in a means of egress serving a room or area with an occupant load of less than 50. Such doors shall not be used across corridors.

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 in accordance with 16-3.5, 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 in accordance with 16-3.5, 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 remotely located 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: Maximum permitted travel distance to exits shall be 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.

Exception No. 2: Maximum permitted travel distance to exits shall be 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. 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.

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 or suite has an exit direct to the outside of the building at street or ground level.

16-2.10 Marking of Means of Egress.

16-2.10.1 Means of egress shall have signs in accordance with Section 5-10.

16-2.11 Special Features. (Reserved.)

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 in accordance with 6-2.4.5 shall be permitted.

Exception No. 2: An atrium in accordance with 6-2.4.6 shall be permitted.

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, fire resistance of walls shall be not less than 1 hour and fire protection rating of doors shall be not less than 1 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 Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated. Where sprinkler protection without fire rated separation is used, areas shall be separated from other spaces by partitions complying with 6-3.2 and with doors complying with 6-3.4.

Hazardous Area	Separation/Protection
Boiler and fuel-fired heater rooms serving more than a single guest room or suite.	1-hr and sprinklers
Employee locker rooms	1-hr or sprinklers
Gift or retail shops	1-hr or sprinklers
Bulk laundries	1-hr and sprinklers
Guest laundries not more than 100 sq ft (9.3 sq m) outside of guest rooms or suites	1-hr or sprinklers[1]
Guest laundries more than 100 sq ft (9.3 sq m) outside of guest rooms or suites	1-hr and sprinklers
Maintenance shops	1-hr and sprinklers
Storage rooms[2]	1-hr or sprinklers
Trash rooms	1-hr and sprinklers

[1]Where automatic sprinkler protection is provided, no enclosure is required.

[2]Where storage areas not exceeding 24 sq ft (2.2 sq m) are directly accessible from the guest room or suite, no separation/protection is required.

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 Communication Systems.

16-3.4.1 General. A fire alarm system in accordance with Section 7-6 shall be provided.

16-3.4.2 Initiation. The required fire alarm system shall be initiated 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 supervised 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* Provisions shall be made for the immediate notification of the public fire department by telephone or other means in case of fire. Where there is no public fire department, this notification shall be made 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 supervised automatic sprinkler system installed in accordance with 16-3.5.

16-3.4.4.2* Each sleeping room and each living area within a guest room or suite shall be provided with an approved single station smoke detector in accordance with 7-6.2.9 powered from the building electrical system.

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. In buildings up to and including four stories in height, systems installed in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height*, shall be permitted.

Exception: In guest rooms and in guest room suites, sprinkler installations are not required 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 buildings shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.1.

Exception: Buildings other than high rise, where all guest sleeping rooms have a door that opens directly to the outside at street or ground level or to exterior exit access arranged in accordance with 5-5.3.

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 in accordance with 6-2.3 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, corridor walls shall have at least a 1/2-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.

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, louver, or transfer grille shall be installed in partitions or doors 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.

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. (Reserved.)

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.

Exception No. 1: Buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 16-3.5.

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. High rise buildings shall comply with Section 30-8. The Exception to 16-3.5.1 shall be permitted.

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, Escalators, and Conveyors. Elevators, escalators, and 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 1-5.7 of this *Code* shall be applicable.

17-1.2.2 For requirements on mixed mercantile and residential occupancies, see 25-1.2; for mixed assembly and residential occupancies, see 9-1.2.

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. Dormitories include buildings or spaces in buildings where group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room or a series of closely associated rooms under joint occupancy and single management, with or without meals, but without individual cooking facilities. Examples are college dormitories, fraternity houses, and military barracks.

Hotels. Hotels include buildings or groups of buildings under the same management in which there are more than 16 sleeping accommodations primarily used by transients (those who occupy accommodations for less than 30 days) for lodging 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 the same transient occupancy as 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 Means of egress from guest rooms/guest suites to the outside of the building shall be in accordance with Chapter 5 and this chapter. Means of escape within the guest room/guest suite shall comply with the provisions of Section 21-2 for one- and two-family dwellings. For the purpose of application of the requirements of Chapter 21, guest room/guest suite is synonymous with dwelling or living unit.

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, exit enclosures shall have a fire resistance rating of not less than 1 hour, and the fire protection rating of doors shall be not less than 1 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.

17-2.2.2.5 Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted in a means of egress serving a room or area with an occupant load of less than 50. Such doors shall not be used across corridors.

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, 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: Maximum permitted travel distance to exits shall be 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.

Exception No. 2: Maximum permitted travel distance to exits shall be 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. 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.

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 in accordance with 17-3.5 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 or suite has an exit direct to the outside of the building at street or ground level.

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. (Reserved.)

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 in accordance with 6-2.4.5 shall be permitted.

Exception No. 2: An atrium in accordance with 6-2.4.6 shall be permitted.

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, 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 17-3.5.

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 Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated. Where sprinkler protection without fire rated separation is used, areas shall be separated from other spaces by partitions complying with 6-3.2 and with doors complying with 6-3.4.

Hazardous Area	Separation/Protection
Boiler and fuel-fired heater rooms serving more than a single guest room or suite.	1-hr and sprinklers
Employee locker rooms	1-hr or sprinklers
Gift or retail shops more than 100 sq ft (9.3 sq m)	1-hr or sprinklers[1]
Bulk laundries	1-hr and sprinklers
Guest laundries more than 100 sq ft (9.3 sq m) outside of guest rooms or suites	1-hr or sprinklers[1]
Maintenance shops	1-hr and sprinklers
Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction[2]	1-hr or sprinklers
Trash rooms	1-hr and sprinklers

[1]Where sprinkler protection is provided, no enclosure is required.

[2]Where storage areas not exceeding 24 sq ft (2.2 sq m) are directly accessible from the guest room or suite, no separation/protection is required.

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 Communication 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 three stories in height.

17-3.4.2 Initiation. The required fire alarm system shall be initiated by:

(a) Manual means in accordance with 7-6.2, and

Exception to (a): Manual means as specified in 7-6.2, other than as required by (b) below, shall not be required where there are other effective means (such as complete automatic sprinkler or automatic detection systems) to activate the fire alarm system.

(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 telephone or other means in case of fire. Where there is no public fire department, this notification shall be made 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 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. In buildings up to and including four stories in height, systems installed in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height*, shall be permitted.

Exception: In guest rooms and in guest room suites, sprinkler installations are not required 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 All high rise buildings shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with 17-3.5.1.

Exception: Where each guest room or suite has exterior exit access in accordance with 5-5.3.

17-3.5.3 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 in accordance with 6-2.3 having at least a 30-minute fire resistance rating.

Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system in accordance with 17-3.5, 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) thick solid bonded wood core doors shall be permitted to 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 No louver or transfer grille shall be permitted in partitions or doors separating the corridor from guest rooms.

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: Buildings protected throughout by an approved automatic sprinkler system complying with 17-3.5 or 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 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. (Reserved.)

SECTION 17-4 SPECIAL PROVISIONS

17-4.1 Operating Features. (*See Chapter 31.*)

17-4.2 High Rise Buildings. (*See 17-3.5.2.*)

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, Escalators, and Conveyors. Elevators, escalators, and 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 This chapter establishes life safety requirements for all new apartment buildings and for renovations, alterations, or modernizations according to the provisions of Section 1-5. *(See Chapter 31 for operating features.)*

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 1-5.7 of this *Code* shall apply.

18-1.2.2 For requirements on mixed mercantile and residential occupancies, see 24-1.2; for mixed assembly and residential occupancies, see 8-1.2; and for mixed business and residential occupancies, see 26-1.2.

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 occur.

Apartment Buildings.* Apartment buildings include buildings containing three or more living units with independent cooking and bathroom facilities, whether designated as apartment houses, tenements, garden apartments, 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 Means of egress from living units to the outside of the building shall be in accordance with Chapter 5 and this chapter. Means of escape within the living unit shall comply with the provisions of Section 21-2 for one- and two-family dwellings.

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 protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5, exit enclosures shall have a fire resistance rating of not less than 1 hour with doors having a fire protection rating of not less than 1 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: Special locking arrangements complying with 5-2.1.6 are permitted.

18-2.2.2.3 Revolving doors complying with 5-2.1.10 are permitted.

18-2.2.2.4 Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted in a means of egress serving a room or area with an occupant load of less than 50. Such doors shall not be located for use across corridors.

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 remotely located from each other as required by 5-5.1.

Exception No. 1: Any living unit shall be permitted to have a single exit provided:

(a) That living unit has an exit door opening 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 that serves a maximum of two units located on the same floor, or

(c) That living unit has direct access to an interior stair serving only that unit and separated from all other portions of the building by fire barriers having a 1-hour fire resistance rating with no opening therein.

Exception No 2: Any building protected throughout by an approved supervised automatic sprinkler system complying with 18-3.5 having four stories or less with not more than four living units per floor shall be permitted to 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) One-half 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 in accordance with 18-3.5, 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 in accordance with 18-3.5, 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 75 ft (23 m).

Exception: In buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 18-3.5, the travel distance shall not exceed 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 100 ft (30 m).

Exception No. 1: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5, the travel distance shall not exceed 200 ft (60 m).

Exception No. 2: Travel distance to exits shall not exceed 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. (Reserved.)

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 shall be permitted in accordance with 6-2.4.6.

Exception No. 3: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5, the fire resistance of walls shall be not less than 1 hour, and the fire protection rating of doors shall be not less than 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 Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated. Where sprinkler protection without fire rated separation is used, areas shall be separated from other spaces by partitions complying with 6-3.2 with doors complying with 6-3.4.

Hazardous Area	Separation/Protection
Boiler and fuel-fired heater rooms serving more than a single living unit.	1-hr and sprinklers
Employee locker rooms	1-hr or sprinklers
Gift or retail shops	1-hr or sprinklers
Bulk laundries	1-hr and sprinklers
Laundries not more than 100 sq ft (9.3 sq m) outside of living units	1-hr or sprinklers[1]
Laundries more than 100 sq ft (9.3 sq m) outside of living units	1-hr and sprinklers
Maintenance shops	1-hr and sprinklers
Storage rooms outside of living units	1-hr or sprinklers
Trash rooms	1-hr and sprinklers

[1]Where sprinklers are provided, separation is not required.

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. 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 Communication 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 1¾ 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 protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5, required fire alarm systems shall be initiated upon operation of the automatic sprinkler system.

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 having 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 from the building electrical system 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 Approved single station smoke detectors continuously powered by the building electrical system shall be installed in accordance with 7-6.2.9 in every sleeping room. When activated, the detectors shall initiate an alarm in that sleeping room.

Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5.

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. In buildings up to and including four stories in height, systems installed in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height*, shall be permitted.

Exception: In individual living units, sprinkler installation is not required 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 All buildings shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5.1.

Exception: Buildings where every living unit has either:

(a) An exit door opening directly to the street or yard at ground level, or

(b) Direct access to an outside stair complying with 5-2.2 that serves a maximum of two units located on the same floor, or

(c) Direct access to an interior stair serving only that unit and separated from all other portions of the building by fire barriers having a 1-hour fire resistance rating with no openings therein.

18-3.5.3 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.

18-3.5.4 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 constructed of fire barriers in accordance with 6-2.3 having not less than a 1-hour fire resistance rating.

Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5, corridor walls shall have a fire resistance rating of not less than $^1/_2$ hour.

18-3.6.2 Doors between apartments and corridors shall be self-closing.

18-3.6.3* The fire protection rating of doors that open from living units onto corridors shall be not less than 20 minutes.

18-3.7 Subdivisions of Building Spaces. (Reserved.)

18-3.8 Special Features. (Reserved.)

SECTION 18-4 SPECIAL PROVISIONS

18-4.1 Windows for Rescue and Ventilation. (*See 18-2.1.1.*)

Exception: In buildings protected throughout by an approved supervised automatic sprinkler system installed in accordance with 18-3.5.

18-4.2 High Rise Buildings. High rise buildings shall comply with Section 30-8. The Exception to 18-3.5.1 shall be permitted.

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, Escalators, and Conveyors. Elevators, escalators, and 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.

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.

19-1.2 Mixed Occupancies.

19-1.2.1 Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-5.7 of this *Code* shall apply.

19-1.2.2 For requirements on mixed mercantile and residential occupancies, see 25-1.2; for mixed assembly and residential occupancies, see 9-1.2.

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 occur.

Apartment Buildings.* Apartment buildings include buildings containing three or more living units with independent cooking and bathroom facilities, whether designated as apartment houses, tenements, garden apartments, 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 Means of egress from living units to the outside of the building shall be in accordance with Chapter 5 and this chapter. Means of escape within the living unit shall comply with the provisions of Section 21-2 for one- and two-family dwellings.

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 1 hour with doors having a fire protection rating of not less than 1 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: Special locking arrangements complying with 5-2.1.6 are permitted.

19-2.2.2.3 Revolving doors complying with 5-2.1.10 are permitted.

19-2.2.2.4 Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted in a means of egress serving a room or area with an occupant load of less than 50. Such doors shall not be located for use across corridors.

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 for compliance.

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 remotely located from each other as required by 5-5.1.

Exception No. 1: Any living unit shall be permitted to have a single exit provided:

(a) That living unit has an exit door opening 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 that serves a maximum of two units located on the same floor, or

(c) That living unit has direct access to an interior stair serving only that unit and separated from all other portions of the building by fire barriers having a 1-hour fire resistance rating with no opening therein.

Exception No. 2: Any building of three stories or less shall be permitted to 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, shall be permitted to have a single exit. ["Immediately accessible" means there are 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 in accordance with 19-3.5, 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 shall not exceed 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 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 shall be permitted in accordance with 6-2.4.6.

Exception No. 3: In buildings using Option 4, fire resistance of walls shall be not less than 3/4 hour for buildings of one to three stories and 1 hour for buildings greater than three stories; and fire protection rating of doors shall be not less than 3/4 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 shall be permitted in accordance with the conditions of 6-2.4.5.

Exception No. 5: In any building protected throughout by an approved automatic sprinkler system in accordance with 19-3.5, 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.

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 Hazardous Areas. Any hazardous area shall be protected in accordance with Section 6-4. The following areas shall be protected as indicated. Where sprinkler protection without fire rated separation is used, areas shall be separated from other spaces by partitions complying with 6-3.2, with doors complying with 6-3.4.

Hazardous Area	Separation/Protection
Boiler and fuel-fired heater rooms serving more than a single living unit.	1-hr or sprinklers
Employee locker rooms	1-hr or sprinklers
Gift or retail shops more than 100 sq ft (9.3 sq m)	1-hr or sprinklers[1]
Bulk laundries	1-hr or sprinklers
Laundries more than 100 sq ft (9.3 sq m) outside of dwelling units	1-hr or sprinklers[1]
Maintenance shops	1-hr or sprinklers
Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction	1-hr or sprinklers
Trash rooms	1-hr or sprinklers

[1]Where sprinklers are provided, separation is not required.

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 3/4 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 having 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 from the building electrical system 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 an existing 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 provide complete coverage using fire detectors in accordance with the spacings and layouts required by NFPA 72E, *Standard on Automatic Fire Detectors*, and laboratory test data. It is a system 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. In buildings up to and including four stories in height, systems installed in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height*, shall be permitted.

Exception: In individual living units, sprinkler installation is not required 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 that opens into the corridor.

Exception: The sprinkler head inside living units shall not be required 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 All high rise buildings shall be protected throughout by an approved supervised automatic sprinkler system installed in accordance with 19-3.5.1.

Exception No. 1: Where every living unit has exterior exit access in accordance with 5-5.3.

Exception No. 2: Buildings in which an engineered life safety system has been approved by the authority having jurisdiction.*

9-3.5.7 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 constructed of fire barriers in accordance with 6-2.3 having a fire resistance rating of not less than 30 minutes.

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 that open from living units onto corridors shall be not less than 20 minutes.

Exception No. 1: Previously approved $1\frac{3}{4}$-in. (4.4-cm) thick solid bonded wood core doors.

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. (Reserved.)

SECTION 19-4 SPECIAL PROVISIONS

19-4.1 Windows for Rescue and Ventilation. (*See 19-2.1.1.*)

Exception: Buildings using Option 4.

19-4.2 High Rise Buildings. (*See 19-2.11.1 and 19-3.5.6.*)

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, Escalators, and Conveyors. Elevators, escalators, and 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.

CHAPTER 20 LODGING OR ROOMING HOUSES

SECTION 20-1 GENERAL REQUIREMENTS

20-1.1 Application.

20-1.1.1 This chapter applies to buildings that provide 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 21.

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 1-5 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 1-5.7 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; for mixed assembly and residential occupancies, see 8-1.2 or 9-1.2; and for mixed business and residential occupancies, see 26-1.2.

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 and living area shall have access to a primary means of escape complying with Chapter 21 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 of escape 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 21-2.2.3.

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 remotely located 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 by 20-minute fire barriers with all openings protected with smoke-actuated automatic-closing or self-closing doors having a fire resistance comparable to that required for the enclosure. The stairway shall comply with 5-2.2.6.5.

Exception No. 1: Stairs connecting two levels only shall be permitted to be open to other than the street floor.

Exception No. 2: Stairways shall be permitted to 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 shall be not less than 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 allow opening from the outside during an emergency when locked.

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 shall be permitted to 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 that of 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 that are protected throughout by an approved automatic sprinkler system installed in accordance with 20-3.5, 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.

20-3.1.2 Exterior stairs shall be reasonably protected against blockage caused by fire that would simultaneously expose both the interior and exterior means of escape. This may be accomplished through separation by physical 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 Communication 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 where that detection system includes 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, 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 single station or multiple station smoke detectors powered by the building electrical service shall be installed in accordance with 7-6.2.9 on every level. In addition, approved single station smoke detectors powered by the building electrical service shall be provided in each sleeping room.

Exception: 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 ensure reliability of power 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.

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 Seection 7-7, and shall actuate the fire alarm system in accordance with Section 7-6.

Exception No. 1: Sprinkler installations are not required 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 installations are not required in closets not over 24 sq ft (2.2 sq m) and bathrooms not over 55 sq ft (5.1 sq m).

20-3.5.2 All new lodging or rooming houses shall be protected throughout by an approved automatic sprinkler system. Such system shall be installed in accordance with 20-3.5.1.

Exception: If every sleeping room has a door opening directly to the outside of the building at street or ground level, or has a door opening directly to the outside leading to an exterior stairway that meets the requirements of 20-2.1.1.

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 caused by the malfunction of the stove or heater.

20-5.2.3 Unvented fuel-fired heaters shall not be used.

20-5.3 Elevators, Escalators, and Conveyors. Elevators, escalators, and conveyors shall comply with the provisions of Section 7-4.

CHAPTER 21 ONE- AND TWO-FAMILY DWELLINGS

SECTION 21-1 GENERAL REQUIREMENTS

21-1.1 Application.

21-1.1.1* This chapter establishes life safety requirements for all one- and two-family 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.

21-1.1.2 The requirements of this chapter are applicable to new buildings and to existing or modified buildings according to the provisions of Section 1-5 of this *Code*.

21-1.2 Mixed Occupancies.

21-1.2.1 Where another type of occupancy occurs in the same building as a residential occupancy, the requirements of 1-5.7 of this *Code* shall be applicable.

21-1.2.2 For requirements on mixed mercantile and residential occupancies, see 24-1.2 or 25-1.2; for mixed assembly and residential occupancies, see 8-1.2 or 9-1.2; for mixed business and residential occupancies, see 26-1.2.

21-1.3 Definitions.

21-1.3.1 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.

21-1.4 Classification of Occupancy. (*See 21-1.1.1.*)

21-1.5 Classification of Hazard of Contents.

21-1.5.1 The contents of residential occupancies shall be classified as ordinary hazard in accordance with 4-2.1.

21-1.6 Minimum Construction Requirements. No special requirements.

21-1.7 Occupant Load. No requirements.

SECTION 21-2* MEANS OF ESCAPE REQUIREMENTS

21-2.1 General. The provisions of Chapter 5 are not applicable to means of escape unless specifically referenced in this chapter.

21-2.2 Number and Types of Means of Escape.

21-2.2.1 Number of Means of Escape. In any dwelling or living unit of two rooms or more, every sleeping room and every living area shall have at least one primary means of escape and one secondary means of escape.

21-2.2.2 Primary Means of Escape. The primary means of escape shall be a door, stairway, or ramp providing a means of unobstructed travel to the outside of the dwelling unit at street or ground level.

21-2.2.3* Secondary Means of Escape. The secondary means of escape 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 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.

Exception No. 1: A secondary means of escape 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, or NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, as applicable.

Exception No. 2: Existing approved means of escape may continue to be used.

21-2.2.4 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 remotely located 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.

21-2.3 Arrangements of Means of Escape.

21-2.3.1 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.

21-2.4 Doors.

21-2.4.1 No door in the path of travel of a means of escape shall be less than 28 in. (71 cm) wide.

Exception: Bathroom doors shall be not less than 24 in. (61 cm) wide.

21-2.4.2 Doors shall be a minimum of 6 ft 6 in. (198 cm) in nominal height.

21-2.4.3 Every closet door latch shall be such that children can open the door from inside the closet.

21-2.4.4 Every bathroom door shall be designed to allow opening from the outside during an emergency when locked.

21-2.4.5 Doors shall be swinging or sliding.

21-2.4.6* 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.

21-2.5 Stairs, Landings, Ramps, Balconies, or Porches.

21-2.5.1 Stairs, ramps, guards, and handrails shall be in accordance with 5-2.2 for Class B stairs. A handrail shall be provided on at least one side of stairways of four or more risers. Spiral stairs and winders in accordance with 5-2.2.2.7 and 5-2.2.2.8 shall be permitted within a single living unit. The minimum clear width of stairs, landings, ramps, balconies, and porches shall be 36 in. (91 cm) measured in accordance with 5-3.2.

Exception No. 1: Existing means of escape shall be permitted to be continued in use. However, guards and handrails shall be provided, and no sleeping rooms or living area shall be accessible by only a ladder, stair ladder, folding stairs, or through a trap door.

Exception No. 2: The provisions of 5-2.2.3 shall not apply to stairs within a dwelling unit.

21-2.6 Hallways. The minimum width of hallways shall be 36 in. (91 cm). The minimum height shall be not less than 7 ft (213 cm) nominal height with projections from the ceiling providing not less than 6 ft 8 in. (203 cm) nominal height.

Exception: Existing approved hallways shall be permitted to be continued in use.

SECTION 21-3 PROTECTION

21-3.1 Protection of Vertical Openings. No requirements.

21-3.2 Interior Finish.

21-3.2.1 Interior finish on walls and ceilings of occupied spaces shall be Class A, B, or C as defined in Section 6-5.

21-3.2.2 Interior Floor Finish. No requirements.

21-3.3 Detection, Alarm, and Communication Systems.

21-3.3.1 Detection. Approved single station or multiple station smoke detectors continuously powered by the house electrical system 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 shall be permitted.

SECTION 21-4 (RESERVED)

SECTION 21-5 BUILDING SERVICES

21-5.1 Heating Equipment. No stove or combustion heater shall be so located as to block escape in case of fire caused by the malfunction of the stove or heater.

CHAPTER 22 NEW RESIDENTIAL BOARD AND CARE OCCUPANCIES

SECTION 22-1 GENERAL REQUIREMENTS

22-1.1 Application.

22-1.1.1* All new 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 22-1 — General Requirements.

(b) Section 22-2 — Small Facilities (i.e., sleeping accommodations for not more than 16 residents).

(c) Section 22-3 — Large Facilities (i.e., sleeping accommodations for more than 16 residents).

(d) Section 22-4 — Suitability of an Apartment Building to House a Board and Care Occupancy.

22-1.1.2 The requirements of this chapter are applicable to new construction according to the provisions of Section 1-5 of this *Code*.

22-1.2 Mixed Occupancies. Where another type of occupancy occurs in the same building as a residential board and care occupancy, the requirements of 1-5.7 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 egress 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 22-4. In such facilities, any safeguards required by Section 22-4 that are more restrictive than those for other housed occupancies apply only to the extent prescribed by Section 22-4.

22-1.3 Definitions.

Evacuation Capability.* Evacuation capability is the ability of the occupants, residents, and staff as a group either to evacuate a building or to relocate from the point of occupancy to a point of safety. 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, 18, 20, and 21.

(b) *Slow.* Evacuation capability of a 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 that, even with staff assistance, cannot reliably move to a point of safety in a timely manner.

Hazardous Area. A hazardous area is any space where there is storage or activity having fuel conditions exceeding that of a one- or two-family dwelling and that possesses 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 mass storage of residents' belongings. Areas containing approved, properly installed and maintained furnaces and heating equipment, furnace rooms, and cooking and laundry facilities are not classed as hazardous areas solely on the basis of such equipment.

Personal Care. "Personal care" means protective care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident while inside the building. Personal care may include daily awareness by the management of the resident's functioning and whereabouts, making and reminding a resident of appointments, the ability and readiness for intervention in the event of a resident experiencing a crisis, supervision in the areas of nutrition and medication, and actual provision of transient medical care.

Point of Safety. A point of safety is a location that meets one of the following criteria:

(a) It is located exterior to and away from the building.

(b) It is located within a building of any type construction protected throughout by an approved automatic sprinkler system and is either:

1. Located within an exit enclosure meeting the requirements of this *Code*, or

2. Located within another portion of the building that is separated by smoke barriers in accordance with Section 6-3, with at least a 20-minute fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this *Code* and that does not require return to the area of fire involvement.

(c) It is located 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. Located within an exit enclosure meeting the requirements of this *Code*, or

2. Located within another portion of the building that is separated by smoke barriers in accordance with Section 6-3, with at least a 20-minute fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this *Code* and that does not require return to the area of fire involvement.

Resident. A person who is receiving personal care and resides in a residential board and care facility.

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

Staff. A person who provides personal care services, supervision, or assistance.

Thermal Barrier.* A material that will limit the average temperature rise of the unexposed surface to not more than 250°F (120°C) for a specified fire exposure complying with the standard time temperature curve of NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials*.

22-1.4 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 22-2 SMALL FACILITIES

22-2.1 General.

22-2.1.1 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 shall be classed as a large facility. The requirements for large facilities are found in Section 22-3.

22-2.1.2 Requirements Based on Evacuation Capability.

22-2.1.2.1 Small facilities shall comply with the requirements of Section 22-2 as indicated for the appropriate evacuation capability.

Exception: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-6.*

22-2.1.3 Minimum Construction Requirements.

22-2.1.3.1 Prompt. No special requirements.

22-2.1.3.2 Slow. The facility shall be housed in a building where the interior is fully sheathed with lath and plaster or other material providing a 15-minute thermal barrier, including all portions of bearing walls, bearing partitions, floor construction, and roofs. All columns, beams, girders, and trusses shall be similarly encased or otherwise provide a minimum of at least a 20-minute fire resistance rating.

Exception No. 1: Exposed steel or wood columns, girders, and beams (but not joists) located in the basement.

Exception No. 2: Buildings of Type I, Type II (111) or (222), Type III (211), Type IV, or Type V (111) construction. (See 6-2.1.)

Exception No. 3: Areas protected by approved automatic sprinkler systems in accordance with 22-2.3.5.

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 Chapter 5 of NFPA 101M, Alternative Approaches to Life Safety.

22-2.1.3.3 Impractical. Buildings shall be of any construction type in accordance with Section 6-2 other than Type II (000), Type III (200), or Type V (000) construction.

Exception: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 22-2.3.5 shall be of any type of construction.

22-2.2 Means of Escape.

22-2.2.1 Number of Means of Escape. Every facility shall have at least two remotely located means of escape that do not involve using windows from each normally occupied story. At least one of these means of escape shall comply with 22-2.2.2.

Exception No. 1: In prompt facilities, one means of escape shall be permitted to involve windows complying with 22-2.2.3(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 22-2.3.5, and the facility has two means of escape. This exception cannot be used in conjunction with 22-2.2.3 Exception No. 2.

22-2.2.2 Primary Means of Escape.

22-2.2.2.1 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, or horizontal exit.

22-2.2.2.2 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.

Exception: Buildings equipped with quick response or residential sprinklers throughout. Standard response sprinklers shall be permitted for use in hazardous areas in accordance with 22-2.3.2.

22-2.2.3 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 way of unobstructed travel to the outside of the dwelling at street or ground level that is independent of and remotely located from the primary means of escape.

(b) A passage through an adjacent nonlockable space, independent of and remotely located 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 be no 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 doors open 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 of exterior stairs in 22-2.3.1.2, 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 22-2.3.5.

22-2.2.4 Enclosed Interior Stairs. Interior stairways shall be enclosed with 20-minute fire barriers with all openings equipped with smoke actuated automatic-closing or self-closing devices on doors having a fire resistance comparable to that required for the enclosure. Stairways shall comply with 5-2.2.6.5.

Exception No. 1: Stairs connecting two levels only shall be permitted to be open to other than the street floor.

Exception No. 2: For prompt and slow facilities in buildings three stories or less in height having an approved automatic sprinkler system using quick response or residential sprinklers, stair enclosures shall not be required provided there still remains a primary means of escape 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.

22-2.2.5 Doors.

22-2.2.5.1 No door or path of travel to a means of escape shall be less than 32 in. (81 cm) wide.

Exception No. 1: In conversions, 28-in. (71-cm) doors shall be permitted to be continued in use.

Exception No. 2: Bathroom doors shall be a minimum of 24 in. (61 cm) wide.

22-2.2.5.2 Every closet door latch shall be such that it can be readily opened from the inside in case of an emergency.

22-2.2.5.3 Every bathroom door shall be designed to allow opening from the outside during an emergency when locked.

22-2.2.5.4 No door in any means of escape shall be locked against egress when the building is occupied.

22-2.2.6 The width, riser, and treads of every stair shall comply with the minimum requirements for Class B stairs as described in 5-2.2.

Exception: In conversions, existing noncomplying stairs may continue to be used subject to the approval of the authority having jurisdiction.

22-2.2.7 Winders in accordance with 5-2.2.2.8 are permitted.

22-2.3 Protection.

22-2.3.1 Protection of Vertical Openings.

22-2.3.1.1 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 that of the enclosure and be self-closing or automatic-closing in accordance with 5-2.1.8.

Exception: For prompt and slow facilities in buildings three stories or less in height having an approved automatic sprinkler system using quick response or residential sprinklers, stair enclosures shall not be required provided there still remains a primary means of escape 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.

22-2.3.1.2 Exterior stairs shall be reasonably protected against blockage caused by fire that would simultaneously expose both the interior and the exterior means of escape. This shall be accomplished through separation by physical distance, arrangement of the stairs, protection of the openings exposing the stairs, or other means acceptable to the authority having jurisdiction.

22-2.3.2 Hazardous Areas. Any hazardous area shall be protected in accordance with the following:

(a) Any hazardous area that is on the same floor as, and is in or abuts a primary means of escape or a sleeping room, 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 resistance rating of at least 3/4 hour, or

2. Automatic sprinkler protection, in accordance with 22-2.3.5 of the hazardous area and a separation that will resist the passage of smoke between the hazardous area and the 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 having a fire resistance rating of at least 20 minutes with a self-closing or automatic-closing door in accordance with 5-2.1.8 equivalent to at least a 1 3/4-in. (4.4-cm) thick solid bonded wood core construction, or

2. Automatic sprinkler protection, in accordance with 22-2.3.5, of the hazardous area regardless of enclosure.

22-2.3.3 Interior Finishes. 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.

22-2.3.4 Detection, Alarm, and Communication Systems.

22-2.3.4.1 Fire Alarm Systems. A manual fire alarm system shall be provided in accordance with Section 7-6. Presignal systems are prohibited.

Exception No. 1: If there are interconnected smoke detectors meeting the requirements of 22-2.3.4.2 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.

22-2.3.4.2 Smoke Detectors. Approved smoke detectors shall be installed in accordance with 7-6.2.9. These shall be powered from the building electrical system 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 are not required in buildings protected throughout by an approved automatic sprinkler system in accordance with 22-2.3.5 using quick response or residential sprinklers.

22-2.3.4.3 Smoke Detectors. Each sleeping room shall be provided with an approved single station smoke detector in accordance with 7-6.2.9 that is powered from the building electrical system.

Exception: Rooms protected by quick response sprinklers or residential sprinklers in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 22-2.3.5. The Exception to 22-2.3.4.2 shall not be used in conjunction with this exception.

22-2.3.5 Automatic Extinguishing Systems.

22-2.3.5.1* Where an automatic sprinkler system is installed, for either 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 22-2.3.4.1.

Exception No. 1: 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, shall be permitted. Automatic sprinklers are not required in closets not exceeding 24 sq ft (2.7 sq m) and bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or material with a 15-minute thermal barrier.

Exception No. 2: 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, shall be permitted. All habitable areas and closets shall be sprinklered.

Exception No. 3: In prompt and slow facilities, where an automatic sprinkler system is installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, automatic sprinklers are not required in closets not exceeding 24 sq ft (2.7 sq m) and bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or material with a 15-minute thermal barrier.

22-2.3.5.2 All facilities shall be protected throughout by an approved automatic sprinkler system installed in accordance with 22-2.3.5.1. Quick response or residential sprinklers shall be provided.

Exception No. 1: Standard response sprinklers shall be permitted for use in areas where quick response and residential sprinklers are prohibited to be installed by their listing.

Exception No. 2: Standard response sprinklers shall be permitted for use in hazardous areas in accordance with 22-2.3.2.

22-2.3.5.3 Automatic sprinkler systems installed in impractical facilities shall be supervised in accordance with Section 7-7.

22-2.3.5.4 Sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be installed in accordance with 7-7.1.2. In new installations, where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the fire alarm system required by 22-2.3.4.1. Duration of water supplies shall be as required by 22-2.3.5.1.

22-2.3.6 Construction of Corridor Walls.

22-2.3.6.1 The separation walls of sleeping rooms shall be capable of resisting fire for at least 20 minutes. This is considered to be achieved if the partitioning is finished on both sides with lath and plaster or material providing a 15-minute thermal barrier. Sleeping room doors shall be substantial doors, such as those of 1¾-in. (4.4-cm) thick 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 1,296 sq in. (0.84 sq m) each in area, and installed in approved frames.

Exception No. 1: In prompt facilities, all sleeping rooms shall be separated from the escape route by walls and doors that are at least smoke resistant.

Exception No. 2: Corridor walls and doors that are capable of resisting the passage of smoke and that are protected by automatic sprinklers in accordance with 22-2.3.5 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. 3: Sleeping arrangements that are not located in sleeping rooms are permitted for nonresident staff members provided the audibility of the alarm in the sleeping area is sufficient to waken staff who may be sleeping.

22-2.3.6.2 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.

22-2.3.6.3 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.

22-2.3.6.4 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 22-2.3.5.1.

22-2.4 Operating Features. (*See Chapter 31.*)

22-2.5 Building services.

22-2.5.1 Utilities. Utilities shall comply with Section 7-1.

22-2.5.2 Heating, Ventilating, and Air Conditioning Equipment.

22-2.5.2.1 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.

22-2.5.2.2 No stove or combustion heater shall be so located as to block escape in case of fire caused by the malfunction of the stove or heater.

22-2.5.2.3 Unvented fuel-fired heaters shall not be used in any residential board and care facility.

22-2.5.3 Elevators, Escalators, and Conveyors. Any elevators, escalators, and conveyors installed shall comply with the provisions of Section 7-4.

SECTION 22-3 LARGE FACILITIES

22-3.1 General.

22-3.1.1 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 22-2, "Small Facilities."

22-3.1.2 Requirements Based on Evacuation Capability.

22-3.1.2.1 Prompt and Slow. Large facilities shall comply with the requirements of Section 22-3 as indicated for the appropriate evacuation capability.

Exception: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-6.*

22-3.1.2.2 Impractical. Facilities housing groups of persons classed as impractical to evacuate shall meet the requirements for limited care facilities in Chapter 12.

Exception: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-6.*

22-3.1.3 Minimum Construction Requirements.

22-3.1.3.1 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 providing a 15-minute thermal barrier.

22-3.1.3.2 For the purpose of construction requirements, stories shall be counted starting with the primary level of exit discharge and ending with the highest occupied level. For the purpose 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 the building.

22-3.1.3.3 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 22-3.3.5.

Exception to (a): One-story facilities having 30 or fewer residents that house groups capable of prompt evacuation may be of any type 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 approved automatic sprinkler system in accordance with 22-3.3.5, or any other type of construction that is both sheathed and protected throughout by an approved automatic sprinkler system in accordance with 22-3.3.5, other than Type V (000).

Exception to (b): Three- to four-story facilities of Type V (000) construction that are both fully sheathed and protected throughout by an approved supervised automatic sprinkler system in accordance with 22-3.3.5.

(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 22-3.3.5.

Exception to (a), (b), and (c): Any building of Type I or Type II (111) or (222) 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 be either unused or protected throughout by an approved automatic sprinkler system in accordance with 22-3.3.5.1.

22-3.1.4 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.

22-3.2 Means of Egress.

22-3.2.1 All means of egress shall be in accordance with Chapter 5.

22-3.2.2 Means of Egress Components.

22-3.2.2.1 Components of means of egress shall be limited to the types described in 22-3.2.2.2 through 22-3.2.2.7.

22-3.2.2.2 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 to (b): 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, doors shall unlock upon loss of power controlling the lock or locking mechanism.

(d) Revolving doors complying with 5-2.1.10 are permitted.

(e) Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted to be used in a means of egress serving an occupant load of less than 50.

22-3.2.2.3 Stairs. Stairs shall comply with 5-2.2.

22-3.2.2.4 Smokeproof Enclosures. Smokeproof enclosures shall comply with 5-2.3.

22-3.2.2.5 Horizontal Exits. Horizontal exits shall comply with 5-2.4.

22-3.2.2.6 Ramps. Ramps shall comply with 5-2.5.

22-3.2.2.7 Exit Passageways. Exit passageways shall comply with 5-2.6.

22-3.2.3 Capacity of Means of Egress.

22-3.2.3.1 The capacity of means of egress shall be in accordance with Section 5-3.

22-3.2.3.2 Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

22-3.2.3.3 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 less than 50 shall not be less than 36 in. (91 cm) in width.

22-3.2.4 Number of Exits. Not fewer than two exits shall be accessible from every floor, including floors below the level of exit discharge and occupied for public purposes.

22-3.2.5 Arrangement of Exits.

22-3.2.5.1 Access to all required exits shall be in accordance with Section 5-5.

22-3.2.5.2 Exits shall be so arranged that, from any corridor room door, exits shall be accessible in at least two different directions.

Exception: Up to the first 35 ft (10 m) of exit travel from a corridor room door may be within a corridor with access only in one direction.

22-3.2.5.3 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 remotely located from each other.

22-3.2.6 Travel Distance to Exits.

22-3.2.6.1 Any exit 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 shall not exceed 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.

Exception No. 2: Travel distance to exits shall not exceed 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 approved automatic sprinkler systems. 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.

22-3.2.6.2 Travel distance within a room or suite or living unit to a corridor door shall not exceed 75 ft (23 m).

Exception: Travel distance shall not exceed 125 ft (48 m) in buildings protected throughout by an approved automatic sprinkler system in accordance with 22-3.3.5.

22-3.2.7 Discharge from Exits.

22-3.2.7.1 Exit discharge shall comply with Section 5-7.

22-3.2.8 Illumination of Means of Egress.

22-3.2.8.1 Means of egress shall be illuminated in accordance with Section 5-8.

22-3.2.9 Emergency Lighting.

22-3.2.9.1 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.

22-3.2.10 Marking of Means of Egress.

22-3.2.10.1 Means of egress shall be marked in accordance with Section 5-10.

22-3.2.11 Special Features. (Reserved.)

22-3.3 Protection.

22-3.3.1 Protection of Vertical Openings.

22-3.3.1.1 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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

22-3.3.1.2 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.

22-3.3.2 Protection from Hazards.

22-3.3.2.1 Any room containing high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or adjacent to exits. All such rooms shall be effectively cut off from other parts of the building as specified in Section 6-4.

22-3.3.2.2 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 Laundries Repair shops	Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction.

22-3.3.3 Interior Finish. Interior wall and ceiling finish within exit enclosures shall be Class A. In all other areas, interior walls 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.

22-3.3.4 Detection, Alarm, and Communication Systems.

22-3.3.4.1 General. A fire alarm system in accordance with Section 7-6 shall be provided.

22-3.3.4.2 Initiation. Initiation of the required fire alarm system shall be by:

(a) Manual means in accordance with 7-6.2, and

(b) A manual fire alarm station located at a convenient central control point under continuous supervision of responsible employees, and

(c) Any 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.

22-3.3.4.3 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: Buildings not greater than two stories in height and with not more than 50 sleeping rooms.

22-3.3.4.4 Occupant Notification. Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3. Presignal systems shall be prohibited.

22-3.3.4.5 High rise buildings shall be provided with an approved means of voice communication in accordance with 7-6.3.

Exception: Buildings equipped with a public address system.

22-3.3.4.6* Fire Department Notification. In case of a fire, provisions shall be made for the immediate notification of the public fire department by either telephone or other means. Where there is no public fire department, this notification shall be made to the private fire brigade.

22-3.3.4.7 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 system.

22-3.3.4.8 Smoke Detection Systems. 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 are not required in common spaces in facilities protected throughout by an approved automatic sprinkler system in accordance with 22-3.3.5.

Exception No. 2: Unenclosed corridors, passageways, balconies, colonnades, or other arrangements where one or more sides along the long dimension are fully or extensively open to the exterior at all times.

22-3.3.5 Extinguishment Requirements.

22-3.3.5.1* All buildings shall be protected throughout with an approved automatic sprinkler system installed in accordance with Section 7-7. Quick response or residential

sprinklers shall be provided throughout. Such systems shall activate the fire alarm system in accordance with Section 7-6.

Exception No. 1: In buildings not more than four stories in height, a sprinkler system complying with NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, shall be permitted.

Exception No. 2: Automatic sprinklers are not required in bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or materials providing a 15-minute thermal barrier.

Exception No. 3: Automatic sprinklers are not required in small clothes closets where the smallest dimension does not exceed 3 ft (0.9 m) and the area does not exceed 24 sq ft (2.2 sq m) and the walls and ceiling are finished with noncombustible or limited-combustible materials.

Exception No. 4: Standard response sprinklers shall be permitted for use in areas where quick response and residential sprinklers are prohibited to be installed by their listing.

Exception No. 5: Standard response sprinklers shall be permitted for use in hazardous areas in accordance with 22-3.3.2.

22-3.3.5.2 Automatic sprinkler systems installed in high rise buildings shall be supervised in accordance with Section 7-7.

22-3.3.5.3 Portable Fire Extinguishers. Portable fire extinguishers in accordance with Section 7-7 shall be provided near hazardous areas.

22-3.3.6 Corridors and Separation of Sleeping Rooms.

22-3.3.6.1 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 22-3.3.6.3 through 22-3.3.6.6.

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 22-3.3.5.

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 spaces, if of such minimum quantity and 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 egress not involving windows. The arrangement shall be such that there is at least one such means of egress 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.

22-3.3.6.2 Sleeping rooms shall be separated from corridors and other common spaces by fire barriers complying with 22-3.3.6.3 through 22-3.3.6.6.

22-3.3.6.3 Fire barriers required by 22-3.3.6.1 or 22-3.3.6.2 shall have a fire resistance rating of not less than 1 hour.

Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 22-3.3.5, such barriers shall have a fire resistance rating of not less than 30 minutes, and in conversions, no fire resistance rating is required, but it shall resist the passage of smoke.

Exception No. 2: In buildings housing groups capable of prompt evacuation, not greater than two stories in height, and with a maximum of 30 residents, such barriers shall have a fire resistance rating of not less than 30 minutes.

Exception No. 3: In conversions, such fire barriers shall have a fire resistance rating of not less than 20 minutes.

22-3.3.6.4 Doors in fire barriers required by 22-3.3.6.1 or 22-3.3.6.2 shall have a fire protection rating of not less than 20 minutes.

Exception No. 1: In conversions, existing 1¾-in. (4.4-cm) thick solid bonded wood core doors shall be permitted to be continued in use.

Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 22-3.3.5, existing doors in renovations and conversions that are nonrated shall be permitted to be continued in use.

Exception No. 3: Walls that are required only to resist the passage of smoke, without a fire resistance rating, shall be permitted to have doors that resist the passage of smoke without a fire protection rating.

22-3.3.6.5 Walls and doors required by 22-3.3.6.1 and 22-3.3.6.2 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.

22-3.3.6.6 Doors in walls required by 22-3.3.6.1 and 22-3.3.6.2 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 shall be permitted to be self-closing.

Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 22-3.3.5, doors, other than doors to hazardous areas, vertical openings, and exit enclosures are not required to be self-closing or automatic-closing.

22-3.3.7 Subdivision of Building Spaces.

22-3.3.7.1 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 22-3.3.5.

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).

22-3.4 Special Provisions.

22-3.4.1* Operable Windows. Each sleeping room shall be provided with at least one outside window. Such windows shall be openable from the inside without the use of tools and shall provide 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.

Exception No. 1: Buildings protected throughout by an approved automatic sprinkler system in accordance with 22-3.3.5.

Exception No. 2: Where the sleeping 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: In conversions, the openable clear height, width, and area of windows may be modified to the dimensions as approved by the authority having jurisdiction.

22-3.4.2 Operating Features. (*See Chapter 31.*)

22-3.5 Building Services.

22-3.5.1 Utilities. Utilities shall comply with provisions of Section 7-1.

22-3.5.2 Heating, Ventilating, and Air Conditioning.

22-3.5.2.1 Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

22-3.5.2.2 No stove or combustion heater shall be so located as to block escape in case of fire caused by the malfunction of the stove or heater.

22-3.5.2.3 Unvented fuel-fired heaters shall not be used in any board and care occupancy.

22-3.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.

22-3.5.3.1 Elevators, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

22-3.5.3.2* 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.

22-3.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes. Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

SECTION 22-4*
SUITABILITY OF AN APARTMENT BUILDING TO HOUSE A BOARD AND CARE OCCUPANCY

22-4.1 General.

22-4.1.1 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.

22-4.1.2 Requirements for individual apartments used as a residential board and care occupancy are specified in Section 22-2, "Small Facilities." Egress from the apartment into the common building corridor shall be considered acceptable egress from the board and care facility.

22-4.1.3 Requirements Based on Evacuation Capability.

22-4.1.3.1 Apartment buildings housing board and care facilities shall comply with the requirements of Section 22-4.

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 1-6.*

22-4.1.3.2 All facilities shall meet the requirements of Chapter 18 and the additional requirements of Section 22-4.

22-4.1.4 Minimum Construction Requirements. In addition to the requirements of Chapter 18, apartment buildings housing residential board and care facilities that house groups classed as prompt or slow shall meet the construction requirements of 22-3.1.3, and those housing groups classed as impractical to evacuate shall meet the construction requirements of 12-1.6. 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.

22-4.2 Means of Egress. The requirements of Section 18-2 apply only to parts of the means of egress serving the apartment(s) used as residential board and care occupancy.

22-4.3 Protection.

22-4.3.1 Interior Finish. The requirements of 18-3.3 apply only to the parts of means of egress serving the apartment(s) used as a residential board and care occupancy.

22-4.3.2 Construction of Corridor Walls. The requirements of 18-3.6 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.

22-4.3.3 Subdivision of Building Spaces. The requirements of 18-3.7 apply to those stories with an apartment(s) used as a residential board and care occupancy.

22-4.4 Operating Features. (*See Chapter 31.*)

CHAPTER 23 EXISTING RESIDENTIAL BOARD AND CARE OCCUPANCIES

SECTION 23-1 GENERAL REQUIREMENTS

23-1.1 Application.

23-1.1.1* All existing 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 23-1 — General Requirements.

(b) Section 23-2 — Small Facilities (i.e., sleeping accommodations for not more than 16 residents).

(c) Section 23-3 — Large Facilities (i.e., sleeping accommodations for more than 16 residents).

(d) Section 23-4 — Suitability of an Apartment Building to House a Board and Care Occupancy.

23-1.1.2 The requirements of this chapter are applicable to existing buildings according to the provisions of Section 1-5 of this *Code*.

23-1.2 Mixed Occupancies. Where another type of occupancy occurs in the same building as a residential board and care occupancy, the requirements of 1-5.7 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 egress 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 23-4. In such facilities, any safeguards required by Section 23-4 that are more restrictive than those for other housed occupancies apply only to the extent prescribed by Section 23-4.

23-1.3 Definitions.

Evacuation Capability.* Evacuation capability is the ability of the occupants, residents, and staff as a group either to evacuate a building or to relocate from the point of occupancy to a point of safety. 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 17, 19, 20, and 21.

(b) *Slow.* Evacuation capability of a 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 that, even with staff assistance, cannot reliably move to a point of safety in a timely manner.

Hazardous Area. A hazardous area is any space where there is storage or activity having fuel conditions exceeding that of a one- or two-family dwelling and that possesses 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 mass storage of residents' belongings. Areas containing approved, properly installed and maintained furnaces and heating equipment, furnace rooms, and cooking and laundry facilities are not classed as hazardous areas solely on the basis of such equipment.

Personal Care. "Personal care" means protective care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident while inside the building. Personal care may include daily awareness by the management of the resident's functioning and whereabouts, making and reminding a resident of appointments, the ability and readiness for intervention in the event of a resident experiencing a crisis, supervision in the areas of nutrition and medication, and actual provision of transient medical care.

Point of Safety. A point of safety is a location that meets one of the following criteria:

(a) It is located exterior to and away from the building.

(b) It is located within a building of any type construction protected throughout by an approved automatic sprinkler system and is either:

1. Located within an exit enclosure meeting the requirements of this *Code*, or

2. Located within another portion of the building that is separated by smoke barriers in accordance with Section 6-3, with at least a 20-minute fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this *Code* and that does not require return to the area of fire involvement.

(c) It is located 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. Located within an exit enclosure meeting the requirements of this *Code*, or

2. Located within another portion of the building that is separated by smoke barriers in accordance with Section 6-3, with at least a 20-minute fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this *Code* and that does not require return to the area of fire involvement.

Resident. A person who is receiving personal care and resides in a residential board and care facility.

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

Staff. A person who provides personal care services, supervision, or assistance.

Thermal Barrier.* A material that will limit the average temperature rise of the unexposed surface to not more than 250°F (120°C) for a specified fire exposure complying with the standard time temperature curve of NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials*.

23-1.4 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 23-2 SMALL FACILITIES

23-2.1 General.

23-2.1.1 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 shall be classed as a large facility. The requirements for large facilities are in Section 23-3.

23-2.1.2 Requirements Based on Evacuation Capability.

23-2.1.2.1 Small facilities shall comply with the requirements of Section 23-2 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 1-6.*

Exception No. 2: Facilities that were previously approved as complying with the requirements for a large facility having the same evacuation capability.

23-2.1.3 Minimum Construction Requirements.

23-2.1.3.1 Prompt. No special requirements.

23-2.1.3.2 Slow. The facility shall be housed in a building where the interior is fully sheathed with lath and plaster or other material providing a 15-minute thermal barrier, including all portions of bearing walls, bearing partitions, floor construction, and roofs. All columns, beams, girders, and trusses shall be similarly encased or otherwise provide a minimum of a 20-minute fire resistance rating.

Exception No. 1: Exposed steel or wood columns, girders, and beams (but not joists) located in the basement.

Exception No. 2: Buildings of Type I, Type II (111) or (222), Type III (211), Type IV, or Type V (111) construction. (See 6-2.1.)

Exception No. 3: Areas protected by approved automatic sprinkler systems in accordance with 23-2.3.5.

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 Chapter 5 of NFPA 101M, Alternative Approaches to Life Safety.

23-2.1.3.3 Impractical. Buildings shall be of any construction type in accordance with Section 6-2 other than Type II (000), Type III (200), or Type V (000) construction.

Exception: Buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 23-2.3.5 shall be of any type of construction.

23-2.2 Means of Escape.

23-2.2.1 Number of Means of Escape. Every facility shall have at least two remotely located means of escape that do not involve using windows from each normally occupied story. At least one of these means of escape shall comply with 23-2.2.2.

Exception No. 1: In prompt facilities, one means of escape shall be permitted to involve windows complying with 23-2.2.3(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 23-2.3.5, and the facility has two means of escape. This exception cannot be used in conjunction with 23-2.2.3 Exception No. 2.

23-2.2.2 Primary Means of Escape.

23-2.2.2.1 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 existing fire escape stair.

23-2.2.2.2 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.

Exception: Buildings equipped with quick response or residential sprinklers throughout. Standard response sprinklers shall be permitted for use in hazardous areas in accordance with 23-2.3.2.

23-2.2.3 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 way of unobstructed travel to the outside of the dwelling at street or ground level that is independent of and remotely located from the primary means of escape.

(b) A passage through an adjacent nonlockable space, independent of and remotely located 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 be no 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 doors open 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 of exterior stairs in 23-2.3.1.2, 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 23-2.3.5.

Exception No. 3: Existing approved means of escape may be continued to be used.

23-2.2.4 Enclosed Interior Stairs. Interior stairways shall be enclosed with 20-minute fire barriers with all openings equipped with smoke actuated automatic-closing or self-closing doors having a fire resistance comparable to that required for the enclosure. Stairways shall comply with 5-2.2.6.5.

Exception No. 1: Stairs connecting two levels only shall be permitted to be open to other than the street floor.

Exception No. 2: For prompt and slow facilities in buildings three stories or less in height having an approved automatic sprinkler system using quick response or residential sprinklers, stair enclosures shall not be required provided there still remains a primary means of escape 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.

Exception No. 3: In prompt and slow facilities, stairways shall be permitted to be unprotected in accordance with Exception No. 2 to 23-2.3.1.1.

23-2.2.5 Doors.

23-2.2.5.1 No door or path of travel to a means of escape shall be less than 28 in. (71 cm) wide.

Exception: Bathroom doors shall be a minimum of 24 in. (61 cm) wide.

23-2.2.5.2 Every closet door latch shall be such that it can be readily opened from the inside in case of an emergency.

23-2.2.5.3 Every bathroom door shall be designed to allow opening from the outside during an emergency when locked.

23-2.2.5.4 No door in any means of escape shall be locked against egress when the building is occupied.

23-2.2.6 The width, riser, 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 to be used subject to the approval of the authority having jurisdiction.

23-2.2.7 Winders in accordance with 5-2.2.2.8 are permitted.

23-2.3 Protection.

23-2.3.1 Protection of Vertical Openings.

23-2.3.1.1 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 that of the enclosure and be self-closing or automatic-closing in accordance with 5-2.1.8.

Exception No. 1: For prompt and slow facilities in buildings three stories or less in height having an approved automatic sprinkler system using quick response or residential sprinklers, stair enclosures shall not be required provided there still remains a primary means of escape 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.

Exception No. 2: In buildings three or fewer stories in height that house prompt and slow facilities protected throughout by an approved automatic sprinkler system in accordance with 23-2.3.5, unprotected vertical openings are permitted. Access to a primary means of escape from each sleeping room and living area that complies with 23-2.2.2 shall remain.

23-2.3.1.2 Exterior stairs shall be reasonably protected against blockage caused by fire that would simultaneously expose both the interior and the exterior means of escape. This shall be accomplished through separation by physical distance, arrangement of the stairs, protection of the openings exposing the stairs, or other means acceptable to the authority having jurisdiction.

23-2.3.2 Hazardous Areas. Any hazardous area shall be protected in accordance with the following:

(a) Any hazardous area that is on the same floor as, and is in or abuts, a primary means of escape or a sleeping room 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 $^3/_4$ hour, or

2. Automatic sprinkler protection, in accordance with 23-2.3.5, of the hazardous area and a separation that will resist the passage of smoke between the hazardous area and the 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 having a fire resistance rating of at least 20 minutes with a self-closing or automatic-closing door in accordance with 5-2.1.8 equivalent to at least a 1¾-in. (4.4-cm) thick solid bonded wood core construction, or

2. Automatic sprinkler protection, in accordance with 23-2.3.5, of the hazardous area regardless of enclosure.

23-2.3.3 Interior Finishes. 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.

23-2.3.4 Detection, Alarm, and Communication Systems.

23-2.3.4.1 Fire Alarm Systems. A manual fire alarm system shall be provided in accordance with Section 7-6. Presignal systems are prohibited.

Exception No. 1: If there are interconnected smoke detectors meeting the requirements of 23-2.3.4.2 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.

23-2.3.4.2* Smoke Detectors. Approved smoke detectors shall be installed in accordance with 7-6.2.9. These shall be powered from the building electrical system 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 room, and similar spaces.

Exception: Detectors are not required in buildings protected throughout by an approved automatic sprinkler system in accordance with 23-2.3.5 using quick response or residential sprinklers.

23-2.3.4.3 Smoke Detectors. Each sleeping room shall be provided with an approved single station smoke detector in accordance with 7-6.2.9 that is powered from the building electrical system.

Exception No. 1: Rooms protected by quick response sprinklers or residential sprinklers in buildings protected throughout by an approved supervised automatic sprinkler system in accordance with 23-2.3.5. The Exception to 23-2.3.4.2 shall not be used in conjunction with this exception.

Exception No. 2: Existing battery-powered detectors, rather than building electrical 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 ensure the reliability of power to the detectors.

Exception No. 3: Buildings equipped with smoke detectors installed in accordance with 23-2.3.4.2. The Exception to 23-2.3.4.2 shall not be used in conjunction with this exception.

23-2.3.5 Automatic Extinguishing Systems

23-2.3.5.1* Where an automatic sprinkler system is installed, for either 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 23-2.3.4.1.

Exception No. 1: 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, shall be permitted. Automatic sprinklers are not required in closets not exceeding 24 sq ft (2.2 sq m) and bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or materials providing a 15-minute thermal barrier.

Exception No. 2: 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 shall be permitted. All habitable areas and closets shall be sprinklered. Automatic sprinklers are not required in bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or material providing a 15-minute thermal barrier.

Exception No. 3: In prompt and slow facilities, where an automatic sprinkler system is installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, sprinklers are not required in closets not exceeding 24 sq ft (2.2 sq m) and bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or materials providing a 15-minute thermal barrier.

23-2.3.5.2 Impractical. All impractical facilities shall be protected throughout by an approved supervised automatic sprinkler system in accordance with 23-2.3.5.1.

23-2.3.5.3 Sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be installed in accordance with 7-7.1.2. In new installations, where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the fire alarm system required by 23-2.3.4.1. Duration of water supplies shall be as required by 23-2.3.5.1.

23-2.3.6 Construction of Corridor Walls.

23-2.3.6.1 The separation walls of sleeping rooms shall be capable of resisting fire for at least 20 minutes. This is considered to be achieved if the partitioning is finished on both sides with the lath and plaster or material providing a 15-minute thermal barrier. Sleeping room doors shall be substantial doors, such as those of 1¾-in. (4.4-cm) thick 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 1,296 sq in. (0.84 sq m) each in area and installed in approved frames.

Exception No. 1: In prompt facilities, all sleeping rooms shall be separated from the escape route by walls and doors that are at least smoke resistant.

Exception No. 2: Corridor walls and doors that are capable of resisting the passage of smoke and that are protected by automatic sprinklers in accordance with 23-2.3.5 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. 3: Sleeping arrangements that are not located in sleeping rooms are permitted for nonresident staff members provided the audibility of the alarm in the sleeping area is sufficient to waken staff who may be sleeping.

Exception No. 4: In previously approved facilities where the facility has demonstrated 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 Chapter 5 of NFPA 101M, Alternative Approaches to Life Safety, sleeping rooms shall be separated from escape routes by walls and doors that are at least smoke resistant.

23-2.3.6.2 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.

23-2.3.6.3 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.

23-2.3.6.4 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 23-2.3.5.1.

23-2.4 Operating Features. (*See Chapter 31.*)

23-2.5 Building Services.

23-2.5.1 Utilities. Utilities shall comply with Section 7-1.

23-2.5.2 Heating, Ventilating, and Air Conditioning Equipment.

23-2.5.2.1 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.

23-2.5.2.2 No stove or combustion heater shall be so located as to block escape in case of fire caused by the malfunction of the stove or heater.

23-2.5.2.3 Unvented fuel-fired heaters shall not be used in any residential board and care facility.

SECTION 23-3 LARGE FACILITIES

23-3.1 General.

23-3.1.1 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 23-2, "Small Facilities." However, existing facilities meeting the requirements of this section are considered to meet the requirements of Section 23-2 for prompt evacuation capability or slow evacuation capability.

23-3.1.2 Requirements Based on Evacuation Capability.

23-3.1.2.1 Prompt and Slow. Large facilities shall comply with the requirements of Section 23-3 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 1-6.*

Exception No. 2: Facilities that were previously approved as complying with 23-3.1.2.2.

23-3.1.2.2 Impractical. Facilities housing groups of persons classed as impractical to evacuate shall meet the requirements for limited care facilities in Chapter 13.

Exception: Facilities where the authority having jurisdiction has determined equivalent safety is provided in accordance with Section 1-6.*

23-3.1.3 Minimum Construction Requirements.

23-3.1.3.1 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 providing a 15-minute thermal barrier.

23-3.1.3.2 For the purpose of construction requirements, stories shall be counted starting with the primary level of exit discharge and ending with the highest occupied level. For the purpose 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 the building.

23-3.1.3.3 The minimum construction requirements (*see Section 6-2*), 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 23-3.3.5.

Exception to (a): One-story facilities having 30 or fewer residents that house groups capable of prompt evacuation shall be of any type 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 approved automatic sprinkler system in accordance with 23-3.3.5, or any other type of construction that is both sheathed and protected throughout by an approved automatic sprinkler system in accordance with 23-3.3.5, other than Type V (000).

Exception to (b): Three- to four-story facilities of Type V (000) construction that are both fully sheathed and protected throughout by an approved supervised automatic sprinkler system in accordance with 23-3.3.5.

(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 23-3.3.5.

Exception to (a), (b), and (c): Any building of Type I or Type II (111) or (222) 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 be either unused or protected throughout by an approved automatic sprinkler system in accordance with 23-3.3.5.1.

23-3.1.4 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.

23-3.2 Means of Egress.

23-3.2.1 All means of egress shall be in accordance with Chapter 5.

23-3.2.2 Means of Egress Components.

23-3.2.2.1 Components of means of egress shall be limited to the types described in 23-3.2.2.2 through 23-3.2.2.7.

23-3.2.2.2 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 to (b): 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, the doors shall unlock upon loss of power controlling the lock or locking mechanism.

(d) Revolving doors complying with 5-2.1.10 are permitted.

(e) Horizontal sliding doors in accordance with 5-2.1.14 shall be permitted to be used in a means of egress serving an occupant load of less than 50.

23-3.2.2.3 Stairs. Stairs shall comply with 5-2.2.

23-3.2.2.4 Smokeproof Enclosures. Smokeproof enclosures shall comply with 5-2.3.

23-3.2.2.5 Horizontal Exits. Horizontal exits shall comply with 5-2.4.

23-3.2.2.6 Ramps. Ramps shall comply with 5-2.5.

23-3.2.2.7 Exit Passageways. Exit passageways shall comply with 5-2.6.

23-3.2.3 Capacity of Means of Egress.

23-3.2.3.1 The capacity of means of egress shall be in accordance with Section 5-3.

23-3.2.3.2 Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

23-3.2.3.3 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 less than 50 shall not be less than 36 in. (91 cm) in width.

23-3.2.4 Number of Exits. Not fewer than two exits shall be accessible from every floor, including floors below the level of exit discharge and occupied for public purposes.

23-3.2.5 Arrangement of Exits.

23-3.2.5.1 Access to all required exits shall be in accordance with Section 5-5.

23-3.2.5.2 Exits shall be so arranged that, from any corridor room door, exits shall be accessible in at least two different directions.

Exception: Up to the first 35 ft (10 m) of exit travel from a corridor room door may be within a corridor with access only in one direction.

23-3.2.6 Travel Distance to Exits.

23-3.2.6.1 Any exit 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 shall not exceed 200 ft (60 m) for exterior ways of exit access arranged in accordance with 5-5.3.

Exception No. 2: Travel distance to exits shall not exceed 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 approved automatic sprinkler systems. 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.

23-3.2.6.2 Travel distance within a room or suite or living unit to a corridor door shall not exceed 75 ft (23 m).

Exception: Travel distance shall not exceed 125 ft (48 m) in buildings protected throughout by an approved automatic sprinkler system in accordance with 23-3.3.5.

23-3.2.7 Discharge from Exits.

23-3.2.7.1 Exit discharge shall comply with Section 5-7.

23-3.2.8 Illumination of Means of Egress.

23-3.2.8.1 Means of egress shall be illuminated in accordance with Section 5-8.

23-3.2.9 Emergency Lighting.

23-3.2.9.1 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.

23-3.2.10 Marking of Means of Egress.

23-3.2.10.1 Means of egress shall be marked in accordance with Section 5-10.

23-3.2.11 Special Features. (Reserved.)

23-3.3 Protection.

23-3.3.1 Protection of Vertical Openings.

23-3.3.1.1 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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: Atriums in accordance with 6-2.4.6 shall be permitted.

Exception No. 3: In buildings protected throughout by an approved automatic sprinkler system in accordance with 23-3.3.5, 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 a public corridor, the protection of vertical openings not part of required exits may be waived by the authority having jurisdiction to the extent that such openings do not endanger required means of egress.

Exception No. 4: In 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 23-3.3.5.1.

23-3.3.1.2 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.

23-3.3.2 Protection from Hazards.

23-3.3.2.1 Any room containing high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or adjacent to exits. All such rooms shall be effectively cut off from other parts of the building as specified in Section 6-4.

23-3.3.2.2 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	

23-3.3.3 Interior Finish. 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 coverings, subject to the approval of the authority having jurisdiction.

23-3.3.4 Detection, Alarm, and Communication Systems.

23-3.3.4.1 General. A fire alarm system in accordance with Section 7-6 shall be provided.

Exception: Where each sleeping room has exterior exit access in accordance with 5-5.3, and the building is not greater than three stories in height.

23-3.3.4.2 Initiation. Initiation of the required fire alarm system shall be by:

(a) Manual means in accordance with 7-6.2, and

Exception to (a): A manual means, as specified in 7-6.2, in excess of the alarm station at a constantly attended location per (b) below is not required where there are other effective means (such as a complete automatic sprinkler or automatic detection system) for notification of fire as required.

(b) A manual fire alarm station located at a convenient central control point under continuous supervision of responsible employees, and

(c) Any automatic sprinkler system, and

Exception to (c): Automatic sprinkler systems that are not required by another section of this Code are not required to 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.

23-3.3.4.3 Occupant Notification. Occupant notification shall be provided automatically, without delay, by internal audible alarm in accordance with 7-6.3. Presignal systems shall be prohibited.

23-3.3.4.4* Fire Department Notification. In case of a fire, provisions shall be made for the immediate notification of the public fire department by either telephone or other means. Where there is no public fire department, this notification shall be made to the private fire brigade.

23-3.3.4.5 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 system.

Exception No. 1: Existing battery-powered detectors, rather than building electrical 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 ensure the reliability of power to the detectors.

Exception No. 2: Facilities having an existing corridor smoke detection system in accordance with Section 7-6, connected to the building fire alarm system.

23-3.3.4.6 Smoke Detection Systems. 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 are not required in common spaces in facilities protected throughout by an approved automatic sprinkler system in accordance with 23-3.3.5.

Exception No. 2: Unenclosed corridors, passageways, balconies, colonnades, or other arrangements where one or more sides along the long dimension are fully or extensively open to the exterior at all times.

23-3.3.5 Extinguishment Requirements.

23-3.3.5.1* 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 No. 1: In buildings not greater than four stories in height, a sprinkler system complying with NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, shall be permitted.

Exception No. 2: Automatic sprinklers are not required in closets not exceeding 24 sq ft (2.2 sq m) and bathrooms not exceeding 55 sq ft (5.1 sq m) provided such spaces are finished with lath and plaster or material with a 15-minute thermal barrier.

23-3.3.5.2 Sprinkler piping serving not more than six sprinklers for any isolated hazardous area in accordance with 7-7.1.2 shall be permitted. In new installations where more than two sprinklers are installed in a single area, water flow detection shall be provided to sound the fire alarm system required by 23-3.3.4.1.

23-3.3.5.3 Portable Fire Extinguishers. Portable fire extinguishers in accordance with Section 7-7 shall be provided near hazardous areas.

23-3.3.6 Corridors and Separation of Sleeping Rooms.

23-3.3.6.1 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 23-3.3.6.3 through 23-3.3.6.6.

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 23-3.3.5.

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 spaces, if of such minimum quantity and 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 egress not involving windows. The arrangement shall be such that there is at least one such means of egress 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.

23-3.3.6.2 Sleeping rooms shall be separated from corridors and other common spaces by fire barriers complying with 23-3.3.6.3 through 23-3.3.6.6.

23-3.3.6.3 Fire barriers required by 23-3.3.6.1 or 23-3.3.6.2 shall have a fire resistance rating of not less than 20 minutes.

Exception No. 1: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 23-3.3.5, no fire resistance rating is required, but it shall resist the passage of smoke..

Exception No. 2: In buildings housing groups capable of prompt evacuation, not greater than two stories in height, and with a maximum of 30 residents, no fire resistance rating is required, but barriers shall resist the passage of smoke.

23-3.3.6.4 Doors in fire barriers required by 23-3.3.6.1 or 23-3.3.6.2 shall have a fire protection rating of not less than 20 minutes.

Exception No. 1: Existing $1\frac{3}{4}$-in. (4.4-cm) thick solid bonded wood core doors shall be permitted to be continued in use.

Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 23-3.3.5, doors that are nonrated shall be permitted to be continued in use.

Exception No. 3: Walls that are required only to resist the passage of smoke, without a fire resistance rating, shall be permitted to have doors that resist the passage of smoke but no fire resistance rating is required.

23-3.3.6.5 Walls and doors required by 23-3.3.6.1 and 23-3.3.6.2 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.

23-3.3.6.6 Doors in walls required by 23-3.3.6.1 and 23-3.3.6.2 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 shall be permitted to be self-closing.

Exception No. 2: In buildings protected throughout by an approved automatic sprinkler system installed in accordance with 23-3.3.5, doors, other than doors to hazardous areas, vertical openings, and exit enclosures are not required to be self-closing or automatic-closing.

23-3.3.7 Subdivision of Building Spaces.

23-3.3.7.1 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 23-3.3.5.

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).

23-3.4 Special Provisions. (Reserved.)

23-3.4.1 Operating Features. (*See Chapter 31.*)

23-3.5 Building Services.

23-3.5.1 Utilities. Utilities shall comply with provisions of Section 7-1.

23-3.5.2 Heating, Ventilating, and Air Conditioning.

23-3.5.2.1 Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2.

23-3.5.2.2 No stove or combustion heater shall be so located as to block escape in case of fire caused by the malfunction of the stove or heater.

23-3.5.2.3 Unvented fuel-fired heaters shall not be used in any board and care occupancy.

23-3.5.3 Elevators, Dumbwaiters, and Vertical Conveyors.

23-3.5.3.1 Elevator, dumbwaiters, and vertical conveyors shall comply with the provisions of Section 7-4.

23-3.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes. Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

SECTION 23-4*
SUITABILITY OF AN APARTMENT BUILDING TO HOUSE A BOARD AND CARE OCCUPANCY

23-4.1 General.

23-4.1.1 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 19.

23-4.1.2 Requirements for individual apartments used as a residential board and care occupancy are specified in Section 23-2, "Small Facilities." Egress from the apartment into the common building corridor shall be considered acceptable egress from the board and care facility.

23-4.1.3 Requirements Based on Evacuation Capability.

23-4.1.3.1 Apartment buildings housing board and care facilities shall comply with the requirements of Section 23-4.

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 1-6.*

23-4.1.3.2 All facilities shall meet the requirements of Chapter 19 and the additional requirements of Section 23-4.

23-4.1.4 Minimum Construction Requirements. In addition to the requirements of Chapter 19, apartment buildings housing residential board and care facilities that house groups classed as prompt or slow shall meet the construction requirements of 23-3.1.3, and those housing groups classed as impractical to evacuate shall meet the construction requirements of 13-1.6. 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.

23-4.2 Means of Egress. The requirements of Section 19-2 apply only to parts of the means of egress serving the apartment(s) used as residential board and care occupancy.

23-4.3 Protection.

23-4.3.1 Interior Finish. The requirements of 19-3.3 apply only to the parts of means of egress serving the apartment(s) used as a residential board and care occupancy.

23-4.3.2 Construction of Corridor Walls. The requirements of 19-3.6 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.

23-4.3.3 Subdivision of Building Spaces. The requirements of 19-3.7 apply to those stories with an apartment(s) used as a residential board and care occupancy.

23-4.4 Operating Features. (*See Chapter 31.*)

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 firesafety features of the facility. 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 1-5.7.

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.

24-1.2.3 Combined Mercantile Occupancies and Parking Structures. Walls separating parking structures from mercantile occupancies shall have a fire resistance rating of not less than 2 hours.

Exception: In enclosed parking structures that are protected throughout with an approved automatic sprinkler system in accordance with Section 7-7 or in open-air parking structures, nonrated glazing and opening protectives shall be permitted if all of the following conditions are met:

(a) The openings do not exceed 25 percent of the area of the wall in which they are located, and

(b) The openings are used for main entrance and associated sidelight functions, and

(c) The enclosed connecting mercantile building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and

(d) The floor elevation of the mercantile use is at least 4 in. (10.2 cm) above the floor level of the parking structure, and

(e) No vehicle is able to park or drive within 10 ft (3 m) of the openings, and

(f) The openings have a minimum of a glass membrane, and

(g) Any doors in the glass membrane are self-closing.

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 are 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 required 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 nonsales 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, 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. The contents of mercantile occupancies 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 required in 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 portions of the covered mall, where considered a pedestrian way (see Exception to 24-4.4.1) and not used as gross leasable area, shall not be assessed an occupant load. However, means of egress from a covered mall shall be provided for an occupant load determined by dividing the gross leasable area (not including anchor stores) by the appropriate lowest whole number occupant load factor from Figure 24-1.7.1(g) as shown on the following page.

Each individual tenant space shall have means of egress to the outside or to the covered mall based on occupant loads figured by using 24-1.7.1(a) through (f).

Each individual anchor store shall have means of egress independent of the covered mall.

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,

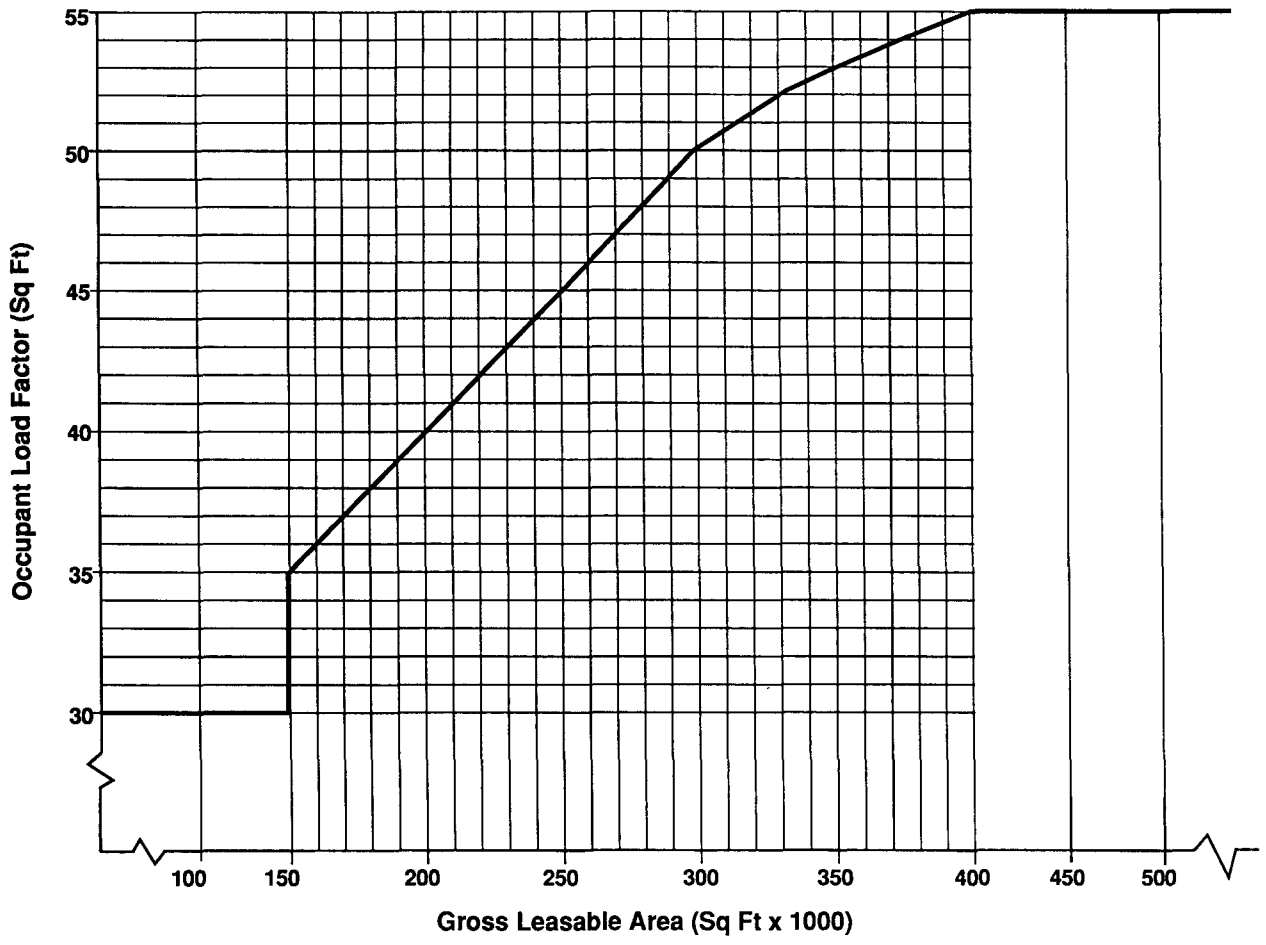

Figure 24-1.7.1(g)

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 24-2.2.9.

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 shall be permitted to 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.

Exception: In lieu of the provisions of 5-2.6.4, an exit passageway in a covered mall building shall be permitted to independently accommodate:*

(a) Its assigned occupant load from only the covered mall/pedestrian way, and

(b) The largest occupant load assigned to it from a single tenant space/store.

24-2.2.8 Fire Escape Ladders. Fire escape ladders complying with 5-2.9 are permitted.

24-2.2.9 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:

(a) Be provided on every story, and

(b) Be accessible from every part of every story or mezzanine.

Exception to (b): Exit access travel shall be permitted to be common for the distances allowed as common path of travel by 24-2.5.3.

Exception No. 1: A single means of egress shall be permitted in a Class C mercantile occupancy provided that one of the following conditions is met:

(a) The travel distance does not exceed 75 ft (23 m) to the exit or to a covered mall (if it is considered a pedestrian way), or

(b) The travel distance does not exceed 100 ft (30 m) to the exit or to a covered mall (if it is considered a pedestrian way), and the story on which the occupancy is located and all communicating levels that must be traversed to reach the exit or covered mall are protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

Exception No. 2: A single means of egress to an exit or to a covered mall (if it is considered a pedestrian way) shall be permitted from a mezzanine within any Class A, B, or C mercantile occupancy, provided that the common path of travel does not exceed 75 ft (23 m) or 100 ft (30 m) if 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 shall 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 passing 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 shall be permitted to 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: Travel distance shall not exceed 200 ft (60 m) in buildings 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 shall be permitted to discharge through the level of exit discharge in accordance with 5-7.2 only 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 termination 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 is not required.

24-2.11 Special Features. (Reserved.)

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 6-2.4.5.

Exception No. 2: In Class C mercantile occupancies, unprotected openings shall be permitted between the street floor and mezzanine.

Exception No. 3: Atriums in accordance with 6-2.4.6 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 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.

Exception: In general storage and stock areas protected by an automatic extinguishing system in accordance with Section 7-7, an enclosure, if provided, is exempt from the provisions of 6-4.1.

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 Communication 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 shall be permitted to be by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides protection throughout the building.

Exception No. 2: Initiation shall be permitted to be by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides protection throughout the building.

24-3.4.3 Notification.

24-3.4.3.1 During 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted 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 exceeding 12,000 sq ft (1,100 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.

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 in accordance with 6-2.3 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 Openings in corridor partitions required to have a fire resistance rating in accordance with 24-3.6.1 shall be protected in accordance with 6-2.3.

24-3.7 Subdivision of Building Spaces. No special requirements.

24-3.8 Special Features.

24-3.8.1 Nonrated glazing and opening protectives per 24-1.2.3 Exception shall be permitted between mercantile occupancies and parking structures.

SECTION 24-4 SPECIAL PROVISIONS

24-4.1 Windowless or Underground Buildings. (*See Section 30-7.*)

24-4.2 High Rise Buildings. High rise buildings shall comply with the automatic sprinkler requirements of 30-8.2.1.

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 shall be permitted to be considered 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 mall tenant fronts. This exit access shall extend to each mall exit.

24-4.4.3 Detection, Alarm, and Communication 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 means of the approved automatic sprinkler system in accordance with 7-6.2.1(c).

24-4.4.3.3 Notification. During all times that the covered mall is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the covered mall, 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted 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 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, Escalators, and Conveyors. Elevators, escalators, and 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 firesafety features of the facility. 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 1-5.7.

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.

25-1.2.3 Combined Mercantile Occupancies and Parking Structures. Walls separating parking structures from mercantile occupancies shall have a fire resistance rating of not less than 2 hours.

Exception: In enclosed parking structures that are protected throughout with an approved automatic sprinkler system in accordance with Section 7-7 or in open-air parking structures, nonrated glazing and opening protectives shall be permitted if all of the following conditions are met:

(a) The openings do not exceed 25 percent of the area of the wall in which they are located, and

(b) The openings are used for main entrance and associated sidelight functions, and

(c) The enclosed connecting mercantile building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and

(d) The floor elevation of the mercantile use is at least 4 in. (10.2 cm) above the floor level of the parking structure, and

(e) No vehicle is able to park or drive within 10 ft (3 m) of the openings, and

(f) The openings have a minimum of a glass membrane, and

(g) Any doors in the glass membrane are self-closing.

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 are 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 required 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 nonsales 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, 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. The contents of mercantile occupancies 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 required in 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 portions of the covered mall, where considered a pedestrian way (see Exception to 25-4.4.1) and not used as gross leasable area, shall not be assessed an occupant load. However, means of egress from a covered mall shall be provided for an occupant load determined by dividing the gross leasable area (not including anchor stores) by the appropriate lowest whole number occupant load factor from Figure 25-1.7.1(g) as shown on the following page.

Each individual tenant space shall have means of egress to the outside or to the covered mall based on occupant loads figured by using 25-1.7.1(a) through (f).

Each individual anchor store shall have means of egress independent of the covered mall.

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

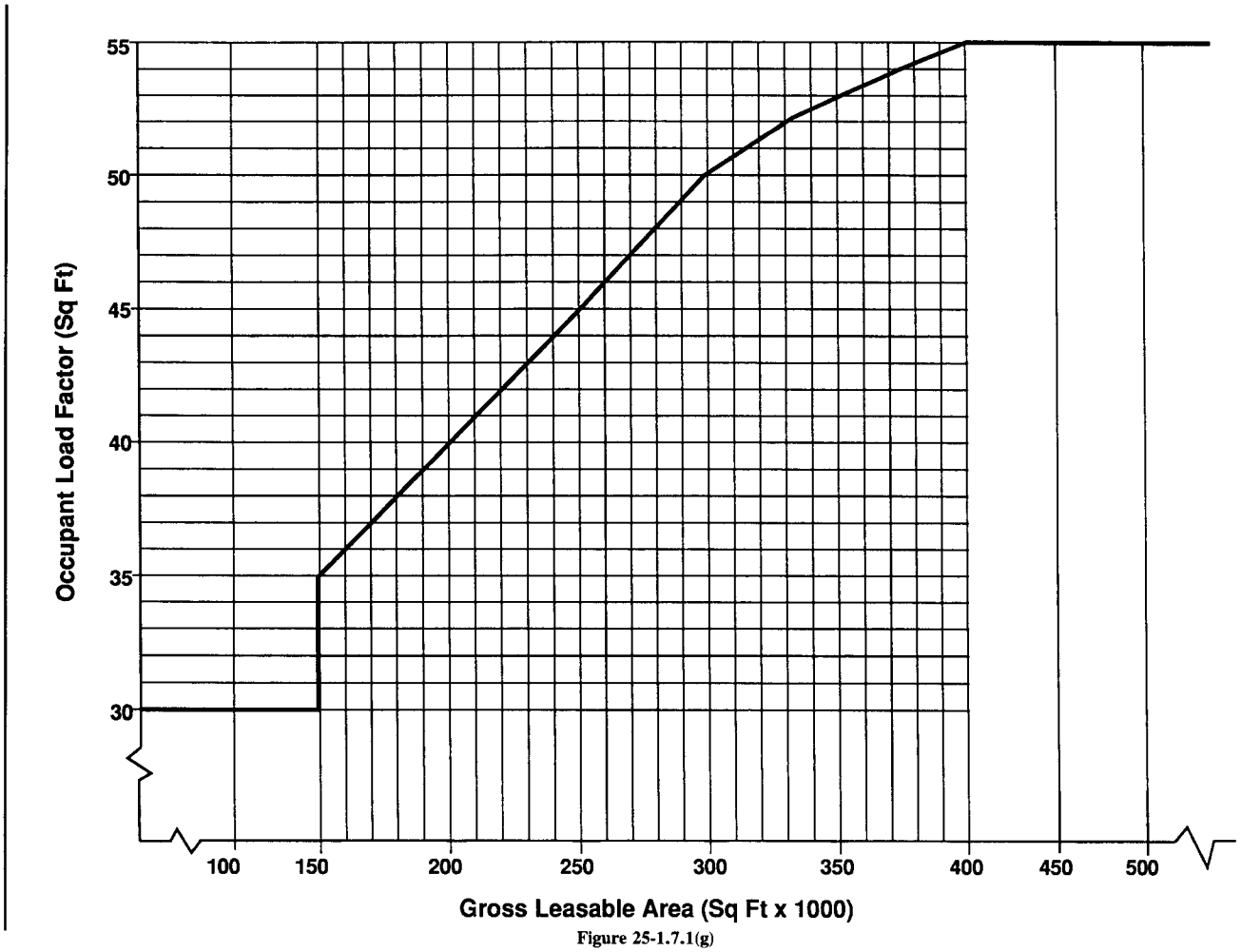

Figure 25-1.7.1(g)

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 24-2.2.11.

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 shall be permitted to 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.

Exception: In lieu of the provisions of 5-2.6.4, an exit passageway in a covered mall building shall be permitted to independently accommodate:*

(a) Its assigned occupant load from only the covered mall/pedestrian way, and

(b) The largest occupant load assigned to it from a single tenant space/store.

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 Fire Escape Ladders. Fire escape ladders complying with 5-2.9 are permitted.

25-2.2.11 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 At least two separate exits shall:

(a) Be provided on every story, and

(b) Be accessible from every part of every story or mezzanine.

Exception to (b): Exit access travel shall be permitted to be common for the distances allowed as common path of travel by 25-2.5.3.

Exception No. 1: A single means of egress shall be permitted in a Class C mercantile occupancy provided that one of the following conditions is met:

(a) The travel distance does not exceed 75 ft (23 m) to the exit or to a covered mall (if it is considered a pedestrian way), or

(b) The travel distance does not exceed 100 ft (30 m) to the exit or to a covered mall (if it is considered a pedestrian way) and the story on which the occupancy is located and all communicating levels that must be traversed to reach the exit or covered mall are protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

Exception No. 2: A single means of egress to an exit or to a covered mall (if it is considered a pedestrian way) shall be permitted from a mezzanine within any Class A, B, or C mercantile occupancy, provided that the common path of travel does not exceed 75 ft (23 m) or 100 ft (30 m) if protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

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 continue to be used 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 shall 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 continue to be used 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 passing 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 shall be permitted to 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: Travel distance shall not exceed 200 ft (60 m) in buildings 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 shall be permitted to discharge through the level of exit discharge in accordance with 5-7.2 only 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 termination 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 is not required.

25-2.11 Special Features. (Reserved.)

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, unprotected openings shall be permitted 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 6-2.4.5; 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 6-2.4.6 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, 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 3/4-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.

Exception: In general storage and stock areas protected by an automatic extinguishing system in accordance with Section 7-7, an enclosure, if provided, is exempt from the provisions of 6-4.1.

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 Communication 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 shall be permitted to be by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides protection throughout the building.

Exception No. 2: Initiation shall be permitted by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides protection throughout the building.

25-3.4.3 Notification.

25-3.4.3.1 During 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted 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.

25-3.8.1 Nonrated glazing and opening protectives per 25-1.2.3 Exception shall be permitted between mercantile occupancies and parking structures.

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 shall be permitted to be considered 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 mall tenant fronts. This exit access shall extend to each mall exit.

25-4.4.3 Detection, Alarm, and Communication 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 means of the approved automatic sprinkler system in accordance with 7-6.2.1(c).

25-4.4.3.3 Notification. During all times that the covered mall is occupied (*see 5-2.1.1.3*), the required fire alarm system shall:

(a) Sound a general audible alarm throughout the covered mall, 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted 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 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, Escalators, and Conveyors. Elevators, escalators, and 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 1-6.*

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.

26-1.2.1 Mixed occupancies shall comply with 1-5.7.

26-1.2.2 Combined Business and Residential Occupancies.

26-1.2.2.1 No dwelling shall have its sole means of egress through any business occupancy in the same building.

26-1.2.2.2 No multiple dwelling occupancy shall be located above a business occupancy.

Exception No. 1: Where the dwelling occupancy and exits therefrom are separated from the business occupancy by construction having a fire resistance rating of at least 1 hour.

Exception No. 2: Where the business occupancy is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

26-1.2.3 Combined Business Occupancies and Parking Structures. Walls separating parking structures from business occupancies shall have a fire resistance rating of not less than 2 hours.

Exception: In enclosed parking structures that are protected throughout with an approved automatic sprinkler system in accordance with Section 7-7 or in open-air parking structures, nonrated glazing and opening protectives shall be permitted if all of the following conditions are met:

(a) The openings do not exceed 25 percent of the area of the wall in which they are located, and

(b) The openings are used for main entrance and associated sidelites functions, and

(c) The enclosed connecting business building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and

(d) The floor elevation of the business use is at least 4 in. (10.2 cm) above the floor level of the parking structure, and

(e) No vehicle is able to park or drive within 10 ft (3 m) of the openings, and

(f) The openings have a minimum of a glass membrane, and

(g) *Any doors in the glass membrane are self-closing.*

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.

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 shall 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 26-2.2.9.

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 shall be permitted to 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 Fire Escape Ladders. Fire escape ladders complying with 5-2.9 are permitted.

26-2.2.9 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. At least two separate exits shall:

(a) Be provided on every story, and

(b) Be accessible from every part of every story and mezzanine.

Exception to (b): Exit access travel shall be permitted to be common for the distances allowed as common path of travel by 26-2.5.3.

Exception No. 1: For a room or area with a total occupant load of less than 100 persons having an exit that discharges directly to the outside at the level of exit discharge for the building, with a total distance of travel, including travel within the exit, from any point not over 100 ft (30 m), a single exit shall be permitted. Such travel shall be on the same floor level or, if 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 shall be permitted to 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 shall 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 shall be permitted to serve all floors.

Exception No. 3: A single means of egress shall be permitted from a mezzanine within a business occupancy, provided that the common path of travel does not exceed 75 ft (23 m) or 100 ft (30 m) if protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

Exception No. 4: A single exit shall be permitted for a maximum two-story single tenant space or building that is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7 if the total travel to the outside does not exceed 100 ft (30 m).

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 shall 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 common path of travel shall be permitted for the first 100 ft (30 m) for single tenant spaces with an occupant load of not more than 30 persons.

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: Travel distance shall not exceed 300 ft (91 m) in buildings protected throughout by an approved supervised 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. (Reserved.)

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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: A vertical opening enclosure shall 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 6-2.4.6 are permitted.

Exception No. 4: Exit access stairs shall be permitted to be unenclosed in two-story single tenant spaces provided with a single exit in accordance with the provisions of Exception No. 4 to 26-2.4.

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, and maintenance shops including woodworking and painting areas 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 3/4-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.

26-3.2.3 Laboratories that use chemicals shall comply with NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*.

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 Communication 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 shall be permitted by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides protection throughout the building.

Exception No. 2: Initiation shall be permitted by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides protection throughout the building.

26-3.4.3 Notification.

26-3.4.3.1 During 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted in lieu of live voice public address system announcement.

26-3.5 Extinguishment Requirements. 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 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 in accordance with Section 7-7.

26-3.6.2 Openings in corridor partitions required to have a fire resistance rating by 26-3.6.1 shall be protected in accordance with 6-2.3.

26-3.7 Subdivision of Building Spaces. (Reserved.)

26-3.8 Special Features. (Reserved.)

26-3.8.1 Nonrated glazing and opening protectives per 26-1.2.3 Exception shall be permitted between business occupancies and parking structures.

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 Communication Systems.

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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling 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 Article 701 of NFPA 70, *National Electrical Code*, 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 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, Escalators, and Conveyors. Elevators, escalators, and 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.

27-1.2.1 Mixed occupancies shall comply with 1-5.7.

27-1.2.2 (Reserved.)

27-1.2.3 Combined Business Occupancies and Parking Structures. Walls separating parking structures from business occupancies shall have a fire resistance rating of not less than 2 hours.

Exception: In enclosed parking structures that are protected throughout with an approved automatic sprinkler system in accordance with Section 7-7 or in open-air parking structures, nonrated glazing and opening protectives shall be permitted if all of the following conditions are met:

(a) The openings do not exceed 25 percent of the area of the wall in which they are located, and

(b) The openings are used for main entrance and associated sidelight functions, and

(c) The enclosed connecting business building is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, and

(d) The floor elevation of the business use is at least 4 in. (10.2 cm) above the floor level of the parking structure, and

(e) No vehicle is able to park or drive within 10 ft (3 m) of the openings, and

(f) The openings have a minimum of a glass membrane, and

(g) Any doors in the glass membrane are self-closing.

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.

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 shall 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 27-2.2.11.

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 Fire Escape Ladders. Fire escape ladders complying with 5-2.9 are permitted.

27-2.2.11 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 At least two separate exits shall:

(a) Be provided on every story, and

(b) Be accessible from every part of every story and mezzanine.

Exception to (b): Exit access travel shall be permitted to be common for the distances allowed as common path of travel by 27-2.5.3.

Exception No. 1: For a room or area with a total occupant load of less than 100 persons having an exit that discharges directly to the outside at the level of exit discharge for the building, with a total distance of travel, including travel within the exit, from any point not over 100 ft (30 m), a single exit shall be permitted. Such travel shall be on the same floor level or, if 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 shall be permitted to 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 shall 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 shall be permitted to serve all floors.

Exception No. 3: A single means of egress shall be permitted from a mezzanine within a business occupancy, provided that the common path of travel does not exceed 75 ft (23 m) or 100 ft (30 m) if protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

Exception No. 4: A single exit shall be permitted for a maximum two-story single tenant space or building that is protected throughout by an approved automatic sprinkler system in accordance with Section 7-7 if the total travel to the outside does not exceed 100 ft (30 m).

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 continue to be used 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 shall 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 shall be permitted to 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 continue to be used 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: Travel distance shall not exceed 300 ft (91 m) in buildings 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. (Reserved.)

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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: A vertical opening enclosure shall 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 6-2.4.6 are permitted.

Exception No. 4: Exit access stairs shall be permitted to be unenclosed in two-story single tenant spaces provided with a single exit in accordance with the provisions of Exception No. 4 to 27-2.4.2.

Exception No. 5: In buildings protected throughout by an approved automatic sprinkler system in accordance with Section 7-7, vertical unprotected openings shall be permitted if no unprotected 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, and maintenance shops including woodworking and painting areas 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 Communication 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 shall be permitted by means of an approved automatic fire detection system in accordance with 7-6.2.1(b) that provides protection throughout the building.

Exception No. 2: Initiation shall be permitted by means of an approved automatic sprinkler system in accordance with 7-6.2.1(c) that provides protection throughout the building.

27-3.4.3 Notification.

27-3.4.3.1 During 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 means of 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 shall be permitted to be used for other announcements. (*See 7-6.3.9 Exception No. 2.*)

Exception: Any other occupant notification means allowed by 7-6.3 shall be permitted 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.)

27-3.7 Subdivision of Building Spaces. (Reserved.)

27-3.8 Special Features. (Reserved.)

27-3.8.1 Nonrated glazing and opening protectives per 27-1.2.3 Exception shall be permitted between business occupancies and parking structures.

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 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, Escalators, and Conveyors. Elevators, escalators, and 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, means of egress shall comply with 1-5.7.

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 occupied by 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 Requirements. 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 general and special purpose industrial occupancies, horizontal sliding doors shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.

28-2.2.2.4 In low and ordinary hazard general and special purpose industrial occupancies, horizontal sliding doors shall be permitted in horizontal exits and smoke barriers in accordance with 5-2.1.14. *(See 28-2.2.5.2.)*

28-2.2.3 Stairs.

28-2.2.3.1 Stairs shall comply with 5-2.2.

Exception: Noncombustible grated stair treads and landing floors.

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 5-2.4.3.6, and the other shall be permitted to 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 shall be permitted to 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 shall be permitted as components in the means of egress 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 familiar with their use through practice.

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 are excluded from consideration.

28-2.4 Number of Means of Egress. (*See also Section 5-4.*)

28-2.4.1 There shall be not less than two means of egress from every story or section, and at least one exit must be reached without traversing another story.

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 High hazard areas shall comply with Section 5-11.

28-2.5 Arrangement of Means of Egress. (*See also Section 5-5.*)

28-2.5.1* Where two or more means of egress 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 shall 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 in accordance with 5-6.4.

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 shall not exceed 400 ft (122 m) if the following additional provisions are met in full:

(a) Application shall be limited to one-story buildings.

(b)* Smoke and heat venting shall be provided by engineered means or by building configuration to ensure 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) Automatic sprinkler or other automatic fire extinguishing systems in accordance with Section 7-7 shall be provided. The extinguishing system shall be supervised.

28-2.6.3 In low or ordinary hazard special purpose industrial occupancies, travel distance shall not exceed 300 ft (91 m), or if the building is protected throughout by an automatic sprinkler system in accordance with Section 7-7, travel distance shall not exceed 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: In structures occupied only during daylight hours, with skylights or windows arranged to provide, the required level of illumination on all portions of the means of egress during these hours.

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 where routine human habitation is not the case.

Exception No. 2: Structures occupied only during daylight hours with skylights or windows arranged to provide the required level of illumination on all portions of the means of egress during these hours.

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. (Reserved.)

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 shall be permitted in accordance with 6-2.4.5.

Exception No. 2: An atrium shall be permitted in accordance with 6-2.4.6.

Exception No. 3: In special purpose and high hazard occupancies where unprotected vertical openings are in new or existing buildings and are necessary to manufacturing operations, they shall 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 shall be permitted 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, unprotected vertical openings shall be permitted 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 appropriate to the particular hazard, such as explosion venting or suppression, protecting any area subject to an explosion hazard for the purpose of minimizing danger to occupants in case of fire or other emergency before they have time to utilize exits to escape. Hazardous areas in industrial occupancies protected by automatic extinguishing systems shall be exempt from the smoke resisting enclosure requirement of 6-4.1.2.

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 Communication 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. High rise industrial occupancies shall comply with the automatic sprinkler requirements of 30-8.2.1.

Exception No. 1: Low hazard industrial occupancies.
Exception No. 2: Special purpose industrial occupancies.
Exception No. 3: Existing industrial occupancies.

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, Escalators, and Conveyors. Elevators, escalators, and 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.

SECTION 28-6* SPECIAL PROVISIONS FOR AIRCRAFT SERVICING HANGARS.

28-6.1 The requirements of Sections 28-1 through 28-5 shall be met, except as modified by 28-6.2 through 28-6.4.

28-6.2 Exits from aircraft 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 means of egress from each aircraft 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 used for accommodating aircraft shall be permitted to be used for compliance with these requirements.

28-6.3 Means of egress from mezzanine floors in aircraft 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 means of egress shall lead directly to a properly enclosed stair that discharges directly to the exterior, to a suitable cutoff area, or to outside stairs.

28-6.4 No dead end may be more than 50 ft (15 m) deep.

Exception: No dead end shall be allowed for high hazard areas.

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 1-5.7 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 low hazard, ordinary hazard, or high 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 Requirements. 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 shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.

29-2.2.2.4 Horizontal sliding doors shall be permitted in horizontal exits and smoke barriers in accordance with 5-2.1.14. *(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 5-2.4.3.6, and the other shall be permitted to 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.

29-2.4 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 remotely located 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 means of egress.

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 shall not exceed 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, travel 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 the required level of illumination of all portions of the means of egress during these hours, illumination requirements may be waived 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 the required level of illumination of all portions of the means of egress during these hours, emergency lighting is not required.

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. (Reserved.)

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 shall be permitted in accordance with the conditions of 6-2.4.5.

Exception No. 2: An atrium in accordance with 6-2.4.6 shall be permitted.

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, unprotected vertical openings shall be permitted 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 Communication 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.

29-3.4.4 In high hazard storage occupancies, the required fire alarm system shall automatically initiate an occupant evacuation alarm signal in accordance with 7-6.3.

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. High rise storage occupancies shall comply with the automatic sprinkler requirements of 30-8.2.1.

Exception No. 1: Low hazard storage occupancies.

Exception No. 2: Existing storage occupancies.

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, Escalators, and Conveyors. Elevators, escalators, and 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 STORAGE 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 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 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 used for accommodating aircraft shall be permitted to comply with these requirements.

29-6.3 Means of egress from mezzanine floors in aircraft storage 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 means of egress 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 shall 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 shall be permitted to 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 an adjoining structure, such as a silo, conveyor, gallery, or gantry.

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 shall not exceed 400 ft (122 m).

SECTION 29-8 SPECIAL PROVISIONS FOR PARKING STRUCTURES

29-8.1 General Requirements.

29-8.1.1* Application. The following provisions apply to parking structures of closed or open type, above or below ground, but not to mechanical or exclusively attendant-type

parking facilities, which are not occupied by customers and thus require a minimum of exits. The requirements of Sections 29-1 through 29-7 shall not apply.

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 a minimum of 1-hour fire-rated construction, the parking and repair sections shall be permitted to be treated separately.

29-8.1.2.2 In areas where repair operations are conducted, the means of egress 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 at least 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. Parking structures 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 requirements.

29-8.1.7 Occupant Load. No requirements.

29-8.2 Means of Egress Requirements.

29-8.2.1 General. Means of egress shall be in accordance with Chapter 5 and this section.

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 shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.

(d) Horizontal sliding doors shall be permitted in horizontal exits and smoke barriers in accordance with 5-2.1.14.

(e) An opening for the passage of automobiles shall be permitted to 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-air parking structure with open vehicle ramps not subject to closure, the ramp shall be permitted to serve in lieu of the second exit from floors above the level of exit discharge, provided the ramp discharges directly outside at the street level.

Exception No. 2: For parking structures extending only one floor level below the level of exit discharge, a vehicle ramp leading directly to the outside shall be permitted to 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 parking structures only.

29-8.2.3 Capacity of Means of Egress. (*Also see 29-8.2.4 and 29-8.2.5.*)

29-8.2.4 Number of Means of Egress. (*See also Section 5-4.*)

29-8.2.4.1 Every floor of every parking structure 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 parking structure, the paths of travel to the two exits will be in different directions.

Exception: A common path of travel shall be permitted for the first 50 ft (15 m) from any point.

29-8.2.5.2 No dead end shall exceed 50 ft (15 m).

29-8.2.5.3 If fuel dispensing devices are located within a parking structure, travel away from the fuel dispensing device in any direction shall lead to an exit with no dead end in which occupants might be trapped by fire. Within closed parking structures, exits shall be arranged and located to meet the following additional requirements:

(a) Exits 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.

(b) Any story below that story at which fuel is being dispensed shall have exits leading directly to the outside via outside stairs or doors at ground level.

29-8.2.6 Travel Distance to Exits. Exits in parking structures shall be so arranged that no point will be more than 150 ft (45 m), measured in accordance with Section 5-6, from the nearest exit.

Exception No. 1: Travel distance shall not exceed 200 ft (60 m) for open floors of nonsprinklered, open-air parking structures and 300 ft (91 m) in open-air parking structures protected throughout by an approved automatic sprinkler system.

Exception No. 2: Travel distance shall not exceed 200 ft (60 m) for enclosed parking structures protected throughout by an approved automatic sprinkler system in accordance with Section 7-7.

29-8.2.7 Discharge from Exits. Exit discharge shall comply with Section 5-7.

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: Structures occupied only during daylight hours, arranged to provide the required level of illumination of all portions of the means of egress by natural means, may have the requirement for artificial illumination waived by the authority having jurisdiction.

29-8.2.9 Emergency Lighting. Every public space, hall, and stair enclosure shall have emergency lighting in accordance with Section 5-9.

Exception: In structures occupied only during daylight hours, arranged to provide the required level of illumination of all portions of the means of egress by natural means, emergency lighting is not required.

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. (Reserved.)

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 parking structures, 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 Communication Systems.

29-8.3.4.1 General. Parking structures 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: Parking structures 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 Operating Features. (*See Chapter 31.*)

29-8.4.2 High Rise Buildings. No requirements.

29-8.5 Building Services.

29-8.5.1 Utilities. Utilities shall comply with the provisions of Section 7-1.

29-8.5.2 Heating, Ventilating, and Air Conditioning Equipment. Heating, ventilating, and air conditioning equipment shall comply with the provisions of Section 7-2 except as otherwise required in Section 29-8.

29-8.5.3 Elevators, Escalators, and Conveyors. Elevators, escalators, and conveyors shall comply with the provisions of Section 7-4.

29-8.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes. Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 7-5.

CHAPTER 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 1-5.7.)*

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 by means of 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 lacking 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 a minimum dimension 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 Requirements. No requirements.

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 shall be permitted in a means of egress serving an occupant load of less than 50 in accordance with 5-2.1.14.

30-2.2.2.3 Horizontal sliding doors shall be permitted in horizontal exits and smoke barriers in accordance with 5-2.1.14.

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 shall be permitted to 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 that are designed for occupancy by not more than three persons employed therein shall be permitted to be served by ladders 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 are excluded from consideration.

30-2.3.2 The minimum width of any component of the means of egress shall be in accordance with 5-3.4.

Exception: Where ladders are permitted by 30-2.2.

30-2.4 Number of Means of Egress. (*See also Section 5-4.*)

30-2.4.1 There shall be not less than two means of egress from every story or section and at least one exit must be reached without traversing another story.

Exception No. 1: Piers used exclusively to moor cargo vessels and to store materials, where provided with proper means of egress 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 shall be permitted to have a single exit if the following conditions are met:*

(a) The tower is subject to occupancy by less than 25 persons.

(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 means of egress 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 shall be permitted for the first 50 ft (15 m) from any point.

30-2.5.2 No dead end shall exceed 50 ft (15 m).

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 means of egress arranged in accordance with Chapters 8 through 29. (*See 30-1.4.*) In addition, one of the following measures 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.

(a) The pier shall be arranged to provide two separate ways of travel to shore, such as by two well separated walkways or independent structures, or

(b) The pier deck shall be open and fire resistive, set on noncombustible supports, or

(c) 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 10 percent of its length if over 500 ft (150 m) long, or

(d) 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 shall not exceed 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, shall be permitted to 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 the required level of illumination of all portions of the means of egress during these hours, 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. (Reserved.)

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 shall be permitted to be open with no enclosure required or fire escape stairs shall be permitted to 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 that is 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 requirements.

30-3.4 Detection, Alarm, and Communication 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, Escalators, and Conveyors. Elevators, escalators, and 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 by means of 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.

30-7.2.3 Exit stair enclosures shall be provided with a sign at each floor level landing in accordance with 5-2.2.6.6 and shall include a chevron-shaped indicator to show direction to exit discharge.

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, compliance with all other applicable provisions of this *Code* shall be required.

30-8.2 Extinguishment Requirements.

30-8.2.1* High rise buildings shall be protected throughout by an approved 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.

30-8.2.2 High rise buildings shall be protected throughout by a Class I standpipe system installed in accordance with Section 7-7 as follows:

(a) For buildings less than 150 ft (45 m) in height, the standpipe system shall be of any system type defined in Section 1-7 of NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

(b) For buildings 150 ft (45 m) or more in height, the standpipe system shall be a wet system as defined in Section 1-7 of NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

30-8.3 Detection, Alarm, and Communication Systems.

30-8.3.1* A fire alarm system utilizing an approved emergency voice/alarm communication system 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 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling 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, *Standard for 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 Section 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 shall be permitted 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 be located 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 maintained 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 ensure that proper tests are 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 ensure proper maintenance. When a required automatic sprinkler system is out of service for more than four hours within a 24-hour period, the building shall be evacuated, or an approved fire watch shall be provided for all portions left unprotected by the sprinkler system shutdown until the sprinkler system has been returned to service.

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 Emergency Generators. Emergency generators used to provide power to emergency lighting systems shall be installed, tested, and maintained in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*.

31-1.3.10 Elevator Testing. Elevators shall be subject to routine and periodic inspections and test as specified in ASME/ANSI A17.1, *Safety Code for Elevators and Escalators*, Part X. All elevators equipped with fire fighter service in accordance with Paragraph 7-4.4 shall be subject to a monthly operation with a written record of the findings made and kept on the premises as required by ASME/ANSI/ A17.1, *Safety Code for Elevators and Escalators*, Rule 1206.7.

31-1.3.11 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, Contents, Decorations, and Treated Finishes. (*See also 31-1.2.2.*)

31-1.4.1* Where required by the applicable provisions of this chapter, draperies, curtains, and other similar loosely hanging furnishings and decorations shall be flame resistant as demonstrated by passing both the small- and large-scale tests of NFPA 701, *Standard Methods of Fire Tests for Flame-Resistant Textiles and Films*.

Exception: For materials that show excessive melting or shrinkage or ongoing combustion at the junction of the specimen and its holder in the small-scale test, the large-scale test shall be considered applicable in accordance with the test selection provisions of 1-4.2 of NFPA 701.

31-1.4.2* Where required by the applicable provisions of this chapter, upholstered furniture and mattresses shall be resistant to a cigarette (i.e., smoldering) ignition in accordance with the following:

(a) Where required by the applicable provisions of this chapter, the components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260, *Standard Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture*.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system.

(b) Where required by the applicable provisions of this chapter, mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 in. (3.8 cm) when tested in accordance with NFPA 261, *Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes*.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system.

(c) Where required by the applicable provisions of this chapter, mattresses shall have a char length not exceeding 2 in. (5.1 cm) when tested in accordance with Part 1632 of the *Code of Federal Regulations 16*.

Exception: Mattresses in rooms or spaces protected by an approved automatic sprinkler system.

31-1.4.3* Where required by the applicable provisions of this chapter, upholstered furniture shall have limited rates of heat release as follows:

(a) The peak rate of heat release for the single upholstered furniture item shall not exceed 250 kW.

Exception No. 1: Upholstered furniture in rooms or spaces protected by approved smoke detectors that initiate, without delay, an alarm that is audible in that room or space.

Exception No. 2: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system.

(b) The peak rate of heat release for the single upholstered furniture item shall not exceed 500 kW.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system.

(c) The total energy released by the single upholstered furniture item during the first five minutes of the test shall not exceed 75 MJ.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system.

31-1.4.4 Where required by the applicable provisions of this chapter, mattresses shall have limited rates of heat release as follows:

(a) The peak rate of heat release for the mattress shall not exceed 250 kW.

Exception No. 1: Mattresses in rooms or spaces protected by approved smoke detectors that initiate, without delay, an alarm that is audible in that room or space.

Exception No. 2: Mattresses in rooms or spaces protected by an approved automatic sprinkler system.

(b) The peak rate of heat release for the mattress shall not exceed 500 kW.

Exception: Mattresses in rooms or spaces protected by an approved automatic sprinkler system.

(c) The total energy released by the mattress during the first five minutes of the test shall not exceed 75 MJ.

Exception: Mattresses in rooms or spaces protected by an approved automatic sprinkler system.

31-1.4.5* Furnishings or decorations of an explosive or highly flammable character shall not be used.

31-1.4.6 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 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 ensure 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 and Gases.

31-1.6.1 The storage and the handling of flammable liquids or gases shall be in accordance with the applicable standards listed below:

(a) NFPA 30, *Flammable and Combustible Liquids Code*

(b) NFPA 54, *National Fuel Gas Code*

(c) NFPA 58, *Standard for the Storage and Handling of Liquefied Petroleum Gases*.

31-1.6.2 No storage or handling of flammable liquids or gases shall be permitted in any location where it would jeopardize egress from the structure.

31-1.6.3 Refueling of equipment with liquids with flashpoints below 100°F (38°C) shall not be permitted within the structure.

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* Crowd Managers. In Class A assembly occupancies, there shall be trained crowd managers or crowd manager supervisors at a ratio of 1 crowd manager/supervisor for every 250 occupants who shall have recieved approved training in crowd management techniques.

Exception No. 1: Assembly occupancies used exclusively for religious worship with an occupant load not greater than 2000.

Exception No. 2: Where in the opinion of the authority having jurisdiction the existence of an approved supervised sprinkler system and the nature of the event warrant, the ratio of trained crowd managers to occupants may be reduced.

31-2.2* Drills.

31-2.2.1 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 exiting.

31-2.2.2 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.

31-2.2.3* 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 nor pyrotechnic device shall be used in any assembly occupancy.

Exception No. 1: When necessary for ceremonial or religious purposes, the authority having jurisdiction may permit open flame or pyrotechnic devices under such restrictions as are necessary to avoid danger of ignition of combustible materials or injury to occupants.*

Exception No. 2: Open flame or pyrotechnic devices may be used on stages and platforms when a necessary part of a performance, 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.

Exception No. 6: Demonstrations of open-flame or pyrotechnic devices in exhibits may be allowed provided adequate precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any materials.

Exception No. 7: Heat-producing equipment complying with 7-2.2.

31-2.4 Special Food Service Devices. Portable cooking equipment that is 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.