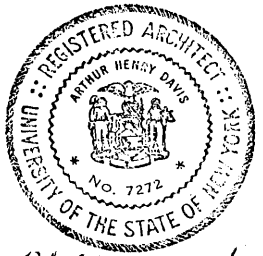
State Building Construction Code

applicable to

Multiple Dwellings

December 1, 1964



State of New York
Nelson A. Rockefeller, Governor

STATE BUILDING CONSTRUCTION CODE
applicable to
Multiple Dwellings

STATE OF NEW YORK
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EXECUTIVE DEPARTMENT
DIVISION OF HOUSING AND COMMUNITY RENEWAL
Charles J. Urstadt, Commissioner

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STATE BUILDING CONSTRUCTION CODE

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FOREWORD

The State Building Construction Code is promulgated by the State Building Code Council pursuant to Article 18 of the Executive Law.

The regulations in the several portions of the Code are identified by a letter prefix before the number of each section:

One- and Two-Family Dwellings	——A
Multiple Dwellings	——B
General Building Construction	——C
Plumbing	——P

This portion, applicable to Multiple Dwellings became effective December 15, 1953; it was amended effective May 1, 1958; it has been further amended effective December 1, 1964.

* The asterisk in the margin indicates those provisions of the Code revised or added, effective December 1, 1964.

The official version of the Code for legal purposes is found in Volume 9 Executive (B) of the "Official Compilation of Codes, Rules and Regulations of the State of New York" published by the Secretary of State and designated 9 NYCRR for citation.

In this edition of the Code the numbers in parentheses refer to numbering used in the 9 NYCRR and are included for convenience in locating similar sections.

In addition to this Code, the Council has published a Code Manual to assist in the application and enforcement of the Code. The manual indicates and illustrates acceptable methods of compliance with the performance requirements set forth in the Code but does not exclude other possible methods of meeting those requirements. The Code is the law; the Code Manual is not.

As a further guide in determining compliance with the performance requirements of the Code, the Council also publishes a list of Generally Accepted Standards.

The Council is concerned with regulations for the construction of buildings and the installation therein of equipment that is essential to building operation and maintenance, such as plumbing, heating, electrical, ventilation and fire-protection equipment. The purpose of its regulations is to establish reasonable safeguards for the safety, health and welfare of the occupants and users of buildings.

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The facilities for code drafting and for technical research which have been established under the provisions of the law enable the Council to provide an up-to-date code for the benefit of the municipalities of the State. It acts as a central clearinghouse, investigating detailed data on materials, methods and equipment. It has established a procedure for acceptance of new materials and new construction methods, and makes its findings available to the municipalities. Such data are invaluable to municipalities, and especially to local building officials charged with building code administration and enforcement.

The administration and enforcement of the Code are the responsibility of the local municipality pursuant to its own administrative ordinance.

Zoning, which regulates the use of land and buildings, remains the prerogative of the municipalities.

The municipalities of the State have the option to accept or not to accept the applicability of the State Building Construction Code. Those municipalities which have already accepted the applicability of the Code obtain without further action the protection afforded by these amended regulations.

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Part 1

General Provisions

B 101 **TITLE**

These regulations, promulgated pursuant to Article 18 of the Executive Law of the State of New York, amending the regulations applicable to multiple dwellings promulgated on December 15, 1953 shall be known as the State Building Construction Code applicable to multiple dwellings. They are herinafter referred to as **this Code.**

B 102 **PURPOSE**

(700.2) The purpose of this Code is to provide basic and uniform regulations in terms of performance objectives, establishing reasonable safeguards for the safety, health, and welfare of the occupants and users of multiple dwellings and their accessory structures, and making adequate performance the test of acceptability.

B 103 **EFFECTIVE DATE**

(700.3) This Code shall take effect on May 1, 1958, and shall supersede the State Building Construction Code applicable to multiple dwellings promulgated on December 15, 1953.

B 104 **PARTIAL INVALIDITY**

(700.4) If any term, part, provision, section, subdivision or paragraph of this Code shall be held unconstitutional, invalid, or ineffective, in whole or in part, such determination shall not be deemed to invalidate the remaining terms, parts, provisions, sections, subdivisions and paragraphs thereof.

B 105 **SCOPE**

(701)

B 105-1 **New Buildings**

(701.1) This Code shall apply to multiple dwellings and to their accessory structures, and to parts thereof, which are hereafter erected.

B 105-2 Existing Buildings
(701.2)

B 105-2.1 General

(701.2a) This Code shall also apply to existing buildings described in this section as if hereafter erected.

a——A building hereafter occupied as a multiple dwelling, which building was not so occupied when this Code became applicable to the municipality in which the building is situated.

b——A building moved into, or moved within, municipal limits subject to this Code, which is to be occupied as a multiple dwelling.

c——A building occupied as a multiple dwelling which is altered or repaired, when the cost of such alterations or repairs within any twelve-month period exceeds 50 per cent of the cost of replacement of the building at the beginning of that twelve-month period.

B 105-2.2 Roof Covering

(701.2b) Whenever more than 25 per cent of the roof covering of a building is replaced in any twelve-month period, all roof covering on such building shall be made to comply with applicable regulations of this Code.

B 105-2.3 Addition or Alteration

(701.2c) Any addition or alteration, regardless of cost, made to a building, shall be made in conformity with applicable regulations of this Code.

B 105-2.4 Existing Uses Continued

(701.2d) Except as otherwise herein provided, nothing in this Code shall require removal, alteration, or abandonment of, nor prevent continued occupancy or use of, an existing building.

B 105-3 Mixed Occupancy

(701.3) A building which is occupied in part for residential use, and in part for some other use not accessory thereto, shall be deemed to be a building of mixed occupancy, and, except for the separation requirements as set forth in section B 402-4.1, the occupancy other than residential is not regulated by this Code.

B 105-4 Maintenance

(701.4) Buildings subject to this Code shall be maintained in a safe and sanitary condition in conformity with the provisions of this Code.

B 105-5 Zoning

(701.5) No provision of this Code shall be construed to repeal, modify, or constitute an alternative to any lawful zoning regulation.

B 105-6 Prohibited Uses

(701.6) Offensive, obnoxious, or hazardous occupancy shall not be permitted on the premises of a multiple dwelling; such prohibited uses include, but are not limited to, business, trade, industry, or purpose which is noxious or offensive by reason of the emission of odors, dust, smoke, gas, or noise, or in which flammable or explosive materials are involved except as may be incidental to the customary use of a multiple dwelling.

B 105-7 Fallout Shelters

(701.7) This Code shall not apply to fallout shelters intended for emergency use where such fallout shelters are constructed or installed or proposed to be construed or installed to provide safety and security to the occupants in accordance with specifications and standards contained in regulations or orders issued by the New York State Civil Defense Commission.

B 106 QUALITY OF MATERIALS

(702.1) All materials, assemblies, construction, and equipment shall conform to the regulations of this Code, and shall conform to generally accepted standards with respect to strength, durability, corrosion resistance, fire resistance, and other qualities recognized under those standards. All test specimens and construction shall be truly representative of the material, workmanship, and details to be used in actual practice.

B 107 ACCEPTABILITY

(702.2) a——Compliance with applicable provisions of generally accepted standards, except as otherwise prescribed in this Code, shall constitute compliance with this Code.

b——Deviations from applicable provisions of generally accepted standards, when it shall have been conclusively proved that such deviations meet the performance requirements of this Code, shall constitute compliance with the Code.

B 108 (703) ABBREVIATIONS AND DEFINITIONS

B 108-1 (703.1) General

a——Abbreviations, terms, phrases, words, and their derivatives used in this Code shall have the meanings given in this section.

b——Words used in the singular include the plural, and the plural the singular. Words used in the masculine gender include the feminine and neuter genders.

B 108-2 (703.2) Abbreviations

Btu British thermal unit
C. Centigrade
c Combustible
cfm Cubic feet per minute
F. Fahrenheit
ft Foot or feet
gal Gallon or gallons
gpm Gallons per minute
in. Inch or inches
max Maximum
min Minimum
nc Noncombustible
np Not permitted
p Permitted
psf Pounds per square foot
psi Pounds per square inch
un Unlimited

B 108-3 (703.3) Definitions

accessory structure. A structure, the use of which is incidental to that of the main building, and which is attached thereto, or is located on the same premises.

accessory use. A use, occupancy or tenancy customarily incidental to the principal use or occupancy of a building. (In a multiple dwelling, such accessory uses may include, among others, the following: a——offices for the building management; b——dining rooms, banquet rooms, public kitchens, and ballrooms; c——recreation and play rooms; d——laundries for the use of tenants and occupants, and in connection with the management and operation of the multiple dwelling; e——maintenance and work shops, storage rooms for linen, bedding, furniture, supplies, and tenants' equipment and effects; f—rooms or space for the incidental sale or display of merchandise to occupants and tenants, such as newspaper, candy, and cigar stands; g——garages within the multiple dwelling or on the premises thereof used primarily for the storage of passenger-type motor vehicles.)

addition. Extension or increase in area, height or equipment of a building.

alley. Narrow supplementary thoroughfare for the public use of vehicles or pedestrians, affording access to abutting property.

alteration. Any change, rearrangement, or addition to a building, other than repairs; any modification in construction or in building equipment.

apartment. A dwelling unit.

apartment, garden. A multiple dwelling or group of multiple dwellings containing dwelling units, occupying not more than 35 per cent of the area of the site or plot on which such dwelling or dwellings are situated.

apartment hotel. A multiple dwelling in which dwelling units are leased to permanent and, or transient tenants.

apartment house. A multiple dwelling in which dwelling units are leased to permanent tenants.

approved. Approved by the enforcement officer under the regulations of this Code, or approved by an authority designated by law or this Code.

attic. Space between top of uppermost floor construction and underside of roof.

basement. That space of a building that is partly below grade which has more than half of its height, measured from floor to ceiling, above the average established curb level or finished grade of the ground adjoining the building.

bathroom. Enclosed space containing one or more bathtubs or showers, or both, and which may also contain water closets, lavatories, or fixtures serving similar purposes. See definition of **toilet room.**

building. A structure wholly or partially enclosed within exterior walls, or within exterior and party walls, and a roof, affording shelter to persons, animals, or property.

building line. Line established by law, ordinance, or regulation, beyond which no part of a building, other than parts expressly permitted, shall extend.

cellar. That space of a building that is partly or entirely below grade, which has more than half of its height, measured from floor to ceiling, below the average established curb level or finished grade of the ground adjoining the building.

combustible. Material or combination of materials which will ignite and support combustion when heated at any temperature up to 1382° F. (750° C.).

construction classification. A classification of buildings into types of construction which is based on the fire resistance of the walls, floors, roof and other structural members. (See section B 202-2 and table B 202-2).

——**type 1, fire-resistive construction.** That type of construction in which the walls, partitions, columns, floors and roof are noncombustible with sufficient fire resistance to withstand the effects of a fire and prevent its spread from story to story.

——**type 2, noncombutible construction.** That type of construction in which the walls, partitions, columns, floors and roof are noncombustible and have less fire resistance than required for fire-resistive construction.

——**type 3, heavy timber construction.** That type of construction in which the exterior walls are of masonry or other noncombustible materials having equivalent structural stability under fire conditions and a fire-resistance rating of not less than 2 hours; in which interior structural members including columns, beams and girders, are of heavy timber, in heavy solid or laminated masses, but with no sharp corners or projections or concealed or inaccessible spaces; in which floors and roofs are of heavy plank

or laminated wood construction, or of any other material providing equivalent fire-resistance and structural properties. Noncombustible structural members may be used in lieu of heavy timber, provided the fire-resistance rating of such members is not less than 3/4 hour.

——**type 4, ordinary construction.** That type of construction in which the exterior walls are of masonry or other noncombustile materials having equivalent structural stability under fire conditions and a fire-resistance rating of not less than 2 hours, the interior structural members being wholly or partly of wood of smaller dimensions than those required for heavy timber construction.

——**type 5, frame construction.** That type of construction in which the walls, partitions, floors and roof are wholly or partly of wood or other combustible material.

construction, fireproof. Type 1 fire-resistive construction.

convalescent home. A building used for the accommodation and care of persons recuperating from illness.

corridor. Passageway or hallway which provides a common way of travel to an exit or to another passageway leading to an exit. See definition of **exit.**

court, inner. An open, uncovered, unoccupied space surrounded on all sides by the exterior walls of a building or structure or by such walls and an interior lot line of the same premises.

court, inner, width. Least horizontal dimension.

court, outer. An open, uncovered, unoccupied space which has at least one side opening on a legal open space.

court, outer, width. Least horizontal dimension measured across the open end of the court.

curb level. The elevation of the curb opposite the center of the front of the building. If a building faces on more than one street, the curb level shall be the average of the elevations of the curbs at the center of each side or front of the building. Where no curb level or equivalent has been established by the municipal authority, the average elevation of the finished grade immediately adjacent to the front of the building shall be considered

as the curb level. If a building faces on more than one street where no curb level has been established, the average of the elevations of the finished grade on each street side of the building shall be considered as the curb level.

distance separation. An open space between buildings or between a building and an interior lot line, provided to prevent the spread of fire.

dwelling unit. One or more rooms with provision for living, sanitary, and sleeping facilities arranged for the use of one family.

enforcement officer. A person lawfully empowered to enforce the regulations of this Code.

exit. A way of departure from the interior of a building or structure, to the exterior at street or grade, including doorways, passageways, hallways, corridors, stairways, ramps, fire escapes, and all other elements necessary for egress or escape.

fallout shelter. A building, structure or other real property, or an area or portion thereof, constructed, altered or improved to afford protection against harmful radiation resulting from radioactive fallout, including such plumbing, heating, electrical, ventilating, conditioning, filtrating and refrigeration equipment and other mechanical additions or installations, if any, as may be an integral part thereof.

family. A household constituting a single housekeeping unit occupied by one or more persons.

fire alarm system. An approved installation of equipment for sounding a fire alarm.

fire area. The floor area of a story of a building within exterior walls, party walls, fire walls, or any combination thereof.

fire damper. An approved automatic or self-closing noncombustible barrier designed to prevent the passage of air, gases, smoke or fire through an opening, duct or plenum chamber.

fire detecting system. An approved installation of equipment which automatically actuates a fire alarm when the detecting element is exposed to fire or abnormal rise in temperature.

fire hazard classification. A classification of occupancy or use of a building based on the fire load or danger of explosion therein.

fire limits. Boundary line establishing an area in which there exists, or is likely to exist, a fire hazard requiring special fire protection.

fireproof. Fire resistive.

fire protection equipment. Apparatus, assemblies or systems either portable or fixed, for use to prevent, detect, control, or extinguish fire.

fire resistance. That property of materials, construction or assembly of materials, which under fire conditions prevents or retards the passage of excessive heat, hot gases, or flames.

fire-resistance rating. Time in hours or parts thereof that a material, construction, or assembly will withstand fire exposure, as determined in a fire test made in conformity with generally accepted standards, or as determined by extension or interpretation of information derived therefrom.

fire resistive. The quality of materials, assemblies, constructions, or structures to resist fire and prevent its spread; fireproof.

fire separation. A construction of specific fire resistance separating parts of a building.

firestopping. A barrier effective against the spread of flames or hot gases within or between concealed spaces.

fire terrace. A level space or area at a setback of an exterior wall of a building and at approximately the same elevation as that of the curb or grade level of the higher street, to provide a safe termination for fire escapes from upper stories of the building.

flame-resistant material. Material which is flame resistant by nature or has been made flame resistant in conformity with generally accepted standards.

flame spread. The propagation of flame over a surface.

flame-spread rating. The measurement of flame spread on the surface of materials or their assemblies as determined by tests conducted in conformity with a generally accepted standard.

flammable. Capable of igniting within 5 seconds when exposed to flame and continuing to burn.

floor area. The floor area within surrounding walls of a building, or portion thereof.

flue. Enclosed passage, primarily vertical, suitable for removal to the outer air of gaseous products of combustion.

gasvent. Enclosed passage used for removal to the outer air of products of combustion from gas-fired equipment only.

generally accepted standard. A specification, code, rule, guide or procedure in the field of construction or related thereto, recognized and accepted as authoritative.

grade, finished. Natural surface of the ground, or surface of ground after completion of any change in contour.

habitable space. Space occupied by one or more persons for living, sleeping, eating, or cooking. Kitchenettes shall not be deemed to be habitable space. See definitions of **nonhabitable space, public space,** and **exit.**

hallway. An enclosed passageway leading to a stairway or other required exit, which provides common access to rooms or exitways in the same story in a building. See definition of **passageway.**

Height, building. Vertical distance measured from curb or grade level to the highest level of a flat or mansard roof, or to the average height of a pitched, gabled, hip or gambrel roof, excluding bulkheads, penthouses and similar constructions enclosing equipment or stairs, providing they are less than 12 feet in height and do not occupy more than 30 per cent of the area of the roof upon which they are located.

hereafter. After the effective date of the acceptance by the municipality of the applicability of the State Building Construction Code.

hoistway. Vertical opening, space, or shaftway in which an elevator or dumbwaiter is installed.

horizontal exit. Protected opening through or around a fire wall, connecting two adjacent floor areas, each

of which furnishes an area of refuge, and from each of which required exits lead to legal open spaces.

hotel. A multiple dwelling used primarily for the purpose of furnishing lodging and meals to transient guests, for compensation.

interior finish. Material applied directly to walls or ceilings for acoustical correction, surface insulation, decorative treatment, or similar purposes, including but not limited to veneer, wainscotting and paneling. Surface finishes of wallpaper or other materials not more than 1/28-inch thick having no greater fire hazard than wallpaper, shall not be deemed to be interior finish.

interior trim. Material generally not exceeding 12 inches in width, around openings or on wall or ceiling; including casings, stools, aprons, baseboards, chair rails, picture molds, cornice moldings, and moldings applied for decoration.

kitchen. Space, 60 square feet or more in floor area, used for cooking or preparation of food.

kitchenette. Space, less than 60 square feet in floor area, used for cooking or preparation of food.

legal open space. Open space on the premises, such as yards or courts, or an open space permanently dedicated to public use which abuts the premises.

load, dead. Weight of all permanent construction, including walls, framing, floors, roofs, partitions, stairways, and fixed building-service equipment.

load, design. Total load which a structure is designed to sustain.

load, imposed. All loads, exclusive of dead load, that a structure is to sustain.

load, live. Load imposed solely by the occupancy.

load, racking. Load applied in the plane of an assembly in such manner as to lengthen one diagonal and shorten the other.

lobby. A public lounge or waiting place adjacent to and connected with other spaces and a passageway which serves as a principal entrance or exit.

lodger. A transient, temporary, or permanent paying guest.

lodging house. A multiple dwelling used primarily for the purpose of furnishing lodging, with or without meals, for compensation.

lot line. Line dividing one premises from another, or from a street or other public space.

luminous ceiling. Light-transmitting panels suspended below light sources and supported from the construction above.

masonry. A construction of units of such materials as clay, shale, concrete, glass, gypsum, or stone, set in mortar, including plain concrete, but excluding reinforced concrete.

mezzanine. An intermediate floor between the floor and ceiling of any story, covering less than the floor area immediately below.

mixed occupancy. Occupancy of a building in part for residential use and in part for some other use not accessory thereto.

motel. A multiple dwelling, intended primarily for motorists, not over two stories in height, in which the exit from each dwelling unit or sleeping room is directly to the exterior. (Includes but is not limited to the terms motor court, motor hotel, tourist court.)

multiple dwelling. a——building containing three or more dwelling units; b——building containing living, sanitary and sleeping facilities occupied by one or two families and more than four lodgers residing with either one of such families; c——building with one or more sleeping rooms, other than a one- or two-family dwelling, used or occupied by permanent or transient paying guests or tenants; d——building with sleeping accommodations for more than five persons used or occupied as a club, dormitory, fraternity or sorority house, or for similar uses; e——building used or occupied as a convalescent, old-age or nursing home, but not including private or public hospitals or public institutions.

municipality. A city, town or village.

noncombustible. Material or combination of materials which will not ignite and support combustion when heated at any temperature up to 1382° F. (750° C.), during an exposure of 5 minutes.

nonhabitable space. Space used as kitchenettes, pantries, bath, toilet, laundry, rest, dressing, locker, storage, utility, heater, and boiler rooms, closets, and other spaces for service and maintenance of the building, and those spaces used for access and vertical travel between stories. See definitions of **habitable space, public space,** and **exit.**

nursing home. A building used for the accommodation and care of persons with, or recuperating from, illness or incapacity, where nursing services are furnished.

occupancy. Use of a building, structure, or premises.

occupied. Used, or intended, arranged or designed to be used.

old-age home. A building used for the accommodation and care of persons of advanced age.

open parking structure. Unenclosed or partially enclosed structure for the parking of motor vehicles.

opening protective. Assembly of materials and accessories, including frames and hardware, installed in a wall, partition, floor, ceiling or roof opening to prevent, resist or retard the passage of fire, flame, excessive heat or hot gases.

——**automatic.** Constructed and arranged to operate other than manually; if open, it will close when subjected to a predetermined temperature or rate of temperature rise.

——**self-closing.** Arranged and equipped with devices which will insure closing after having been opened.

owner. Owner of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee, or other person, firm, or corporation in control of a building.

passageway. Nonhabitable space which serves as a means of travel to or from other enclosed areas. See definitions of **corridor, hallway, lobby,** and **vestibule.**

premises. A lot, plot, or parcel of land including the buildings or structures thereon.

projection, street. Any part of a structure or material attached thereto extending or projecting beyond the

street building line, including but not limited to architectural features, marquees, fire escapes, signs, flag poles.

property line. Line establishing the boundaries of premises.

public space. Space within a building for public use, such as lobbies, lounges, reception, ball, meeting, lecture and recreation rooms, banquet and dining rooms and their kitchens, and swimming pools.

repair. Replacement or renewal, excluding additions, of any part of a building, structure, device, or equipment, with like or similar materials or parts, for the purpose of maintenance of such building, structure, device or equipment.

required. Required by this Code.

residual deflection. Deflection resulting from an applied load, remaining after removal of such load.

roof covering. Material applied to roof surfaces for protection against the elements. Roof insulation shall not be deemed to be a roof covering.

self-closing. See definition under **opening protective.**

shaft. A vertical opening or enclosed space extending through two or more floors of a building, or through a floor and roof.

shall. As used in this Code, is mandatory.

smoke pipe. Enclosed passage, used to convey the products of combustion of any fuel to a flue.

smokestack. Enclosed passage primarily vertical, used for removal to the outer air of products of combustion of any fuel.

smoke stop. A partition in corridors, or between spaces, to retard the passage of smoke, with any opening in such partition protected by a door equipped with a self-closing device.

sprinkler system. A complete automatic sprinkler system which is installed in compliance with generally accepted standards.

stairway. One or more flights of stairs and the necessary landings and platforms connected therewith to form a continuous passage from one floor to another.

standpipe system. Approved installation of piping and appurtenances, whereby all parts of a building can be quickly reached with an effective stream of water.

store. Enclosed space used for the display and sale of merchandise, or sale of service, to the general public. Space used for cigar or newspaper stand and similar uses in a public lobby or similar location, is not deemed to be a store.

story. Portion of a building which is between one floor level and the next higher floor level or the roof. If a mezzanine floor area exceeds one third of the area of the floor immediately below, it shall be deemed to be a story. A basement shall be deemed to be a story when its ceiling is 6 or more feet above the finished grade. A cellar shall not be deemed to be a story. An attic shall not be deemed to be a story if unfinished and without human occupancy.

street. Thoroughfare dedicated and accepted by a municipality for public use or legally existing on any map of a subdivision filed in the manner provided by law.

street line. Line dividing a lot, plot, or parcel from a street.

structural damage. Loosening, twisting, warping, cracking, distortion, or breaking of any piece, or of any fastening or joint, in a structural assembly, with loss of sustaining capacity of the assembly. The following shall not be deemed to constitute structural damage: small cracks in reinforced concrete, perpendicular to the reinforcing bars; deformation of sheet material when a structural assembly is under applied load, which increases as such load increases but which disappears when such load is removed.

structural failure. Rupture; loss of sustaining capacity or stability; marked increase in strain without increase in load; deformation increasing more rapidly than the increase in imposed load.

structure. An assembly of materials, forming a construction framed of component structural parts for occupancy or use, including buildings.

toilet room. Enclosed space, containing one or more water closets, which may also contain one or more lavatories, urinals, and other plumbing fixtures. See definition of **bathroom.**

ventilation. Supply and removal of air to and from any space by natural or mechanical means.

ventilation, mechanical. Ventilation by opening to outer air through windows, skylights, doors, louvers, or stacks with or without wind-driven devices.

vestibule. An enclosed space, with doors or opening protectives, to provide protected passage between the exterior and interior of a building, or between spaces within a building.

wall, curtain. A nonbearing wall between columns or piers that is not supported at each story.

wall, fire. A wall of noncombustible construction, with qualities of fire resistance and structural stability, which completely sub-divides a building into fire areas, and which resists the spread of fire.

wall, panel. A nonbearing wall built between columns in skeleton construction and wholly supported at each story.

wall, parapet. Free standing portion of a wall above the roof.

wall, party. A wall on an interior lot line used or adapted for joint service between two buildings or structures.

wall, spandrel. Portion of an exterior wall between top of one opening and bottom of another opening in the story directly above.

watchman's system. An approved installation of equipment for the purpose of recording the rounds of a watchman.

yard. An open unoccupied space on the same lot, plot, or parcel of land on which the building stands, which extends the entire length of the front or rear or interior lot line.

yield strength. Stress at which a material exhibits a specified limiting permanent set.

B 109 (704.1) SAFETY DURING CONSTRUCTION

a——Construction, within the scope of this Code, shall be performed in such manner that the workmen and public shall be protected from injury, and adjoining property shall be protected from damage, by the use of scaffolding, underpinning, or other approved methods in conformity with generally accepted standards.

b——Access to all utilities and public facilities, including among others, fire hydrants, fire alarm boxes, police call boxes, street lights, and manholes, shall be kept unobstructed during construction.

B 110 (704.2) SAFETY DURING DEMOLITION

a——Safe and sanitary conditions shall be provided where demolition and wrecking operations are being carried on. Work shall be done in such manner that hazard from fire, possibility of injury, danger to health, and conditions which may constitute a public nuisance will be minimized, in conformity with generally accepted standards.

b——Access to utilities and public facilities, including among others, fire hydrants, fire alarm boxes, police call boxes, street lights, and manholes, shall be kept unobstructed during demolition.

c——Gas, electric, sewer, heat, power, water and other service connections shall be disconnected, removed, or sealed, in conformity with the applicable regulations of the public utility or municipal agency having jurisdiction.

Part 2

Space Requirements

B 201 (710) **GENERAL REQUIREMENTS**

a——Buildings occupied in whole or in part as multiple dwellings as defined in this Code shall be designed and constructed so as to comply with the requirements hereinafter set forth concerning size, light, heat, ventilation, and facilities, in order to provide safe and healthful environment.

b——The term, **accessory use,** shall have a uniform meaning and shall apply in the same manner and under the same conditions or restrictions to all buildings.

B 202 (711) **CLASSIFICATION OF BUILDINGS**

B 202-1 (711.1) **Classification by Occupancy Groups**

Multiple dwellings for the purpose of this Code shall be classified in respect to the permanent or transient character of their occupancy groups, and to the number and physical condition of the occupants. The classification shall be in accordance with the following groups:

Group B1:

Buildings containing one or two dwelling units with more than four lodgers residing with a family in either one of such dwelling units;
Buildings containing three or more dwelling units;
Apartment houses and apartment hotels;
Hotels;
Lodging houses;
Buildings with sleeping accommodations for more than five persons used or occupied as a club, dormitory, fraternity or sorority house, or for similar uses;
Garden apartments;
Motels.

Group B2:

Convalescent, old-age and nursing homes.

B 202-2 Classification by Type of Construction (711.2)

B 202-2.1 General Requirements

(711.2a) a——Buildings shall be classified by types of construction, based on their relative fire safety. Certain of such types shall be classified as subtypes, based on the relative fire-resistance ratings of the materials and assemblies of which they are constructed, as follows:

Subtypes 1a and 1b are both fire-resistive construction, but vary as to the degree of fire resistance of their structural elements.

Subtypes 2a, 4a and 5a are those in which all structural elements are required to be protected with fire-resistive materials of the ratings designated for those subtypes.

Subtypes 2b, 4b and 5b are those in which the structural elements generally are not required to be protected nor to have any specific fire-resistance rating, except where a specific requirement for the protection of exit enclosures and first floor by fire-resistive materials is established.

b——The fire resistance of each structural element for each type and subtype shall be that set forth in table B 202-2.

c——Openings in fire walls, fire separations, shafts and exit enclosures shall be closed by opening protectives as required by section B 402-4.8.

d——A building which conforms to the type of construction required by its occupancy, height and area, need not comply with the requirements for a higher type of construction even though a portion of its construction is of such higher type.

B 203 HEIGHT, FIRE AREA, AND TYPE OF CONSTRUCTION (712)

B 203-1 General Requirements

(712.1) a——The height and fire area of a building shall be determined by the occupancy and use group, the construction classification, and the fire protection equipment of the building.

TABLE B 202-2. (1-711) — MINIMUM FIRE-RESISTANCE REQUIREMENTS OF STRUCTURAL ELEMENTS
(By types of construction; fire-resistance ratings in hours)

Structural element	Construction classification [1]										
	Type 1 (Fire-Resistive)		Type 2 (Non-combustible)		Type 3 (Heavy timber)	Type 4 (Ordinary)		Type 5 (Wood frame)	
	1a	1b	2a	2b		4a	4b	5a	5b
Exterior:									
Bearing walls	4	3	2	nc	2	2	2	¾	c
Nonbearing walls	2	2	2	nc	2	2	2	¾	c
Panel and curtain walls[3]	¾	¾	¾	nc					
Party walls[4]	4	3	2	2	4	2	2	2	2
Interior:									
Fire walls[4]	4	3	2	2	4	2	2	2	2
Bearing walls or partitions	4	3	2	nc[5]	2	¾	c[3]	¾	c[3]
Partitions enclosing stairways, hoistways, shafts, other vertical openings; and ballways:									
on outside exposure	2[6]	2[5]	2[5]	2[5]	2[5]	2[5]	2[5]	¾	¾
on inside exposure	1	1	¾	¾	¾	¾	¾	¾	¾
Nonbearing walls and partitions separating tenant spaces	1	1	¾	¾	¾	¾	¾	¾	¾
Columns, beams, girders and trusses (other than roof trusses):									
supporting more than 1 floor	4	3	2	nc	¾	¾	c	¾	c
supporting 1 floor	3	2	¾	nc	¾	¾	c	¾	c
Floor construction including beams	3	2	1[7]	nc[7, 8]	¾[7]	¾[7]	c[7, 8]	¾	c[8]
Roof construction including purlins, beams and roof trusses	2[6]	1[6]	¾[8]	nc	¾	¾	c	¾	c

For classification of buildings by type of construction, see section B 202-2.1a.
For exceptions, see section B 401-4.3b and section B 401-3.4b.
Party walls shall comply with section B 401-8.
Fire walls shall comply with section B 402-2.
In buildings not more than three stories in height, and with not more than eight dwelling units within a fire area, 1 hour in type 1 construction; ¾ hour in type 2, 3, and 4 construction.

[1] If every part of noncombustible roof truss is more than 15 feet above floor next below, protection of the roof truss is not required. Roof construction shall be of noncombustible material, but is not required to have any fire rating.
In buildings of type 2, 3, and 4 construction, more than three stories in height, the floor above the cellar, basement, or lowest story and all construction below, shall be type 1.
[3] ¾ hour when separating tenant spaces, and for floor construction over a cellar or basement.

TABLE B 203-1a. (I-712) — MAXIMUM HEIGHT AND FIRE AREA FOR GROUP B1 OCCUPANCY

Maximum height		Maximum fire area by construction classification in square feet						
In stories	In feet	Type 1 (Fire resistive)	Type 2 (Noncombustible)		Type 3[1] (Heavy timber)	Type 4[1, 2] (Ordinary)		Type 5[2, 3] (Wood frame)	
			2a	2b		4a	4b	5a	5b
1	15	Unlimited	12,000	8,500	10,000	10,000	7,500	6,000	4,000
2	30	Unlimited	11,000	6,500	8,000	8,000	5,500	4,000	3,000
3	40	Unlimited	10,000	4,500	6,000	6,000	3,500	np	np
4	50	Unlimited	9,000	3,000	5,000	5,000	2,500	np	np
5	60	Unlimited	8,000	np	4,000	4,000	np	np	np
6	70	Unlimited	7,000	np	3,000	3,000	np	np	np
7	80	Unlimited	6,000	np	np	np	np	np	np
8	90	Unlimited	5,000	np	np	np	np	np	np
9	100	Unlimited	4,000	np	np	np	np	np	np
10 or more	More than 100	Unlimited	np	np	np	np	np	np	np

In hotels of type 3 and 4 construction, the height shall not exceed two stories, except that if a sprinkler system is installed throughout such buildings, the height may be increased to four stories.

[1] Areas indicated may be increased 25 percent for garden apartments less than three stories in height, and for motels.
[3] Not permitted within fire limits.

TABLE B 203-1b. (II-712) — MAXIMUM HEIGHT AND FIRE AREA FOR GROUP B2 OCCUPANCY

Maximum height		Maximum fire area by construction classification in square feet						
n stories	In feet	Type 1 (Fire resistive)	Type 2[1] (Noncombustible)		Type 3[1] (Heavy timber)	Type 4[1] (Ordinary)		Type 5[3] (Wood frame)	
			2a	2b		4a	4b	5a[1]	5b[2]
1	15	Unlimited	8,000	5,000	5,000	5,000	3,500	3,000	3,000
2	30	Unlimited	7,500	3,500	3,500	3,500	3,000	2,500	2,500
3	40	Unlimited	6,500	np	np	np	np	np	np
4	50	Unlimited	5,000	np	np	n	np	np	np
or more	More than 50	Unlimited	np	np	np	np	np	np	np

reas may be increased 100 per cent, if sprinkler system is installed throughout ie building.

[2] Not permitted unless a sprinkler system is installed throughout the building.
[3] Not permitted within fire limits.

TABLE B 203-1.1a. (III-712) — MAXIMUM HEIGHT AND FIRE AREA FOR SEPARATE GARAGE BUILDINGS[1] UPON THE PREMISES OF MULTIPLE DWELLINGS

Maximum height[2]		Basic fire area by construction classification in square feet[2]								
In stories	In feet	Type 1 (Fire resistive)		Type 2 (Non-combustible)		Type 3 (Heavy timber)	Type 4 (Ordinary)		Type 5 (Wood frame)[4]	
		1a	1b	2a	2b		4a	4b	5a	5b
1	un	un	un	un	18,000	21,000	18,000	12,000	9,000	6,000
2	40	un	un	21,000	15,000	18,000	15,000	9,000	6,000	3,000
3	55	un	un	18,000	np	15,000	12,000	6,000	np	np
4	70	un	un	15,000	np	12,000	9,000	np	np	np
5	85	un	un	12,000	np	np	np	np	np	np
6	100	un	un	np	np	np	np	np	np	np
More than 6	More than 100	un	un	np	np	np	np	np	np	np

[1] Where used for parking or storage only, classification shall be low hazard. Where repairs are made therein, classification shall be moderate hazard; see group C 4.2 in Table C 203-1a of the State Building Construction Code applicable to General Building Construction.

[2] If sprinkler system is installed throughout the building, the height may be increased by one story or 12 feet.

[3] Fire areas are based on frontage on one street or legal open space at least 50 feet wide. If a fire area faces or abuts such streets or spaces on two sides, it may be 50 per cent larger than the basic areas shown; on three sides, 75 per cent larger; on four sides, 100 per cent larger—providing that such street or open space is served by fire hydrants, and the roadways are maintained clear, unobstructed, and accessible at all times for fire-fighting equipment. These fire areas may be increased 100 per cent providing the building is equipped with an automatic sprinkler system.

[4] Not permitted within fire limits.

TABLE B 203-1.1b. (IV-712) — MAXIMUM HEIGHT AND FIRE AREA FOR OPEN PARKING STRUCTURES UPON THE PREMISES OF MULTIPLE DWELLINGS

Number of parking levels[1]	Basic fire area by construction classification in square feet[2]							
	Type 1 (Fire resistive)		Type 2 (Noncombustible)		Type 3 (Heavy timber)	Type 4 (Ordinary)		Type 5 (Wood frame)	
	1a	1b	2a	2b		4a	4b	5a	5b
1	un	un	un	un	np	np	np	np	np
2	un	un	un	30,000	np	np	np	np	np
3	un	un	un	30,000	np	np	np	np	np
4	un	un	un	30,000	np	np	np	np	np
5	un	un	40,000	np	np	np	np	np	np
6	un	un	35,000	np	np	np	np	np	np
More than 6	un	un	np	np	np	np	np	np	np

[1] Parking permitted on roof in addition to the parking level indicated.

[2] Fire areas are based on frontage on one street or legal open space at least 50 feet wide. If a fire area faces or abuts such streets or spaces on two sides, it may be 50 per cent larger than the basic areas shown; on three sides, 75 per cent larger; on four sides, 100 per cent larger— providing that such street or open space is served by fire hydrants, and the roadways are maintained clear, unobstructed, and accessible at all times for fire-fighting equipment. These fire areas may be increased 100 per cent providing the building is equipped with an automatic sprinkler system.

b——The premises of every multiple dwelling shall front on one or more streets, or on one or more driveways giving access for all purposes to a street or streets, and the main entrance of the building shall be connected with a street or with such a driveway.

c——A building erected within more than one fire limit shall comply with the requirements of the more restrictive fire limit.

d——Zoning or fire-limit regulations that impose more restrictive height or fire-area limitations than required by this section shall control.

e——The height, number of stories, and fire areas between exterior walls or between exterior walls and fire walls, indicated for each occupancy and use group of each type or subtype of construction, shall not exceed those set forth in tables B 203-1a and B 203-1b.

f——On a sloping site, wherever habitable space is provided below the highest curb level as permitted in section B 206-2, all construction below such level shall be type 1.

g——The height, number of stories, and fire areas between exterior walls or between exterior walls and fire walls of separate garages or structures on the same premises with a multiple dwelling, shall not exceed those set forth in tables B 203-1.1a and B 203-1.1b.

h——The maximum fire area permitted for the highest story of a building determines the maximum fire area for each story in the building.

B 203-2 (712.2) Existing Buildings

*a——Except within fire limits, a building of type 5 construction, not exceeding three stories or 40 feet in height, existing prior to the date on which this Code became applicable in the municipality, may be altered or converted to group B1 occupancy provided that such building, when so altered or converted, complies in all other respects with the requirements of this Code.

*b——Except within fire limits, in a building of group B1 occupancy existing prior to the date on which this Code became applicable in the municipality, the floor area of public space may be increased to exceed the areas shown in table B 203-1a, provided that the entire building is equipped with an approved sprinkler system, the addition is not more than two stories above grade, and exits from the addition are directly to the exterior. Except as hereinbefore provided the addition shall comply in all other respects with the requirements of this Code.

B 204 (713) YARDS AND COURTS

B 204-1 (713.1) General Requirements

a——Required windows or other openings providing natural light and ventilation for habitable space shall open upon yards or courts or other legal open spaces or any combinations thereof which comply with the requirements of this section.

b——Zoning regulations shall take precedence over less restrictive requirements of this section.

c——Yards and courts shall be measured from the building outward, shall not begin higher than the floor level of the first habitable story, and in no event begin higher than 23 feet above the curb level or finished grade.

d——Yards and courts shall be open and unobstructed for their required area and full height, except that window sills, belt courses and other architectural or ornamental projections shall not project more than 4 inches from a wall, nor shall fire escapes project more than 4 feet 6 inches into a yard or court.

e——Yards shall be provided with access to a street, either directly or through an unobstructed passage of fire-resistive construction not less than 3 feet wide and 7 feet high.

f——Any recess or offset of a court shall have a minimum width of 5 feet and the depth of such recess or offset shall not exceed its width.

B 204-2 (713.2) Yards

a——A rear yard shall be provided at the rear of the building and shall extend along the rear lot line of a lot that abuts other lots or portions of lots. For buildings not more than 40 feet in height, on interior lots, the mini-

mum rear yard depth shall be 20 feet. For each foot that the rear wall of the building or portion thereof exceeds 40 feet in height, measured from the level of the rear yard, the depth of the rear yard shall be increased 3 inches. For such buildings on corner lots, the first 50 feet of the rear yard, measured from the side street line, may be reduced to one half of the depth of the rear yard required on an interior lot.

b——If a side yard is provided or required, it shall be not less than 5 feet in width, at any point. For each foot that the side wall of a building or portion thereof exceeds 30 feet in height, the width of a required side yard shall be increased 2 inches.

B 204-3 (713.3) Courts

a——Outer courts shall have a minimum width of 3 inches for each foot of height of the enclosing walls but not less than 5 feet measured at any point. The length of an outer court shall not exceed four times the width.

b——Inner courts shall have a minimum width of 4 inches for each foot of the height of the enclosing walls, but the least horizontal dimension of such courts shall not be less than 10 feet. The length of an inner court shall not exceed 1½ times the width.

c——An air intake of fire-resistive construction shall be provided at or near the lowest level of every inner court, connecting directly with a street or yard. Such intake shall have a minimum dimension of 3 feet and a minimum cross-sectional area of 20 square feet, and shall be unobstructed throughout, except that where such air intake is not used as a passage, gates or grilles which do not interfere with ventilation may be installed.

B 205 (714) SPACE

B 205-1 (714.1) General Requirements

a——Space shall be classified as habitable, public, and nonhabitable.

b——Habitable and public spaces shall be so arranged, located, lighted, and ventilated as to provide safe and healthful environment.

c——Nonhabitable space shall have such of those requirements set forth in paragraph b above as may be necessary for the intended use.

d——Food storage spaces for public kitchens shall be constructed so as to be verminproof and rodentproof.

e——Public kitchen and toilet walls or partitions shall be provided with a cove base; walls, floors, and cove base shall be constructed of nonabsorbent materials which are easily cleanable.

B 206 (715) HABITABLE SPACE

B 206-1 (715.1) Size

a——Habitable space shall have a minimum height of 7 feet 6 inches measured from finished floor to finished ceiling.

b——Every dwelling unit shall contain at least one habitable room which shall contain a minimum of 150 square feet of floor area and shall have a minimum horizontal dimension of 10 feet.

c——Kitchens shall have a minimum of 60 square feet of floor area, and other habitable spaces shall contain not less than 80 square feet of floor area and shall have a minimum horizontal dimension of 7 feet.

d——Every alcove less than 60 square feet in area, except a cooking space or foyer, shall be deemed to be part of a habitable room. The area of the opening in the dividing partition between the alcove and the room shall be at least 80 per cent of the wall area of such partition, measured on the alcove side, but not less than 40 square feet. The depth of such alcove shall not exceed half its width. The floor area of the alcove shall be added to the floor area of the room for the purpose of complying with the requirements of section B 209. An alcove with an area of 60 square feet or more, but less than the required area of a habitable room, shall be separately lighted and ventilated as required for habitable space.

B 206-2 (715.2) *Location in Respect to Grade Level

*a——Floor level of habitable space shall be not more than 4 feet below the average adjoining grade. Where a

building is situated on a sloping site and the conditions of grade are such that a portion of a story or stories below the highest curb level meets the light and ventilation requirements for habitable space, such portions may be occupied as habitable space. The grade, adjoining dwelling units which are partially below ground, shall be at a level so that such spaces conform to the definition of a basement.

b——Windows for light and ventilation shall open upon a required yard, court, or legal open space having access to a public thoroughfare. The elevation of the finished grade shall be at least 6 inches below sills of such windows.

B 206-3 (715.3) Miscellaneous Requirements

a——Dwelling units shall be separated from each other and from other spaces outside the dwelling unit.

b——Separation between dwelling units shall provide a sound transmission loss of at least 40 decibels in the frequency range of 256 to 1024 cycles per second.

c——Sleeping rooms within dwelling units shall be separated from each other and from other spaces outside the sleeping rooms to provide privacy.

B 207 (716) PUBLIC SPACE

B 207-1 (716.1) Height

Public space shall be at least as high as is required for habitable space, except that public space in hotels shall have a minimum height of 9 feet measured from finished floor to finished ceiling, and except that areas below and above a balcony or mezzanine shall have a minimum clear height of 7 feet 6 inches.

B 208 (717) NONHABITABLE SPACE

B 208-1 (717.1) Height

Nonhabitable space, except crawl spaces and attics, shall have a minimum height of 7 feet measured from floor to ceiling.

B 208-2 (717.2) Location of Toilet Rooms

a——Toilet rooms shall be accessible from any sleeping room without passing through any other sleeping room.

b——Unless located within dwelling units or directly connected with sleeping rooms, toilet rooms shall be provided in each story containing habitable space, and shall be accessible thereto.

c——Toilet rooms shall be provided in readily accessible locations, adjacent to public spaces, and in separate rooms for each sex.

B 208-2.1 Location of Toilet Rooms for Employees

(717.2b) a——Toilet rooms shall be in separate rooms for each sex, where there are employees of both sexes, readily accessible to their regular working places.

b——Toilet rooms shall not open directly into any public kitchen or other public space used for the cooking or preparation of food.

B 208-2.2 Waterproofing of Bathroom and Toilet Room Floors

(717.2c) Bathroom, shower room, toilet room and similar space shall be provided with a cove base, and floors shall be made waterproof; such waterproofing shall extend 6 inches or more above floors except at doors, so that floors can be flushed or washed without leaking.

***B 208-3 (717.3) Glass in Exits, Shower Stalls and Bathtub Enclosures**

*a——Glass in exit doors, shower doors and enclosures, and bathtub doors and enclosures shall be so sized, constructed, treated or combined with other materials as to minimize effectively the possibility of injury to persons in the event the glass is cracked or broken.

*b——Glass in fixed side panels adjoining exit doors shall conform to the requirements of paragraph a of this section, or permanent construction shall be provided to guard against accidental human impact.

*c——Shatter-resistant material may be substituted for glass intended to be used as described in this section. Where used in exits such material shall conform to the requirements of section B 403.

*d——Where generally accepted standards require glass to be identified, each piece of glass shall be permanently and legibly marked in conformity with the requirements of the generally accepted standards.

B 209 (718) LIGHT AND VENTILATION

B 209-1 (718.1) General Requirements

a——Habitable spaces shall be provided with both natural light and artificial light.

b——All spaces, except closets or similar spaces, shall be provided with artificial light.

c——Habitable spaces shall be provided with natural ventilation, and may also be provided with mechanical ventilation.

d——The tops of windows or equivalent sources of natural light and ventilation in habitable space shall not be more than 18 inches below finished ceilings, unless the top of at least one such source in each room is at least 7 feet above the finished floor.

e——Public spaces shall be provided with either natural ventilation or mechanical ventilation, or both.

f——Artificial light and mechanical ventilation shall comply with sections B 507-2 and B 508.

g——Required lighting or ventilating openings shall not face on a street, alley or other space permanently dedicated to public use of lesser width than required for side yards or courts, except that the width of such street, alley, or space may be credited in the computation to establish the width or depth of side yards or courts.

B 209-2 (718.2) Natural Light for Habitable Space

a——Natural light shall be provided through one or more windows, skylights, transparent or translucent panels, or any combination thereof, that face directly on legal open spaces above the adjoining finished grade, or above a roof.

b——Each habitable space shall be provided with natural light by means of openings described in this section, in an amount equivalent to that transmitted through clear glass equal in area to 10 per cent of the floor area of the habitable space.

c——The lighting area equivalent to clear glass shall be increased to 12½ per cent of the floor area if the natural light is from a single light area located entirely in one wall which is more than 15 feet distant from the opposite wall, or if the distance from the jamb of the light area is more than 9 feet from an intersecting wall. No part of any room shall be more than four times its clear height distant from the lighting opening.

B 209-3 (718.3) Natural Ventilation for Habitable Space

a——Natural ventilation shall be provided through openable parts of windows or other openings in exterior walls that face legal open spaces above the adjoining finished grade or above a roof, or through openable parts of skylights.

b——Each habitable space shall be provided with natural ventilation through openable parts of the opening described in this section which are equal in area to not less than 5 per cent of the total floor area of each habitable space.

c——The openable ventilating area shall be increased to 6¼ per cent of the floor area if the ventilation is from a single ventilating area located entirely in one wall which is more than 15 feet distant from the opposite wall, or if the distance from the jamb of the ventilating area is more than 9 feet from an intersecting wall. No part of a room shall be more than four times its clear height distant from the ventilating opening.

B 209-4 (718.4) Natural Ventilation for Public Space

Public spaces, if provided only with natural ventilation, shall comply with the requirements of section B 209-3.

B 209-5 (718.5) Natural Ventilation for Nonhabitable Space

a——The following spaces shall be provided with natural ventilation by openings which comply with the requirements of section B 209-3, or with mechanical ventilation as set forth in section B 508. The minimum openable area of the opening for natural ventilation shall be:

TABLE B 209-5. (I-718) — MINIMUM OPENABLE AREAS FOR NATURAL VENTILATION

Space	Minimum openable area
Kitchenettes	3 square feet
Bathrooms	3 square feet
Toilet rooms:	
connected to bedrooms or in dwelling units	3 square feet
used by public or employees	1 square foot per water closet; minimum 3 square feet
Cellars, basements, and attics	1 square foot per 50 square feet of floor area. Two openings oppositely located.

b——Spaces which contain central heat producing, air conditioning and other equipment, shall be ventilated to the outer air, and air from these spaces shall not be recirculated to other parts of the building.

c——Crawl spaces shall be ventilated by openings so located and of such area as to minimize deterioration of the structural members from condensation or other causes, in conformity with generally accepted standards.

B 210 (719) ACCESS AND VERTICAL TRAVEL BETWEEN STORIES

B 210-1 (719.1) Stairways and Stairs

a——Stairways, except intercommunicating or access stairs between not more than two stories within areas of the same occupancy, shall be enclosed as set forth in section B 211-5.

b——Stairways, in addition to those that serve in a required exit, shall be of the fixed type and shall be arranged and constructed for safe ascent and descent. Stairs shall be of sufficient width to serve the occupants, but not less than 28 inches in width.

c——Stairs within a dwelling unit, or stairs or escalators which are accessory or ornamental and are not part of a required exit, are not required to be enclosed if located as set forth in section B 402-4.4d. They shall be located so as not to obstruct or interfere with any required exit.

d——Ornamental stairs with a minimum width of 5 feet are permitted. If winders are used, width of treads exclusive of nosing shall not be less than 7 inches at any point.

e——Treads, risers, handrails and railings shall comply with the requirements of section B 211-3.

B 210-2 (719.2) Elevators

a——Elevators shall be enclosed in hoistway shafts which conform to the fire-resistive requirements as set forth in table B 202-2. Not more than four elevators shall be installed in a multiple hoistway.

b——A stairway or other exit shall be accessible from every elevator entrance landing unless the dwelling unit or area served is otherwise provided with required exits.

B 211 (720) EXITS

B 211-1 (720.1) General Requirements

a——Every building and structure shall be provided with exits, which shall be arranged, constructed and proportioned in number and width to the number of occupants, the construction and height of the building, and its fire protection equipment, so that all occupants may escape safely from the building in case of emergency.

b——Safe continuous exit shall be provided from the interior of the building or structure to the exterior at street or grade level or to other legal open space connected to a street. Railings, curbs, or other effective barriers shall be provided to insure that automobile parking or other obstruction does not encroach on the space required for exit travel.

c——A required exit from habitable, occupied, or public space in a building shall not lead through a garage or high hazard occupancy.

*d——Every passageway and enclosed stairway which serves as an exit or part thereof shall be enclosed with fire-resistive construction as set forth in table B 202-2. In multiple dwellings more than two stories in height, exit

stairways shall be separately enclosed. Openings in such construction shall be provided with opening protectives as set forth in section B 402-4.8.

e——The required width of exits shall not be diminished throughout the path of travel to the exterior of the building. Exits shall be plainly marked with directions to a designated termination at a place of safety, as provided in section B 507-2.3, and shall be lighted at all times by natural or artificial light of intensity sufficient for safe travel.

f——Exits from any room may lead through other rooms of the same tenancy except bathrooms. Each tenant's space shall be provided with means of egress to required exits.

g——Fire escapes shall not be permitted as a means of exit from buildings of group B2 occupancy, but exterior stairways are permitted as exits in conformity with section B 211-3.3.

h——Slide escapes shall not be permitted as exits.

*i——The minimum width of passageways, ramps, horizontal exits and stairways shall be 36 inches, except for hotels and group B2 occupancy, in which the minimum width shall be 44 inches. The minimum required width of an exit shall be measured at the narrowest point in line of travel, except that handrails may project on each side a distance not exceeding 3½ inches, and door jambs may project into the required width of doorways not more than 2 inches for each 22-inch unit of width. In determining the width of exits, the capacity of exit stairways and ramps is not required to be cumulative from story to story, except where two or more stairways or ramps join and continue as a single unit. Where exits from assembly space joint with exits from other occupancies on the same story, their widths shall be cumulative.

*j——Exits shall be located so that they are readily accessible and visible, and arranged so that there are no pockets or dead ends extending more than 20 feet beyond an exit stairway, except that for those portions of a building which contain dwelling units only, pockets or dead ends extending not more than 40 feet beyond an exit stairway are permitted. Exits shall not be concealed nor the direction to exits obscured by finish,

paneling, draperies, furnishings, mirrors, or other objects.

k——Exits shall be maintained so as to provide free and unobtructed egress from all parts of the building. No locks or fastenings to prevent free escape from the inside of any building shall be installed.

l——Where there is more than one group occupancy within a building, exits from each occupancy shall conform to the requirements for such occupancy.

m——If a roof is used or occupied for purposes other than incidental access by the occupants, exits shall be provided for such occupancy or use as required by this Code.

n——Spaces housing heat producing equipment capable of operating at more than 15 psi or having an individual or combined rated gross capacity of 250,000 Btu per hour or more, incinerators, refrigerating machinery other than that permitted by section B 508-1.2, and oil-filled transformers or equipment producing or using gas or vapor, shall not be located directly under or adjacent to an exit or lobbies, and shall be separated from the required exits from below- and above-grade fire areas.

o——Mechanical equipment and boiler rooms not more than 300 square feet in area, housing low pressure boilers or housing high pressure boilers having a rated gross capacity of not more than 40,000 Btu per hour, may have only one exit.

B 211-2 (720.2) Passageways, Ramps, Horizontal Exits and Fire Terraces

a——Passageways, unless otherwise provided for in this Code, and corridors, hallways, and vestibules, shall have a minimum floor-to-ceiling height of 7 feet 6 inches. They shall be designed so far as practicable to keep their length to a minimum, but in no event shall they exceed 100 feet in length without a smoke stop.

b——If two or more exit passageways or ramps converge into each other, the common exit thus formed shall be at least equal in width to three fourths of the combined widths of the exits. The capacity of exit passageways, aisles, corridors, and tunnels shall be based on

the same unit exit widths as set forth in table B 211-7b for stairways.

c——Where passenger elevators discharge at the street floor into a corridor or passageway leading to the street, the corridor or passageway shall be not less than 5 feet in width for five elevators or fewer, and not less than ½-foot additional width for each additional elevator. If stairways also discharge into the same corridor or passageway, the width of the corridor or passageway shall not be less than three fourths of the combined required width for stairways and elevators.

d——Ramps which serve as an exit or part thereof shall not have a gradient of more than 1 in 10, and their surfaces shall be nonslip. Ramps shall conform to the requirements of section B 211-3 so far as applicable, except that intermediate handrails shall not be required. No handrails shall be required where ramps have a slope of less than 1 in 12. One 22-inch unit of ramp width shall be considered the equivalent of one unit of stairway width. Ramps shall have an unobstructed width of at least 36 inches throughout their length except that handrails may project not more than 3½ inches into such width on each side. Ramps located in an exit passageway, aisle, corridor, or tunnel shall be the full width of such passageway, aisle, corridor, or tunnel. Floors of areas of different levels on opposite sides of a horizontal exit shall be connected by a ramp, or by stairs with not less than two risers.

e——Where a stairway connects with, or is continued in any direction by means of a ramp, or where a ramp changes direction, there shall be a level area or platform the full width of the ramp or stairs, but not less than 3 feet in length. Where a door enters upon a ramp there shall be a level area or platform extending at least one third the width of the door beyond the jamb on each side. The pitch of the ramp shall not interfere with the full swing of the door, nor shall such swing of door decrease the required width of the ramp.

f——Horizontal exits which serve as a required means of exit between areas of the same tenancy in a story shall have a continuously available path of exit travel leading from each side of the horizontal exit to an enclosed stairway or other required exit leading to legal open spaces outside the building. 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 square feet of floor area per person. Exit openings in walls shall be protected by opening protectives. If swinging doors are used, there shall be adjacent openings having doors opening in opposite directions with a sign on each side of the wall indicating which door is the exit from that side. Bridges and open-air or enclosed balconies that form a part of a horizontal exit shall be constructed of noncombustible material, and floors shall be solid and unpierced. The floor level of unenclosed balconies and bridges shall be not less than 4 inches nor more than 7¾ inches below the building floor level.

g——When horizontal exits are provided on stories located sixteen or more stories above grade, each required stairway shall be supplemented by at least one passenger elevator.

h——The capacity of a horizontal exit shall be determined as for a doorway, in accordance with table B 211-7b.

i——Fire terraces shall be provided on buildings of type 3 and 4 construction on sloping sites containing dwelling units located as permitted in section B 206-2, if the building faces only one street or faces one street and another street on a lower level at the rear. Fire terraces are not required on buildings that front on three or more streets or are located on corner lots. Fire terraces shall extend the full length of the wall from which the setback is made and shall connect with an enclosed fire passageway which shall extend to the street at the front of the building. The minimum width of a fire terrace shall be 8 feet.

j——Open sides of bridges, balconies, fire terraces, or roof extensions, shall be protected by parapet walls or railings at least 3 feet in height and meeting the requirements set forth in section B 304.9.

B 211-3 (720.3) Stairways

B 211-3.1 General Requirements

(720.3a) a——Required stairways shall continue to the roof in buildings three or more stories high, except when the

slope of the roof exceeds 15 degrees. Required stairways which do not continue to the roof shall be connected at the top story by public passageways, hallways, or corridors. Access by scuttle and ladder shall be provided to a roof which is not accessible by a stairway.

b——Roofs of buildings three or more stories high, with a slope of less than 15 degrees, which are accessible from stairways, fire escapes, or ramps, shall be protected with a parapet wall or railing not less than 3 feet in height.

c——Stairways which serve as a required exit from any story shall be so arranged, and of such size, construction, and materials that they will provide safe ascent and descent. They shall terminate at street level and be connected to a street, or on a fire terrace or other legal open space, and they shall conform to all requirements of this section and table B 211-3.

d——Spiral stairs or fixed ladders of noncombustible material may be permitted as one of the means of exit

TABLE B 211-3. (I-720) — DIMENSION REQUIREMENTS FOR EXIT STAIRS,[1] HANDRAILS, AND GUARDRAILS

Component	Minimum			Maximum		
	Height	Length	Width	Height	Length	Width
Vertical rise of any run of stairs				12 ft.		
Headroom over landing floors and tread nosing	7 ft.					
Stairway			36 in.[3]			
Terminal and intermediate landing			36 in.[3]			
Tread exclusive of nosing[2]		36 in.[3]	9½ in.			
Riser[2]		36 in.[3]		7¾ in.		
Handrail						
Top above landing floor	33 in.			36 in.		
Top above tread nosing	30 in.			36 in.		
Projection from finished wall						3½ in.
Clearance to finished wall			1½ in.			
Guardrail						
Top above landing floor	33 in.					
Top above tread nosing	30 in.					
Openings in					48 in.	6 in.

[1] For required minimum width, see section B 211-1i.
[2] The product obtained by multiplying height of riser by width of tread shall be not less than 70 nor more than 77¼.
[3] 44 inches in hotels.

to legal open space from a boiler, engine, or mechanical equipment room. The minimum width of spiral stairways shall be 22 inches. Spiral stairs and fixed ladders shall be constructed in conformity with generally accepted standards.

e——Noncombustible stairs, at least 22 inches wide, having an inclination of not more than 60 degrees to the horizontal, are permitted as exits from open mechanized parking structures not exceeding eight parking levels in height where no persons other than employees are permitted above the grade-level story. Such stairs shall extend continuously from the street parking level to the roof with an unobstructed landing at each parking level; open sides shall be guarded with substantially constructed screened enclosures or railings at least 36 inches high; floor openings shall be protected with adequate railings; handrails shall conform to the requirements of table B 211-3.

f——Terminal and intermediate landings shall be at the same level as the floor of any story from which doors are provided for entrance or departure to stairways. Such landings shall be at least 6 inches wider than any door opening upon them and at least 42 inches wide, but in no event less than the width of the stairway of which they are a part. There shall be a clearance of at least 22 inches from the edge of a door to any obstruction at any point in the arc of its swing. Door saddles, if any, shall not be more than ¾-inch high and their top edges shall be beveled or rounded.

g——A unit of width for stairways shall be 22 inches. Credit for fractions of units shall not be allowed except that a credit of one-half unit shall be allowed for 12 inches of clear width added to one or more 22-inch units of width. The capacity of stairways shall be in accordance with table B 211-7b, except that where the story height exceeds 10 feet, the tabulated number of persons per 22-inch unit may be increased by one for each 16 inches of height in excess of 10 feet, plus one person additional for each 5 square feet of unobstructed floor space on the landings within the stair enclosure. The depth of landings and platforms shall be equal to the width of the stairs. The stairway capacity may be increased by 100 per cent where the entire building is equipped with a sprinkler system. If more than four 22-

inch units are required, the exit shall be arranged into two or more stairways so that no stairway exceeds 88 inches in width.

h——Stair treads, risers, strings and landings shall be solid. Treads shall be set level and true, and top surfaces shall not vary more than ⅛-inch in any run. Risers shall not vary more than ⅛-inch in height in any run.

i——Stairs or steps with more than two risers shall have a guardrail on any open side.

j——Stairs less than 44 inches in width shall be provided with a handrail on at least one side, and if 44 inches or more in width, on both sides. If stairways are 88 inches or more in width, they shall also be provided with intermediate handrails spaced not more than 66 inches on center.

k——All landings shall be provided with guardrails on their open sides.

l——Handrails shall be started at the first tread both top and bottom and shall have no obstruction on or above them tending to break a handhold, and the ends of handrails shall be returned to the wall or newel post.

m——Not more than two required stairways shall discharge through a common passageway or lobby on the grade-level story to each street.

n——No winders shall be permitted in required stairways.

B 211-3.2 Interior Stairways

(720.3b) a——Stair treads, risers and landings shall be solid, except that stairs from boiler, engine or mechanical equipment rooms, or from buildings or structures without enclosing walls, may have perforations or openings not exceeding ½-inch in lesser dimension.

b——Stairs, treads, risers and landings shall be constructed of noncombustible material, except in buildings of type 4 or 5 construction, three stories or less in height.

B 211-3.3 Exterior Stairways

(720.3c) a——Exterior stairways shall terminate in a legal open space, with access to a street. No part of an exterior stairway shall be within 5 feet of any interior lot line.

b——Access to exterior stairways from any floor area shall be through exit doors at floor level, and the platform on which the door opens shall not be less than 4 inches nor more than 7¾ inches below the floor level. Perforations or openings not exceeding ½ inch in lesser dimension, are permitted in treads, landings and platforms. Open sides of exterior stairways shall be protected with substantially constructed noncombustible screened enclosures at least 48 inches high. Adjacent wall openings shall be protected in conformity with section B 401-4.1.

c——Exterior stairways on buildings of type 4 or 5 construction, not more than two stories high, may be constructed of wood provided bearing and supporting members are not less than 4 inches, and all other members are not less than 2 inches in their least dimension. Balconies and platforms shall be securely attached to a wall or supported by columns. Treads and risers shall be as set forth in table B 211-3.

d——The platforms and landings shall be guarded by railings, and the stairs by handrails, conforming to the requirements of table B 211-3.

e——Construction shall be in conformity with generally accepted standards, but shall be not less than required for fire escapes, except as otherwise provided in this section.

B 211-3.4 Fire Escapes

(720.3d)

B211-3.4.1 General Requirements

(720.3d1) a——Fire escapes which serve as a required second means of exit from a dwelling unit, other habitable space, or roof of a building, shall be located, arranged and constructed in such manner that a safe, unobstructed and continuous passage is provided to a safe landing place on a legal open space or fire terrace. Yards, courts, or fire terraces upon which fire escapes terminate, not otherwise provided with access to a street, shall be connected with a street through an unobstructed passageway of fire-resistive construction not less than 3 feet wide by 7 feet high, independent of any other exits.

b——Fire escapes on buildings more than three stories in height shall continue to the roof, except when located on the front of building, or when the slope of the roof exceeds 15 degrees.

c——The lowest balcony above a sidewalk shall not be less than 10 feet nor more than 16 feet above the sidewalk, and if over a driveway, it shall be not less than 14 feet nor more than 16 feet above the driveway.

d——The lowest balcony shall be provided with a drop ladder or counterbalanced stairs if it is more than 5 feet above the ground or safe landing place.

B211-3.4.2 Access to Fire Escapes

(720.3d2) a——Access shall be as remote as practicable from the principal exit of the dwelling unit or other area served.

b——Access from dwelling units shall be through unobstructed windows or doors to a fire escape balcony; access from other habitable space shall be by way of passageways, hallways, or corridors to a fire escape.

c——Access shall not be through a bathroom window; if through a kitchen, access shall not be obstructed by sinks or other fixtures.

d——Access shall not be from or through a public stairway.

B211-3.4.3 Limitations on Location of Fire Escapes

(720.3d3) A fire escape which serves as one of the required exits from a dwelling unit shall be located as follows:

a——On a wall facing a street or yard, or in a recess off such wall not more than 5 feet deep, provided such recess is open to the street or yard and at the top, or

b——On a wall of a court, if no room of the dwelling unit faces upon a street or yard, and if such court complies with the following:

An inner court, with least horizontal dimension of 35 feet, directly connected at the bottom of the court with a fire-resistive passageway not less than 3 feet wide and 7 feet high, which leads to a street, unless the court is otherwise connected with the street.

An outer court at least 18 feet in width, and in length not more than twice the width, or, if an outer court situated on an interior lot line, with a minimum dimension of 10 feet at every point.

B211-3.4.4 Construction of Fire Escapes

(720.3d4) Fire escapes shall be of material having the properties of ferrous metal, other than cast iron or metal of characteristics similar to cast iron, consisting of balconies and straight-flight stairways with guard and hand railings, and shall be constructed, assembled, and securely attached to the building, in conformity with generally accepted standards.

B 211-3.5 Escalators

(720.3e) a——Escalators operating in the direction of exit travel, and escalators operating in the direction opposite to that of exit travel which are equipped at the head of each flight with a readily accessible device for stopping all flights simultaneously, shall be permitted as an alternative to one required means of egress in buildings not exceeding five stories in height, if enclosed in conformity with the requirements of section B 402-4.4.

b——Escalators shall be installed in conformity with section B 511. The minimum width measured between balustrading at a vertical height of 27 inches above the nose line of the treads, shall not be less than 42 inches, which shall be considered as two units of exit width. The depth of the step tread in the direction of travel shall be not less than 15¾ inches, and the rise between treads shall not exceed 8½ inches. Landings shall be provided similar to those required for stairways.

c——No continuous rise shall be more than two stories or 40 feet.

d——The capacity of escalators used as exits shall be determined as for exit stairways.

B 211-3.6 Elevators

(720.3f) Elevators shall not be in a common enclosing shaft with a stairway, and the path of travel from one flight of stairs to the next shall not pass directly in front of elevator doors.

B 211-4 Doors and Doorways (720.4)

B 211-4.1 General Requirements

(720.4a) a——Doors in required exits shall swing outward in the direction of exit travel, except that in buildings of group B1 occupancy containing dwelling units exclusively, the street entrance and vestibule doors may swing inward. Doors from dwelling units or sleeping rooms may swing inward. Doors on a public passageway, hallway, corridor or stairway shall not have openings therein, except that louvers shall be permitted in doors of toilet rooms and sink closets; nor shall transoms above such doors be permitted.

b——Exit doors shall be readily openable from any floor area or occupied space, shall be arranged so that they can not be locked against exit from such area or space, and shall be equipped with self-closing and other necessary devices which will maintain them in a normally closed position, except that they may be maintained in an open position provided that they are fitted with fusible link holds and friction devices that will permit the doors to be readily released both manually and automatically.

c——No single swing door in a doorway of an exitway shall be more than 44 inches nor less than 28 inches in width, except that each leaf of a pair of doors shall be not less than 24 inches in width and doors from assembly space shall be not more than 60 inches in width. The width of any exit doorway shall be considered as the nominal width of its door. Each unit of width for doorways shall be 22 inches, and credit for fractions of units shall not be allowed, except that a credit of one-half unit shall be allowed for 12 inches of clear width added to one or more 22-inch units in an opening. A 40-inch door shall be accepted as two units. Where a doorway is divided into two or more separate door openings, each such opening shall be measured separately in computing the number of units of exit width. Where only one exit is provided, the minimum width of the exit doorway shall be 36 inches.

d——The total width of exit doorways or openings shall be not less than required to provide for the total number of persons served by such exit doorways or openings, as determined in accordance with section B 211-7. The total width of exit doorways or openings, through which an exit stairway discharges, shall be at least equal to the width of that stairway. Where two or more exit stairways converge, the exit doorways or openings through which the combined stairways discharge shall be at least equal in total width to three fourths the combined width of such exit stairways.

e——No doorway shall be less than 6 feet 8 inches in height.

f——Every grade-level exit door to the exterior shall open on a level grade or landing not less in depth than the swing of the door, extending at least 12 inches beyond each side of the door jamb. Such grade or landing shall be not more than 7¾ inches below the level of the door sill.

*g——Grade-level exit doors from required stairways and passageways shall be hung to swing without obstructing the required width of exit passage. In assembly space, the main entrance doors shall not be considered as more than one half of the required exit width.

B 211-4.2 Revolving Doors

(720.4b) a——Not more than 50 per cent of the required exit doors may consist of revolving doors, and there shall be at least one swinging door within 20 feet of each revolving door.

b——Wings of revolving doors shall be released by ordinary body pressure so that they shall readily fold back independently. The clear width of the resulting opening on each side shall be not less than 22 inches.

c——The capacity of revolving doors shall be computed from table B 211-7b on the basis of the minimum width of opening with the wings folded back.

d——Revolving doors shall not be permitted as a required exit from any building of group B2 occupancy.

B 211-5 Exit Enclosures

(720.5) a——Passageways and enclosed interior stairways, if serving as required exits or parts thereof, shall be arranged and constructed with enclosures and separations having fire-resistance ratings as set forth in table

B 202-2, except that this requirement shall not apply to stairways from a mezzanine, balcony, or other open tier above the main floor or to stairways from buildings or structures without enclosing walls.

b——No openings shall be permitted in stairway enclosures except the required doors for entrance or exit, windows in exterior walls, and window or skylight at roof.

c——Exits from upper stories shall be enclosed to the exterior of the building with construction which complies with the requirements set forth in table B 202-2. A lobby may be part of such enclosure provided it also meets such requirements and provided it is separated by fire separations and opening protectives from rooms or spaces in which there are combustible contents, in accordance with section B 402-1b and section B 402-4.1.

d——Where a required exit stairway serving the upper stories of a building is continued in the same enclosure to one or more stories below the main floor, the portion of the stairway above the main floor shall be separated from the portion of the stairway below the main floor by an enclosure in conformity with section B 402-4.4. An unenclosed stairway from a mezzanine, balcony, or other open tier above the main floor shall not continue to a space below exit discharge at grade level without effective provision being made by change in direction of the run of the stairs, or by separation, so as to make clear the direction of egress to the street and prevent unintentional travel below such exit level.

e——Where a stairway enclosure follows the rake of the stairs, the soffit shall be protected by construction at least equivalent in protection to that of the stairway enclosure.

f——A basement or cellar stairway from the first story of a multiple dwelling shall be enclosed, and the door openings at the top and bottom of such stairs shall be equipped with opening protectives.

B 211-6 (720.6) Distance of Travel to, and Location of, Exits

a——Exits shall be independent of, and as remote from each other as is practicable, and shall be readily accessible to occupants of the building.

b——Exits shall be so located that the maximum distance of travel shall not exceed the distances shown in table B 211-6.

c——Where an exit from a mezzanine discharges through the floor below, the floor area of the mezzanine shall be added to the area of the main floor for the purpose of determining the number of persons for which exits are to be provided. If the proposed number of persons will be more than that computed by using table B 211-7a, exits shall be provided for the larger number.

TABLE B 211-6. (II-720) — MAXIMUM DISTANCE OF TRAVEL TO EXITS

Construction classification	From —	To a door —	Distance in feet
All types	Door of any room in any dwelling unit	Opening into an exit passageway on the same story[2]	50
Type 3, 4 and 5	Main entrance door of any dwelling unit or any room or any part of a fire area not divided into dwelling units or rooms, in a story above the grade story, to a passageway[1]	Opening into an exit stairway or horizontal exit on the same story[2]	50[3]
Type 3, 4 and 5	Main entrance door of any dwelling unit or any room or any part of a fire area not so divided, in a grade story, to a passageway	Opening at grade level to a legal open space or horizontal exit	50[3]
Type 1 and 2	Main entrance door of any dwelling unit or any room or any part of a fire area not so divided, in a story above the grade story, to a passageway[1]	Opening into an exit stairway or horizontal exit on the same story	100
Type 1 and 2	Main entrance door of any dwelling unit or any room or any part of a fire area not so divided, in a grade story, to a passageway	Opening at grade level to a legal open space or horizontal exit	100
All types	Door of any room or any point in a fire area not divided, in a basement or below-grade story	Opening into an exit stairway or legal open space or horizontal exit	75
All types	Door of any below-grade room enclosing equipment as set forth in section B 211-1n	Opening into exit stairway leading to legal open space	20

[1] In buildings not more than three stories in height, may open directly upon exit stairway.
[2] Exits from dwelling units occupying part of not more than two stories may be from either story.
[3] In garage buildings, or in buildings having a sprinkler system installed throughout, distance may be 100 feet.

B 211-7 (720.7) Determination of Required Widths, Number, and Types of Exit

a——Exits shall be provided in conformity with the requirements of section B 211-1. Every space and subdivision including a dwelling unit, fire area, story, mezzanine or roof, occupied or customarily used by persons, shall be provided with at least two exits except as set forth in table B 211-7c. The width, number and type of exits shall be determined in accordance with the following procedure:

First, using table B 211-7a, divide the gross floor area within the inside perimeter of the space by the applicable floor area per person to determine the number of persons for which exits are to be provided;

Second, using table B 211-7b, obtain the required total width of exits, the discharge capacity of which is not less than that for the number of persons for which exits are to be provided;

Third, using tables B 211-6 and B 211-7c, determine the minimum number of exits required; and,

Fourth, establish the types of exits as set forth in paragraphs b and c of this section.

TABLE B 211-7a. (III-720) — FLOOR AREA PER PERSON

In square feet

Occupancy	Below-grade floor areas	First-story floor areas	Floor areas above first floor
Habitable space			
Group B1	200	125	125
Group B2	200	100	75
Public space			
Dining rooms	10	10	10
Lecture rooms, auditoriums	6	6	6
Gymnasiums	15	15	15
Recreation rooms	40	40	40
Nonhabitable space			
Storage	300	300	300
Motor vehicle garage on same premises with or in a multiple dwelling	300	300	300
Service	100	100	100

TABLE B 211-7b. (IV-720) — CAPACITY OF STAIRWAYS AND DOORS

In number of persons per 22-inch unit of exit width

Occupancy	Stairways[1]	Doors
B1	50	75
B2	30	50

[1] For increased capacity when story height exceeds 10 feet, or when the building is sprinklered, see section B 211-3.1g.

TABLE B 211-7c. (V-720) — REQUIRED MINIMUM NUMBER OF EXITS

Exit accessible from —	Group B1 1 story	Group B1 2 stories or more	Group B2 any number of stories
Building	1	2[2]	2
Story	1	2[2]	2
Cellar or basement[1]	2	2	2
Fire area	1	2[3]	2
Dwelling unit	1	2[2]	2
Room, other than in dwelling unit	1	1	1
Public space	2	2	2
Mezzanine, for each 100 persons	1	1	1
Garage	2	2	2

[1] Every area containing equipment as set forth in section B 211-1n, shall be provided with an emergency exit.

[2] In two story buildings, one means of exit is permitted provided in each dwelling unit there is access to a window having a sill not more than 14 feet above grade directly below which is level and unobstructed for at least 10 feet from the exterior wall. The exit from the second story shall be an interior enclosed stairway without openings to other parts of the building, or an exterior stairway of noncombustible or heavy timber construction. An exterior wall abutting or within 10 feet of such exterior stairway or connecting balcony shall have a fire-resistance rating of at least ¾ hour.

[3] One exit for each fire area in type 1 construction not more than three stories in height, with not more than four dwelling units within fire area on each story, provided the exit stairs continue to a flat roof, with access to another exit stairs similarly arranged, leading to a legal open space.

b——The number of exits required by table B 211-7c shall consist of enclosed stairways, with the following alternatives permitted where two or more enclosed stairways are required:

In buildings of group B1 occupancy not exceeding six stories or 70 feet in height, one fire escape or exterior stairway accessible directly from each dwelling unit shall be permitted in lieu of one enclosed exit stairway.

In buildings of group B1 occupancy not exceeding two stories or 30 feet in height, required exit stairways may be exterior stairways as set forth in section B 211-3.3.

One horizontal exit in conformity with sections B 211-f, g, and h, shall be permitted in lieu of one enclosed stairway. Horizontal exits shall not be in excess of one half the total required number of exits from any one fire area.

One ramp in conformity with section B 211-2d shall be permitted in lieu of one enclosed stairway.

c——Areas occupied by bedridden patients which exceed 3000 square feet, in buildings of type 2b, 3 or 4 construction, shall be provided with a horizontal exit, or a ramp, or other required exit directly to grade level at exterior. There shall be no steps in such exits.

*d——Where one exit is permitted for buildings not more than two stories in height, there shall be provided at least one opening for emergency use in addition to the primary exit from a habitable space, except kitchens. Such openings shall include doors or openable parts of windows, located so as to provide unobstructed egress to legal open space. Such openings shall have a minimum area of 4 square feet, with a minimum dimension of 18 inches, with bottom of opening no higher than 3 feet 6 inches above finished floor in all above-grade stories, and no higher than 4 feet 6 inches where required in a basement.

B 212 (721) GARAGES AND OPEN PARKING STRUCTURES ON THE SAME PREMISES WITH A MULTIPLE DWELLING

B 212-1 (721.1) General Requirements

a——Motor vehicles may be parked or stored in the open upon the premises, but no vehicle may be parked or stored nearer than 5 feet from a protected opening in the fire separation between a multiple dwelling and a garage or open parking structure, or nearer than 10 feet to any combustible wall or any unprotected opening in a noncombustible wall.

b——A garage or open parking structure may be on the same premises with a multiple dwelling, provided it complies with the requirements of this Code. Such

garages or open parking structures shall be primarily for the storage or parking of passenger motor vehicles. Washing and polishing of such motor vehicles shall be permitted.

c——Garages shall be arranged and constructed so that flammable vapors cannot spread to fixed sources of ignition or be transmitted through the heating or ventilating system to the multiple dwelling. Floors and decks shall be constructed of noncombustible materials that will not absorb flammable liquids, and each parking deck upon which vehicles are stored shall be pitched for drainage.

d——Each fire area in excess of 5000 square feet in a garage or parking level of an open parking structure shall be provided with at least two exits. Where two or more exits are required, a ramp shall be permitted as one of the exits. Entrances for vehicles may serve as required exits. Exit doors shall swing outward in the direction of exit travel and be at least 28 inches wide and 68 inches high.

e——Ramps for vehicles shall not have a gradient of more than 1 in 7 and their surfaces shall be nonslip. Ramps leading to a street shall terminate not less than 20 feet from such street.

f——Roof decks used for parking or storage and the open sides of parking decks shall be protected with curbs, railings and bumper blocks as set forth in section B 304-9.

g——Central heating equipment for a garage shall be separated as required in section B 402-4.6d, and all heating equipment installed in such garage shall comply with the requirements of section B 504-2.14.

h——Garage areas in excess of 1000 square feet shall be provided with mechanical ventilation in conformity with section B 508-3.

i——Garages shall be provided with fire protection equipment in conformity with section B 405.

j——Garage areas in excess of 1000 square feet shall be provided with electric light in conformity with section B 507-2.1b, in addition to any natural light.

k——Enclosure walls shall not be required on open parking structures except on sides located within 10

feet of an interior lot line. No temporary enclosures of combustible material shall be used where enclosure walls are omitted. Parking or storage shall not be permitted in a story more than 4 feet below the curb level unless that story or parking level is of type 1 construction.

B 212-2 (721.2) Garages Within Multiple Dwellings

a——Garages within a multiple dwelling shall be separated from the multiple dwelling by fire separations as set forth in section B 402-4.7.

b——Access between a multiple dwelling and a garage within the multiple dwelling shall be permitted as set forth in section B 402-4.7.

c——The sale, storage, or handling of gasoline or other flammable liquids and the repair and refinishing of motor vehicles shall be prohibited.

B 212-3 (721.3) Garages and Open Parking Structures Attached to Multiple Dwellings

a——Garages and open parking structures which are attached to, or structurally integrated with, a multiple dwelling shall be separated from the multiple dwelling by fire separations as set forth in section B 402-4.7.

b——Access between a multiple dwelling and a garage or open parking structure attached to the multiple dwelling shall be permitted as set forth in section B 402-4.7.

c——The sale, storage, or handling of gasoline or other flammable liquids shall be permitted on the street level only and shall be in conformity with generally accepted standards. Space for such facilities in an attached garage shall be enclosed as set forth in section B 402-4.7.

B 212-4 (721.4) Garages and Open Parking Structures on Premises of Multiple Dwellings

A garage or open parking structure on the same premises with a multiple dwelling, but not attached, shall be separted from the multiple dwelling by distance or construction as set forth in section B 401-3.

B 213 (722) PROJECTION BEYOND THE STREET LINE

B 213-1 (722.1) General Requirements

a——No part of any building or structure shall project beyond the street line so as to encroach upon a public street or space, unless specifically permitted by the municipality.

b——Any part of a building, or sign attached thereto, projecting beyond the street line, shall be constructed so that it can be removed at any time upon demand by the municipality without causing the building to become structurally unsafe.

B 213-2 (722.2) Marquees

Marquees, where permitted, shall be not less than 10 feet above the curb level at any point, shall be constructed of noncombustible materials, shall be securely supported from the building construction, and shall be properly drained.

Part 3

Structural Requirements

B 301 (730) **GENERAL REQUIREMENTS**

a——Buildings and parts thereof shall be capable of sustaining safely their own weight and the loads to which they may be subject.

b——Buildings shall be constructed and integrated so that loads are transmitted to the soil without undue differential settlement, unsafe deformation or movement of the building or of any structural part.

c——Wherever structural material or assemblies are subject to deterioration and might become structurally unsound if unprotected, protection in conformity with generally accepted standards for the material involved shall be provided. Causes of such deterioration include, among others, action of freezing and thawing, dampness, corrosion, wetting and drying, and termites and other destructive insects.

d——Buildings built in soil which is water bearing at any season of the year shall be constructed so that ground and surface water will not penetrate into habitable spaces, basements and cellars.

B 302 (731) **SOIL BEARING VALUE**

B 302-1 (731.1) **General Requirements**

The bearing value of the soil shall be determined in order that foundations may be proportioned so as to provide a minimum of absolute and differential settlement. Soil or pile tests, presumptive bearing values of the soil, reduction factors for pile groups, and pile-driving formulas, referred to in this Code, shall be in conformity with generally accepted standards. When it can be conclusively proved that the presumptive soil bearing value is adequate for the proposed load, the enforcement officer may accept such proof in lieu of the determination prescribed in section B 302-2b.

with the final rebound recorded 24 hours after removal of the last decrement. The allowable pile load shall be the lesser of one half of the load which caused:

A gross settlement of 1 inch, or

A net settlement (gross settlement minus total rebound) equal to 0.01 inch per ton times total test load in tons,

with a limit determined by the strength of the pile as a structural member.

B 303 (732) ALLOWABLE STRESSES OF MATERIALS

B 303-1 (732.1) General Requirements

Safe working stresses shall be assigned to materials in accordance with their classification either as controlled materials or ordinary materials, and these stresses shall not be exceeded unless specifically permitted in section B 304-10.

B 303-2 (732.2) Controlled Materials

The safe working stresses of materials which have been identified and certified for quality and strength by a recognized authoritative inspection service, grading organization or testing laboratory, or are identified by manufacturer, producer, and mill test as meeting generally accepted standards, shall conform to the specification and stresses for such materials in such standards. When a material is formed and cast in the field, tests prior to the construction and during the construction shall be made, and the composition and strength of the material shall be certified by any of the above appropriate agencies and by the architect or engineer responsible for the design.

B 303-3 (732.3) Ordinary Materials

Materials which do not conform to the requirements for controlled materials shall be considered ordinary materials, and their quality and safe working stresses shall conform to the specifications and stresses for ordinary materials in generally accepted standards. When quality and safe working stresses are not so specified, they shall be determined by test in conformity with section

B 305-1. When a material is formed and cast in the field, tests during the construction shall be made and its composition and strength certified by any of the appropriate agencies designated under section B 303-2, and by the architect or engineer responsible for the design.

B 304 (733) DESIGN LOADS

B 304-1 (733.1) General Requirements

A building and all parts thereof shall be of sufficient strength to support the design loads and to resist the deformations caused by such loads to which they may be subjected, without exceeding the allowable stresses as described in section B 305-1. Such loads shall include the dead load and the following imposed loads where applicable: live, snow, wind, soil pressure including surcharge, hydrostatic head, and impact loads.

B 304-2 (733.2) Live Loads

B 304-2.1 (733.2a) General

a——Loads set forth in table B 304-2.2 do not include unusual concentrations, such as but not limited to heavy machinery, equipment, water tanks, elevator machine loads, swimming pools, storage units, and floor-to-ceiling bookracks. Where such loads occur, suitable provisions shall be made for their support.

b——Where such unusual concentrations do not occur, structural members, and flooring spanning between the supporting structural members, shall be designed to support the uniformly distributed loads or the concentrated loads set forth in table B 304-2.2, whichever produce the greater stress.

c——Uniformly distributed live loads on beams or girders supporting other than storage areas and motor vehicle parking areas, when such structural member supports 150 square feet or more of roof area or floor area per floor, may be reduced as follows:

When the dead load is not more than 25 psf, the reduction shall be not more than 20 per cent;
When the dead load exceeds 25 psf and the live

B 302-2 (731.2) Determination

a——For buildings in which the sum of the snow load and those live loads of all the floors which are transferred by columns or walls to the soil, divided by grade-floor area, is 200 psf or less, the allowable bearing value of the soil upon which the building rests shall be the presumptive bearing value, or shall be determined by field loading tests made in conformity with generally accepted standards.

b——For buildings in which the sum of the snow load and those live loads of all the floors which are transferred by columns or walls to the soil, divided by grade-floor area, exceeds 200 psf, there shall be a minimum of one test pit or boring for every 2500 square feet or part thereof of grade-floor building area, carried sufficiently into acceptable bearing material to establish its character and thickness. At least one boring for every 10,000 square feet or part thereof of building area shall be carried to a minimum depth below grade equal to the height of building but need not be carried more than 100 feet below grade, or to the minimum depth which shows 25 continuous feet of fine sand or better bearing material than fine sand, or 5 feet of bed rock, below the deepest proposed footing. A record of all borings made by core drill or spoon showing the foot-by-foot character of the soil, the ground water level, and the number of blows required for each foot of penetration of the spoon, shall be kept and certified by the architect or engineer in charge. The subsurface exploration apparatus including the size of spoon, weight and the drop shall be in conformity with generally accepted standards. Wash borings shall be deemed unacceptable. Boring samples taken at each signicant change of soil strata and at 5-foot intervals thereafter shall be retained and made available to the enforcement officer. When in his opinion additional subsurface information is required because of the variable geology of the site, additional tests pits or borings shall be made.

c——For buildings referred to in section B 302-2b, when the building load is transferred to the soil by spread footings, the allowable bearing values of the successive layers of soil determined by test pits or borings shall be the presumptive bearing values and, if required by the enforcement officer, shall be substantiated by field loading soil tests made on undisturbed, natural soil at the level of the proposed foundation with fill, if any, removed.

Structural Requirements

d——For buildings referred to in section B 302-2b, when the building load is transferred to the soil through the medium of friction or bearing piles, the capacity of a pile group shall be the number of piles multiplied by the capacity of one pile and by a reduction factor for friction piles. The capacity of a pile shall be determined by either of the following methods or by an approved combination of them with a limit determined by the strength of the pile as a structural member:

A field loading pile test, one such pile test for each 15,000 square feet or part thereof of grade-floor building area, with a minimum of two test piles, or
A generally accepted pile-driving formula.

B 302-3 (731.3) Performance Criteria for Field Loading Soil Test

Under field loading soil test, the total settlement caused by the proposed load on the soil, measured after a period during which no settlement has occurred for 24 hours, shall not exceed ¾-inch. The additional settlement caused by a 50 per cent increase in the proposed load, measured after a period during which no settlement has occurred for 24 hours, shall not exceed 60 per cent of the total settlement as previously measured under the proposed load.

B 302-4 (731.4) Performance Criteria for Pile Test

a——The test load shall be twice the proposed pile load, applied in increments of one quarter of the proposed pile load, with readings of settlements taken to the nearest $\frac{1}{32}$-inch and plotted against load. The test load may be increased to more than twice the proposed pile load value until the gross settlement is approximately 1 inch. At each step the load shall remain unchanged until there is no settlement in a 2-hour period, and the test load shall remain in place until there is no settlement in 48 hours.

b——The total test load shall then be removed in decrements not exceeding one quarter of the total test load at intervals of not less than 1 hour, with rebound read after each removal of load and plotted against load and

load does not exceed 100 psf, the reduction shall be not more than the least of the following three criteria:

60 per cent,

0.08 per cent for each square foot of area supported,

100 per cent times (dead load psf plus live load psf) divided by (4.33 times live load psf).

d——For columns, girders supporting columns, bearing walls, and foundation walls, supporting 150 square feet or more of roof area or floor area per floor other than storage areas and motor vehicle parking areas, the uniformly distributed live loads on these members shall be not less than the following percentages of the total live loads on the following levels:

80 per cent on the roof;

80 per cent on the floor immediately below the roof;

80 per cent on the second floor below the roof;

75 per cent on the third floor below the roof;

70 per cent on the fourth floor below the roof;

65 per cent on the fifth floor below the roof;

60 per cent on the sixth floor below the roof;

55 per cent on the seventh flood below the roof;

50 per cent on the eighth, ninth, tenth, and subsequent floors below the roof.

B 304-2.2 Uniformly Distributed and Concentrated Live Loads

(733.2b) Uniformly distributed and concentrated live loads shall be the greatest loads produced by the intended occupancy and use, but in no case less than the minimum live load in conformity with table B 304-2.2. Where a concentrated load is not given, load shall be at least 250 pounds on an area 1 inch in diameter. Other concentrated loads shall be applied as follows: 100 pounds on upper and lower skylight screens, on an area 12 inches square; 150 pounds on an area 1 inch in diameter; 200 pounds on an area 1 inch in diameter; 250 pounds on ladder rung, at center of rung for moment, and at end of rung for shear; 300 pounds on elevator machine roof floor grating, on an area of 2 inches square; 2000 pounds on an area 30 inches square; 12,000 pounds on an area 30 inches square.

TABLE B 304-2.2. (I-733) — UNIFORMLY DISTRIBUTED AND CONCENTRATED LIVE LOADS

Occupancy or use	Uniformly distributed loads, psf	Concentrated loads in pounds
Dwelling units and public corridors on same floor	40	
Private interior stairs	75[1]	
Business offices	50	
Public rooms, public corridors, public lobbies, public entrance halls, stores	100	
Public stairs and exterior stairs other than fire-escapes: treads, balcony platforms	100[1]	
Fire-escapes:		
Treads and balcony platforms	80[1]	
Ladder rungs		250
Verticals of ladders		80[4]
Kitchens, other than domestic	100	
Attics:		
Accessible by stair or ladder in areas where the ceiling height is:		
4 feet 6 inches or more	30	
less than 4 feet 6 inches	20	150
Accessible by scuttle or means other than a stair, and of such height that household goods may be stored therein	20	150
Inaccessible (load for emergency access)	10	
Roofs used as promenades	40	
Other roofs	(2)	200
Skylight screens		100[5]
Garages, ramps and driveways, for passenger cars	50	2,000[6]
Garages, ramps and driveways, for buses, trucks and mixed usage	175	12,000[6]
Sidewalks over vaults	300	12,000[6]
Air conditioning space	200	2,000
Elevator machine rooms	(3)	300
Exitways	100	
Fan rooms	100	
Locker rooms	75	
Marquees	60	
Terraces, yards, for pedestrians	60	
Toilet rooms, public	60	
Workshops	80	

[1] Stringers of stairs need be designed only for uniform load.
[2] See section B 304-10c for minimum imposed loads for roofs.
For loads see section B 204-11.
Side rails of ladders need be designed only for 80 pounds at center of every rung, applied simultaneously.
[4] Skylight screen to have ¾-inch to 1-inch mesh; upper screen to be 4 to 10 inches above glass and to overhang an identical amount. No uniform load need be figured.
[5] Or actual wheel load increased 50 per cent for impact, whichever is larger. Where clear height of garage entrance exceeds 7 feet, load for buses, trucks and mixed usage shall be used.

B 304-3 Snow Loads

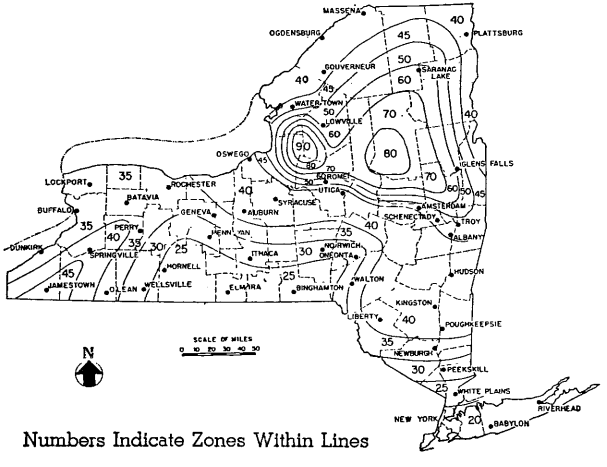
(733.3) Minimum snow loads shall be in conformity with table B 304-3 and the snow map below, and shall be applied normal to the roof surface:

TABLE B 304-3. (II-733) — SNOW LOADS[1]
In pounds per square foot

Zone numbers on snow map	Roof slope from horizontal[2]					
	0°	20°	30°	40°	50°	60° or more
20[4]	20	18	11	6	2	0
25[4]	25	22	14	7	3	0
30	30	27	17	9	3	0
35	35	31	20	10	4	0
40	40	35	23	12	4	0
45	45	40	25	13	5	0
50	50	44	28	15	5	0
60	60	53	34	18	6	0
70[3]						
80[3]						
90[3]						

[1] For minimum imposed loads see section B 304-10c.
[2] For slopes between those tabulated, compute loads by straight-line interpolation.
[3] For snow zones 70, 80, and 90 on snow map, use same tabular values as for zone 60.
[4] For snow zone 20 and 25 on snow map, use same tabular values as for zone 30

SNOW MAP OF NEW YORK STATE



Numbers Indicate Zones Within Lines

B 304-4 Wind Loads

(733.4) Minimum wind loads shall be in conformity with tables B 304-4a and B 304-4b, and shall be applied normal to the surface. These loads are based on a design wind velocity of 75 miles per hour at a height of 30 feet above grade level. Minimum wind loads on signs shall be in conformity with generally accepted standards.

TABLE B 304-4a. (III-733) — WIND LOADS: WALLS, EAVES, CORNICES, TOWERS, MASTS AND CHIMNEYS
In pounds per square foot

At height above grade in feet	Walls[1]	Eaves and cornices[2]	Towers, masts and chimneys
201 to 300	30	60	53
101 to 200	28	56	49
61 to 100	24	48	42
41 to 60	21	42	37
26 to 40	18	36	32
16 to 25	15	30	26
0 to 15	12	24	21

[1] Exterior walls shall be capable of withstanding wind load on both the interior and exterior surfaces, acting non-simultaneously. Tabular values are for square or rectangular structures. For structures hexagonal or octagonal in plan, use projected area and multiply tabular values by 0.8; for structures round or elliptical in plan, use projected area and multiply values by 0.6.
[2] Load acting upward.

B 304-5 Overturning Force and Moment Due to Wind

(733.5) a——The overturning force shall be the wind load. The wind load shall be the load set forth in table B 304-4a, and shall be applied only to the windward vertical surface above the horizontal plane under consideration, and to the rise of the roof. The resisting force shall be the dead load of the structure above the horizontal plane under consideration, plus the strength of material and fastenings establishing continuity with the structure below.

b——The moments of stability and overturning shall be computed about the leeward edge of the horizontal plane under consideration.

c——The moment of stability of the structure above the horizontal plane under consideration shall be not less than 1½ times the overturning moment due to wind.

TABLE B 304-4b. (IV-733) — WIND LOADS: ROOFS
In pounds per square foot

Mean elevation of roof above grade level in feet	Direction of load[1]	Slope from horizontal[2]			
		0° to 20°	20° to 30°	30° to 60°	Over 60°
201 to 300	Downward	7	7	7 to 21	21
	Upward	25	25 to 21	21	21
101 to 200	Downward	6	6	6 to 20	20
	Upward	24	24 to 20	20	20
61 to 100	Downward	5	5	5 to 17	17
	Upward	20	20 to 17	17	17
36 to 60	Downward	5	5	5 to 15	15
	Upward	19	19 to 15	15	15
21 to 35	Downward	5	5	5 to 14	14
	Upward	17	17 to 14	14	14
0 to 20	Downward	5	5	5 to 11	11
	Upward	14	14 to 11	11	11

[1] Downward and upward loads act non-simultaneously.
[2] For slopes between 20° and 30° with wind acting upward, and between 30° and 60° with wind acting downward, compute loads by straight-line interpolation.

B 304-6 Sliding Force Due to Wind

(733.6) The sliding force due to wind load, equal to the overturning force, determined in conformity with section B 304-5, shall be resisted by the dead load of the structure above the horizontal plane under consideration, by anchors, and where applicable, by soil friction, providing a total resisting force equal to not less than 1½ times the sliding force. Anchors used to resist overturning may also provide resistance to sliding.

B 304-7 Uplift Force

(733.7) Uplift force due to wind or hydrostatic head shall be resisted by dead load, acting directly or through anchors or fastenings, equal to not less than 1¼ times the uplift force.

B 304-8 Soil Pressures and Hydrostatic Head Loads

(733.8)

B 304-8.1 General

(733.8a) Retaining walls and parts of the building below ground shall be designed to withstand the following loads, if applicable, and such loads shall be in addition to other imposed loads: lateral load, from adjacent soil; lateral load, from hydrostatic head; lateral load, from surcharge of fixed or moving loads; uplift from hydrostatic head.

B 304-8.2 Freestanding Retaining Walls

(733.8b) a——The moments of stability and overturning shall be computed about the bottom base edge on the low earth side. The moment of stability shall be not less than 1½ times the overturning moment.

b——The resisting force due to soil friction shall be not less than 1½ times the sliding force.

B 304-9 Horizontal Impact Loads

(733.9) a——Nonbearing partitions enclosing dwelling units shall be designed to resist without displacement at top or bottom a minimum linear load of 10 pounds per foot, applied at mid-height.

b——Parapet walls and railings, other than those for parking decks, including handrailings, both interior and exterior, shall be designed to resist a lateral impact at the top equivalent to a minimum linear load of 50 pounds per foot.

c——Where motor vehicles are parked by a driver, as differentiated from mechanical parking, enclosure walls, parapet walls, or barriers, at perimeter of area and around floor openings, shall be designed to resist a minimum linear load of 150 pounds per foot for level floors and 500 pounds per foot for ramps, applied 21 inches above the floor or ramp. Parapet or dwarf guard walls which are less than 42 inches high, shall be surmounted by a railing to a minimum height of 42 inches above the roof or deck, and the horizontal impact loads shall be as required in paragraph b above. A continuous wheel bumper block at least 8 inches high shall be fastened to the floor, 4 feet or more from the walls, and shall be designed to resist a minimum linear load of 300 pounds per foot.

d——Where motor vehicles are parked mechanically, as differentiated from parking by a driver, barriers at the outer edge of deck shall be designed to resist a minimum linear load of 150 pounds per foot applied 21

inches above the deck. Wheel bumper blocks at least 4 inches high, designed to resist a minimum load of 300 pounds per tire, shall be fastened to decks in front of the front wheels and in the rear of the rear wheels, not more than 124 inches clear distance apart.

B 304-10 (733.10) Combined Loads

a——The stress due to wind may be ignored if it is less than one third of the stress due to dead load plus imposed load excluding wind load.

b——If the stress due to wind exceeds one third of the stress due to dead load plus imposed load excluding wind load, the allowable stress of the material may be increased by one third.

c——On roofs not used as promenades, the minimum imposed load shall be 20 psf perpendicular to the roof surface, where snow plus wind loads total less than **20 psf.**

d——On roofs and eaves, snow or live load, and the wind load, shall be considered as acting simultaneously in such combination as imposes the greater stress.

B 304-11 (733.11) Elevator Machine Loads

The loads on, and the safe working stresses and permissible deflections of, the supports of elevator machines and guide-rail brackets, shall be in conformity with generally accepted standards.

B 304-12 (733.12) Loads Imposed During Construction

All flooring, structural members, walls, bracing, scaffolding, sidewalk sheds or bridges, hoists and temporary supports of any kind incidental to the erection, alteration, or repair of any building shall be of such strength as to suffer no structural damage when subject to the temporary loads and wind load imposed during construction.

B 305 (734) ANALYSIS AND TEST OF STRUCTURAL ASSEMBLIES

B 305-1 (734.1) General

The capacity of an assembly to sustain dead and imposed loads without exceeding the allowable stresses shall be determined by any one of the procedures described in this section, or by an approved combination thereof.

a——**Design analysis** in conformity with generally accepted engineering practice to establish that stresses in component structural material will not exceed safe working stresses defined in generally accepted standards, or in the absence of such standards, exceed safe working stresses interpreted and established from test results with due consideration given to the reliability, durability, and uniformity of the material and its behavior under stress. In no case shall the assigned safe working stress exceed two thirds of the yield strength nor one half of the ultimate strength of the material unless specifically permitted in section B 304-10. When safe working stresses are assigned to a material, the structural characteristics and reasonable uniformity of the material, as utilized, shall be assured by conformity with generally accepted standards.

b——**Tests** made in conformity with generally accepted standards of assemblies truly representative of the construction to be used, in order to establish that such assemblies conform to the performance criteria set forth in section B 306.

c——**Comparison** with an approved assembly of known characteristics and behavior under load, which assembly is directly comparable, in all essential characteristics to the assembly under consideration.

B 305-2 (734.2) Load Test on Completed Work

a——Safe performance under load tests or other suitable tests, if required by the enforcement officer and made in conformity with generally accepted standards, shall be evidence of the acceptability of the construction.

b——The assembly shall be capable of sustaining the dead load and two times the uniformly distributed imposed load, excluding impact, without structural failure for a minimum of 24 hours.

B 306 (735) PERFORMANCE CRITERIA UNDER TEST

B 306-1 (735.1) General Requirements

Buildings and their structural components subject to this Code shall, when submitted to the tests set forth in

this section, meet the performance criteria prescribed for each test. Failure to meet the test criteria shall be evidence of noncompliance with this Code.

B 306-2 (735.2) Under Imposed Load

When the assembly reacts by bending under the uniformly distributed imposed load, excluding impact, the deflection shall not exceed 1/360 of the span when the inside is to be plastered. When the inside is not to be plastered, the deflection shall not exceed 1/240 of the span. When a roof is not to be used as a promenade, and the underside is not to be plastered, the deflection shall not exceed 1/180 of the span.

B 306-3 (735.3) Under 1½ Times Imposed Load

a——Under its dead load and 1½ times the uniformly distributed imposed load, excluding impact, the assembly shall sustain the load without structural damage. In testing floor assemblies and assemblies in compression, the load shall be applied twice.

b——For floor assemblies, the residual deflection from first application of the load shall not exceed 25 per cent of the maximum deflection under load. After the second application of the load, the total residual deflection shall be not more than 1.1 times the residual deflection resulting from the first application of the load.

B 306-4 (735.4) Under Two Times Imposed Load

Under its dead load and two times the uniformly distributed imposed load, excluding impact, the floor, roof, and wall assembly shall sustain load without structural failure, for a minimum of 24 hours.

B 306-5 (735.5) Impact Loads

Under an impact load of 60 pounds falling 4 feet for floors, 1½ feet for walls, roofs and nonbearing partitions enclosing dwelling units, on an area 10 inches in diameter, applied perpendicular to the assembly at its center, the assembly shall sustain no structural damage.

B 306-6 (735.6) Racking Loads

Where exterior walls and partitions react by racking, the racking deformation, while the assembly is sustaining the imposed load, shall not exceed 1/400 of the height of the wall. Under 1½ times the load there shall be no structural damage, and under two times the load there shall be no structural failure.

B 306-7 (735.7) Transmitted Loads

Fastenings and connections shall be capable of transmitting, without failure, twice the loads for which they are designed.

B 307 (736) EXTERIOR PROTECTION

B 307-1 (736.1) General Requirements

Whenever structural materials or assemblies are subject to deterioration and may become structurally unsound under the proposed condition of use, adequate protection shall be provided.

B 307-2 (736.2) Exterior Materials

The exterior facing or covering of walls and roofs shall be resistant to the causes of deterioration as set forth in section B 301c without loss of strength or attachment which may render it unfit for use. The materials of such exterior facing or covering shall be treated if necessary to give the required protection.

B 307-3 (736.3) Flashing

Whenever water can penetrate the exterior or cause damage to the interior of the assembly or structure, flashing or other barrier shall be provided to prevent its entrance or to redirect it outward.

B 307-4 (736.4) Waterproofing

a——Foundation walls of cellars or basements, and floors in contact with the soil, shall be constructed or treated so as to prevent the penetration of ground and surface water.

b——Metallic structural elements in exterior walls not inherently corrosion resistant shall be protected against the effects of rain and moisture.

B 307-5 Grade Protection
(736.5)

Materials and assemblies subject to deterioration when in continued contact with surface water or melting snow, shall be so treated as to withstand such deterioration, or be placed so that they will not be in contact with such elements.

B 308 PROTECTION FROM DESTRUCTIVE INSECTS
(737)

Where local conditions require protection against termites and other destructive insects, the construction, soil treatment, and protection of openings shall prevent their access to vulnerable parts of the structure, in conformity with generally accepted standards.

B 309 MATERIALS REQUIREMENTS
(738)

All structural units of natural or manufactured materials shall comply with applicable specifications of authoritative agencies, or shall be subjected to test in conformity with generally accepted standards in order to determine their characteristics.

Part 4

Fire-Safety Requirements

B 401 PREVENTION OF EXTERIOR FIRE SPREAD
(745)

B 401-1 General Requirements
(745.1)

a——In order to retard the spread of fire, multiple dwellings and accessory structures shall be located and constructed so that the distance between buildings and the fire resistance of exterior walls and of roof coverings are commensurate with the fire hazard involved.

b——The minimum fire-resistance ratings of the exterior walls of multiple dwellings and accessory structures, including those of air intakes and fire passages, shall be those set forth in table B 202-2.

B 401-2 Determination of Fire Hazard
(745.2)

B 401-2.1 Within Fire Limits
(745.2a)

When fire limits are established by municipalities, such fire limits shall, for the purposes of this Code, be designated as follows:

Fire limits A comprising the areas containing highly congested business, commercial and, or industrial occupancies, wherein the fire hazard is severe, and, or,

Fire limits B comprising the areas containing residential, business and, or commercial occupancies, or in which such uses are developing, wherein the fire hazard is moderate.

B 401-2.2 Outside the Fire Limits
(745.2b)

All those areas not included in fire limits A or B are designated herein as outside the fire limits.

B 401-2.3 Municipalities Having Fire Limits
(745.2c)

In municipalities which designate fire limits, multiple dwellings and accessory structures within such fire

limits shall be constructed in conformity with the requirements set forth in section B 401 applicable to buildings within such fire limits. In such municipalities multiple dwellings and accessory structures outside such fire limits shall be constructed in conformity with the requirements set forth in section B 401 applicable to buildings outside the fire limits.

B 401-2.4 Municipalities Having No Fire Limits

(745.2d) Multiple dwellings and accessory structures located in municipalities which do not designate any area or areas as a fire limit shall be constructed in conformity with the requirements set forth in section B 401 applicable to buildings outside the fire limits.

B 401-3 Distance Separations

(745.3)

B 401-3.1 How Measured

(745.3a) Distance separation shall be the clear distance measured between the exterior walls of two buildings on the same premises, from an exterior wall to an interior lot line.

B-401-3.2 When Required

(745.3b) a——Distance separations set forth in table B 401-3.2 shall be required except as provided in paragraphs b and f of this section.

b——Distance separations shall not be required between buildings on the same premises when either building is one story in height and has an area of not more than 100 square feet.

c——Exterior walls or portions thereof may encroach upon the distance separation required by a type of construction, provided those portions of such walls which encroach are built of the higher type of construction imposed by the lesser distance separation.

d——Exterior walls or portions thereof located beyond the required distance separation shall be exempt from the requirements imposed by distance separations.

e——When the height or construction of the exterior walls of the proposed and existing buildings is not the

TABLE B 401-3.2. (I-745) — MINIMUM DISTANCE SEPARATIONS

In feet

Fire limits	Height in stories	Noncombustible walls with fire-resistance ratings of —			Combustible walls with noncombustible exterior facings giving protection of —		Combustible walls with combustible exterior facings
		At least 2 hours	Less than 2 hours but at least ¾ hour	Less than ¾ hour	At least ¾ hour	Less than ¾ hour	
Within fire limits	1	0	5	8	np	np	np
	2	0	10	12	np	np	np
	3 or more	0	15	15	np	np	np
Outside the fire limits	1	0	5	5	5	5	8
	2	0	5	8	8	10	10
	3 or more	0	8	10	np	np	np

same, the applicable distance separation shall be that set forth for the higher building or for the building having exterior walls with the lower fire-resistance rating, whichever is the greatest distance.

f——The minimum distance separation for an open side of an open parking structure shall be 10 feet.

g——Where zoning regulations and this Code contain distance requirements applicable to the same structure, the greater distance shall control.

B 401-3.3 Construction Limitations Within Fire Limits

(745.3c) a——Buildings may be of any type of construction other than type 5 providing they conform to the height and fire-area limitations set forth in section B 203 including tables B 203-1a, B 203-1b, B 203-1.1a and B 203-1.1b and the distance separations conform to the requirements set forth in section B 401-3.2 including table B 401-3.2.

b——Where distance separations conform to the requirements of table B 401-3.2, exterior walls, including panel and curtain walls, of noncombustible construction, shall not be required to have any fire-resistance rating, provided a continuous vertical separation or spandrel at least 3 feet in height, with a fire-resistance

rating of at least 1 hour, is constructed at the floor level of each story, except where such walls form a part of an exit required to be enclosed.

c——Open and enclosed balconies and porches shall be constructed of noncombustible materials.

d——Eaves, cornices and exterior trim may be constructed of combustible materials provided they do not encroach upon the minimum distance separations set forth in table B 401-3.2, or do not extend outward from the exterior wall more than 2 feet and are not less than 5 feet distant at any point from a lot line or similar appurtenance on another building; if they exceed these limitations, they shall be constructed of noncombustible materials.

B 401-3.4 Construction Limitations Outside the Fire Limits

(745.3d) a——Buildings may be of any type of construction providing they conform to the height and fire-area limitations set forth in section B 203 including tables B 203-1a, B 203-1b, B 203-1.1a and the distance separations conform to the requirements set forth in section B 401-3.2 including table B 401-3.2.

b——Where distance separations conform to the requirements of table B 401-3.2, exterior walls, including panel and curtain walls, of noncombustible construction, shall not be required to have any fire-resistance rating, provided a continuous vertical separation or spandrel at least 3 feet in height, with a fire-resistance rating of at least 1 hour, is constructed at the floor level of each story, except where such walls form a part of an exit required to be enclosed.

c——Multiple dwellings of type 5 construction shall have not more than eight dwelling units in such building or each part of a building within fire walls.

d——Open porches, verandas, and balconies or enclosed porches with at least 60 per cent of glass area on three sides and serving not more than three dwelling units, may be constructed of combustible materials provided they do not extend outward more than 10 feet from the building, or upward more than 4 feet above the ceiling of the story which they serve, and are not less than 5 feet distant at any point from a lot line or

from similar appurtenances on another building; if they exceed said limitations or serve as horizontal exits, they shall be constructed of noncombustible materials.

B 401-4 Protection of Openings in Exterior Walls

(745.4)

B 401-4.1 General Requirements

(745.4a) a——Exterior wall openings located less than 3 feet from an interior lot line shall be equipped with opening protectives.

b——Exterior wall openings less than 10 feet from an opening in a facing wall shall be equipped with opening protectives.

c——An exterior wall opening directly above another opening in the same wall shall be equipped with an opening protective, except when the vertical separation between the openings is at least 3 feet, or when the two openings are separated by horizontal fire-resistive construction extending outward at least 2 feet from the wall.

d——Exterior wall openings less than 30 feet above the roof of an extension or an adjacent building located within a horizontal distance of 10 feet, shall be equipped with opening protectives, unless the roof construction of such extension or the adjacent building has a fire-resistance rating of 1 hour or more.

e——Exterior wall openings less than 10 feet in any direction from an exterior stairway or an unenclosed bridge or balcony shall be equipped with opening protectives.

f——Openings in exterior walls of enclosed exits shall be equipped with opening protectives, except that such protectives shall not be required for openings in the first story of exterior walls facing a street or legal open space at least 30 feet wide.

B 401-4.2 Fire Resistance of Exterior Wall Opening Protectives

(745.4b) Fire-resistance ratings of required exterior wall opening protectives shall be at least 3/4 hour. The size of wired glass panels or other glazing materials in such opening protectives shall be in conformity with generally accepted standards.

B 401-5 Eaves, Cornices, and Trim

(745.5) Eaves, cornices, and trim may project not more than 2 feet beyond the building face, but this regulation shall not be deemed to authorize any projection beyond the lot line. When such appurtenances are within 5 feet of the lot line or other similar appurtenances on any other building, they shall be of noncombustible material, or of combustible material covered with metal.

B 401-6 Roof Coverings

(745.6) Roof coverings shall be capable of resisting fire commensurate with the severity of exposure and shall be installed in conformity with generally accepted standards.

B 401-6.1 Classification

(745.6a) Roof coverings shall be classified on the basis of their resistance to exterior fire exposure as determined by tests made in conformity with generally accepted standards, as follows:

Class 1, 2 or 3 roof coverings are those which are capable of resisting severe, moderate, or light fire exposure, respectively, and which do not give off flying brands.

Class 4 roof coverings are those which are moderately effective in resisting light fire exposure, afford a slight degree of heat insulation to the roof deck, and are likely to give off flying brands.

B 401-6.2 Limitations of Use

(745.6b) a——Within the fire limits, roof coverings, with or without insulation, shall be class 1 or 2, except that where the distance separation between buildings is more than 20 feet and the horizontal projected area of the roof does not exceed 2500 square feet, class 3 roof coverings may be used.

b——Outside the fire limits, roof coverings, with or without insulation, shall be class 1, 2 or 3; except that where the distance separation between buildings is more than 20 feet and the horizontal projected area of the roof does not exceed 2500 square feet, and the building does not exceed two stories in height, class 4 roof coverings or wood shingles may be used.

B 401-6.3 Skylights

(745.6c) a——Skylights and transparent or translucent roof panels shall conform to the requirements for roof coverings as set forth in section B 401-6, except as provided in paragraphs b and c of this section.

b——Skylights and roof panels located in roofs of combustible construction, may be glazed with combustible self-extinguishing material.

c——Skylights and roof panels located in roofs of noncombustible construction, may be glazed with combustible self-extinguishing material provided that the aggregate area of such material does not exceed 20 per cent of the fire area under the roof, that the area of each such skylight or panel does not exceed 200 square feet, and that the distance between them is at least 5 feet. No individual sheet of such glazing material shall exceed 50 square feet in area, between supports.

d——Skylights and roof panels in which the glazing material has a slope of less than 30 degrees shall be protected with screens above such glazing conforming to the requirements set forth in section B 402-4.4 j.

B 401-7 Parapet Walls

(745.7) a——Parapet walls shall be provided on exterior walls of buildings of type 3 and 4 construction more than one story high, when such exterior walls are required to have a fire-resistance rating. Parapet walls shall be provided on fire and party walls which are required to extend through the roof.

b——The height and fire-resistance ratings of parapet walls shall be in accordance with table B 401-7.

TABLE B 401-7. (II-745) — PARAPET WALLS

Required fire-resistance rating of building wall in hours	Minimum fire-resistance rating of parapet wall in hours	Minimum height of parapet wall in feet
¾	¾	¾
1	1	1
2	2	2
3 or 4	3	3

B 401-8 Party Walls

(745.8) Where buildings are joined at a common lot line, such buildings shall be separated by party walls in conformity with the requirements set forth in this section.

B 401-8.1 Construction

(745.8b) a——Party walls shall form a continuous fire and smoke barrier between adjoining buildings from foundation to or through the roof, and in the event of removal or collapse of construction on one side shall not endanger the support of construction on the opposite side, and shall be capable of serving as exterior walls.

b——Party walls shall be constructed of noncombustible materials and shall extend above the roof to form a parapet wall in conformity with the requirements of table B 401-7, when either building is of type 2b, 3, 4 or 5 construction. When a roof is of noncombustible construction having a fire-resistance rating of at least 3/4 hour, a party wall may terminate at the underside of the roof providing the junction of the wall and roof is made smoketight.

c——Party walls shall be made smoketight at their junction with exterior walls. In type 5 construction, the exterior walls shall be protected with noncombustible construction of the same fire-resistance rating as the party walls for a distance of at least 18 inches on each side of the party wall, or the party wall shall project through the exterior wall at least 6 inches.

d——Where combustible members, such as joists and beams, are framed into party walls, such combustible members shall not extend through the wall but shall have at least 4 inches of solid noncombustible material below and at the sides and ends of such members.

B 401-8.2 Fire Resistance

(745.8c) a——The fire-resistance ratings of party walls shall be as set forth in table B 202-2, except as otherwise set forth in this section.

b——The fire-resistance ratings of party walls between one-story multiple dwellings without a basement shall be at least 1 hour.

c——The fire-resistance ratings of party walls between multiple dwellings more than one story in height shall be at least 2 hours, except that in dwellings more than two stories in height the fire-resistance rating for that portion of the wall extending through a basement, cellar, or the lowest story of buildings which do not have a basement or cellar shall be at least 3 hours.

d——The fire-resistance ratings of party walls between multiple dwellings and buildings containing nonresidential occupancies of low, moderate or high hazard classification shall be at least 2, 3 or 4 hours respectively.

B 402 PREVENTION OF INTERIOR FIRE SPREAD

(746)

B 402-1 General Requirements

(746.1) a——Structural elements or members, including walls, partitions, columns, beams and trusses, shall have fire-resistance ratings of not less than those set forth in table B 202-2, except as required by section B 402-2.1. The fire-resistance ratings of the structural elements or members shall be determined in conformity with generally accepted standard fire test procedure except that walls and partitions with fire-resistance ratings of less than 1 hour shall also meet the hose stream test requirements applicable to walls and partitions having 1-hour ratings.

b——Rooms and spaces used for purposes involving a fire hazard, including among others, rooms for storage of combustible materials, paint and repair rooms, kitchens and pantries serving public dining rooms, garages, and rooms for incinerators and heating equipment, shall be enclosed by fire-resistive construction as set forth in section B 402-4, or shall be provided with fire-protection equipment as set forth in section B 405.

c——Exits, including passageways, hallways, and stairways, and elevator and dumbwaiter hoistways, escalators, shafts and other openings in floors, shall be enclosed or protected as set forth in section B 402-4.4.

d——Space within multiple dwellings used for occupancies other than residential or accessory, shall be separated from space used for residential purposes as set forth in section B 402-4.1.

B 402-2 Fire Walls

(746.2) The floor area per story of buildings shall be divided by fire walls into fire areas in accordance with section B 203 including tables B 203-1a, B 203-1b, B 203-1.1a and B 203-1.1b.

B 402-2.1 Construction

(746.2b) a——Fire walls shall form a continuous fire and smoke barrier between fire areas from foundation to or through the roof, except that a fire wall may be offset at floor levels if the floor construction and its supports have the same fire-resistance rating as the wall; and the removal or collapse of construction on one side shall not endanger the support of construction on the opposite side.

b——Fire walls shall be constructed of noncombustible material and shall extend above the roof to form a parapet wall in conformity with the requirements of table B 401-7. Where a roof is of noncombustible construction having a fire-resistance rating of at least ¾ hour, a fire wall may terminate at the underside of the roof providing the junction of the wall and roof is made smoketight.

c——Fire walls shall be made smoketight at their junction with exterior walls. In type 5 construction, the exterior walls shall be protected with noncombustible construction of the same fire-resistance rating as the fire walls for a distance of at least 18 inches on each side of the fire wall, or the fire wall shall project through the exterior wall at least 6 inches.

d——Where combustible members, such as joists and beams, are framed into fire walls, such combustible members shall not extend through the wall but shall have at least 4 inches of solid noncombustible material below and at the sides and ends of such members.

e——Fire walls in type 2, 3 or 4 construction, shall not be required to extend downward through a cellar, basement, or lowest story, provided the floor over such cellar, basement, or lowest story is type 1 construction, and the structural supports for the fire walls have fire-resistance ratings at least equal to those required for the fire wall.

B 402-2.2 Fire Resistance

(746.2c) a——The fire-resistance ratings of fire walls shall be as set forth in table B 202-2, except as otherwise set forth in this section.

b——The fire-resistance ratings of fire walls in one-story multiple dwellings without a basement shall be at least 1 hour.

c——The fire-resistance ratings of fire walls in multiple dwellings more than one story in height shall be at least 2 hours; except that in buildings more than two stories in height the fire-resistance rating for that portion of the wall extending through a basement, cellar or the lowest story of buildings which do not have a basement or cellar shall be at least 3 hours.

B 402-3 (746.3) Protection of Columns, Beams, Girders, and Trusses in Buildings of Type 1 and 2a Construction

a——Columns and vertical suspension members shall be individually encased throughout their length by fire-protective materials having fire-resistance ratings prescribed in table B 202-2.

b——Beams, girders and trusses supporting more than one floor, or a roof and at least one floor, shall be individually encased throughout their length by fire-protective material having fire-resistance ratings prescribed in table B 202-2.

c——Beams, girders and trusses supporting only one floor or a roof shall be individually encased by fire-protective material or be fire-protected by a continuous ceiling having a fire-resistance rating equivalent to that required for the floor or roof construction which they support or of which they form a part, as prescribed in table B 202-2, except that when the lowest member of a noncombustible truss or a beam or purlin is 15 feet or more above the floor or balcony next below, protection of such truss, beam or purlin is not required.

d——Where beams, girders and other structural members are fire-protected by a continuous ceiling, the concealed space above such ceiling shall be firestopped or divided with noncombustible material into areas not exceeding 3000 square feet, with no dimension greater than 100 feet. Solid-web steel beams or girders may

serve as part of such firestopping. Access to such concealed space shall be through a single opening having dimensions not to exceed 3 feet in either direction and protected by an opening protective conforming to the requirements set forth in section B 402-4.8.

e——If continuous ceilings are pierced or recessed for fixtures, devices or duct outlets, adequate provision shall be made to maintain the integrity of the required fire-resistance rating of the ceiling.

B 402-4 (746.4) Division by Fire Separations

B 402-4.1 Separation of Mixed Occupancies

(746.4a) a——Nonresidential occupancies in or attached to a multiple dwelling, not accessory thereto, shall be separated from the multiple dwelling occupancy by fire separations having fire-resistance ratings in conformity with the requirements of table B 402-4, except as otherwise provided in this section.

b——In buildings of type 3 or 4 construction, the horizontal fire separation between nonresidential areas of 3000 square feet or less and the multiple dwelling occupancy shall be finished on the nonresidential side with noncombustible material and have a fire-resistance rating of at least 1 hour.

c——Separations between nonresidential occupancies and lobbies or corridors may have openings not exceeding 35 square feet in area, equipped with self-closing opening protectives. Such openings shall be protected by sprinklers on each side of the separation.

d——Display windows in lobbies and exit corridors shall be separated from other parts of the building by a fire separation having a fire-resistance rating of at least 1 hour. Access openings to display windows shall be equipped with self-closing opening protectives.

e——Where the lobbies or corridors and the adjacent spaces are both protected with a sprinkler system, there shall be no restriction on the size of openings in the fire separation, and no requirement for opening protectives.

f——Vending of service equipment or stands such as those used for the sale or distribution of tobacco, candy,

TABLE B 402-4. (I-746) — MINIMUM FIRE SEPARATION REQUIRED BETWEEN OCCUPANCIES

(Fire-resistance ratings in hours)

(See State Building Construction Code applicable to General Building Construction, table C 402-4)

Occupancy	B1	B2
Business.....(C1)	2[1]	2
Mercantile.....(C2)	3[1]	np
Industrial.....(C3.1)	2[1]	np
(C3.2)	np	np
(C3.3)	np	np
Storage.....(C4.1)	2	np
(C4.2)	np	np
(C4.3)	np	np
Assembly.....(C5.1)	2[1]	2
(C5.2)	3[1]	3
(C5.3)	4[1]	np
(C5.4)	2	2
(C5.5)	2	np
Institutional.....(C6.1)	np	2
(C6.2)	np	2
(C6.3)	np	np

[1] For horizontal separations in type 3 and 4 construction, see section B 402-4.1b.
[2] Openings in separation not permitted.

or periodicals may be located in lobbies, corridors, and passageways, provided that they involve no greater fire hazard than that incidental to the ordinary equipment of the lobby, corridor, or passageway, and do not obstruct or interfere with any part of a required exit.

g——Mixed occupancies shall not be permitted in buildings of type 5 construction.

B 402-4.2 Construction

(746.4b) a——Fire separations and their supporting construction shall form a continuous fire and smoke barrier.

b——Fire separations between residential and other than residential occupancies shall be continuous and any openings therein shall be protected with self-closing opening protectives.

B 402-4.3 Enclosure of Storage and Service Rooms

(746.4c) a——Carpenter, repair and paint shops, and other rooms or spaces where flammable materials are stored or used shall be enclosed by construction having a fire-resistance rating of at least 2 hours. When such shops

or rooms are located within a multiple dwelling, the enclosing construction shall have no more than a single opening leading to space within a multiple dwelling. Such opening shall be protected by a self-closing 1½-hour opening protective. Such storage rooms may contain individual tenant storage spaces. If individual tenant storage rooms are provided, other than in general storage rooms, such individual tenant storage rooms may be enclosed with partitions of 1-hour fire-resistance rating.

b——Packing, receiving and shipping rooms shall be enclosed by construction having a fire-resistance rating of at least 2 hours. Space for the loading and unloading of motor vehicles shall be protected in conformity with the requirements of section B 402-4.7e.

c——Refrigeration machinery rooms shall be enclosed with construction having a fire-resistance rating of at least 1 hour where flammable or toxic refrigerant is used.

B 402-4.4 Enclosure of Stairways, Hoistways, and Shafts

(746.4d) a——Exits, including stairways and hallways forming a part thereof, shall be enclosed with construction having minimum fire-resistance ratings as set forth in table B 202-2. Lobbies may be a part of such enclosed exits provided they are within the enclosure and separated from nonresidential space as set forth in section B 402-4.1.

b——Elevator and dumbwaiter hoistways, escalators, shafts and other openings in floors, shall be enclosed with construction having minimum fire-resistance ratings as set forth in table B 202-2, except when located as set forth in paragraphs c and d of this section.

c——Stairways and escalators, other than required enclosed exits, for travel between not more than two successive stories of one tenancy or occupancy, may be permitted without enclosure provided the total fire area of the two stories does not exceed the maximum fire area permitted for the higher story in accordance with tables B 203-1a and B 203-1b; otherwise such openings shall be protected with automatic opening protectives, or by some combination of sprinklers, draft curtains, fire-detecting and ventilating devices, in conformity with generally accepted standards.

d——Intercommunicating, ornamental or access stairs, and escalators shall be permitted without enclosure when they connect the main entrance to the story immediately below, or to the story immediately above, or when they lead from the floor level to a mezzanine in the same story. Enclosures shall not be required when such stairs or escalators pass through only one floor to or from a fully enclosed room in either of the two stories which they connect.

e——Enclosures for exits and stairways shall be continuous and have no openings other than those required for entrance or exit, or for venting as set forth in paragraphs i and j of this section, except that windows in exterior walls equipped with opening protectives shall be permitted.

f——Basement or cellar stairs shall be enclosed and separated from stairs leading to or from the upper stories, at the grade-level story, and shall have the openings at the top and bottom of such enclosure protected with self-closing opening protectives.

g——Openings in enclosures for exits and stairways shall be protected with opening protectives conforming to the requirements set forth in section B 401-4.

h——Corridors and hallways which are separated from enclosed exit stairs by fire separations with opening protectives meeting the requirements set forth in section B 402-4.8, shall be enclosed with construction having a fire-resistance rating of at least 1 hour.

i——A stairway, shaft or enclosed hoistway having an area exceeding 4 square feet, passing through more than two stories and not extending through the roof, shall be provided with smoke vents having an area of at least 3½ per cent of the stairway, shaft or hoistway area. Such vents shall have the same fire-resistance rating as required for the shaft enclosure. In no event shall the area of the smoke vent be less than 3 square feet for each elevator car or less than 72 square inches for other shafts. Single smoke vents shall be permitted only when such vents extend through the roof; when it is impractical to continue the smoke vent vertically through the roof, two smoke vents shall be provided, each having the same area as required for a single smoke vent, and terminating at different sides of the

building, except that the area of each smoke vent may be decreased 50 per cent when mechanical ventilation is provided. When one or more sides of the stairway, shaft or hoistway is an exterior wall of the building other than on an interior lot line, the vents may be windows and louvered panels as set forth in paragraph j of this section.

j——Stairways, shafts or hoistways serving the topmost story of a building, which extend through the roof, shall be vented as required for such stairways or shafts terminating at lower stories. Of the total required vent area for stairways, hoistways or other shafts, not less than one third shall be of the open type. Such open vent may be a louvered panel. The closed portion of the required vent area may be windows or skylights glazed with materials which are shatterable or which will be dislodged by heat under fire conditions. Such skylights shall be protected with screens above and below the glazing. Such screens shall have a ¾-inch to 1-inch mesh, located 4 inches to 10 inches above the glazing, and shall overhang the glazing an identical amount. When the fixed portion of the required vent is a window, it shall be not closer than 3 feet to an interior lot line. Such window shall be located near the ceiling of such shaft and have the sill at least 2 feet above the main roof.

k——Elevator and power dumbwaiter machine rooms directly connected with hoistways shall be enclosed in walls of noncombustible material having a fire-resistance rating of not less than that required for the hoistway enclosure. The separation between the machine room and hoistway shall be of noncombustible material with no openings other than those essential for ventilation and elevator operating equipment.

l——Access to machine rooms shall be through self-closing and self-locking doors, openable from the inside, meeting the applicable fire-resistance requirements set forth in sections B 401-4 and B 402-4.8.

B 402-4.5 Enclosure of Kitchens, Cooking Spaces, and Public Dining Rooms (746.4e)

a——Kitchens and pantries serving public dining rooms, including but not limited to restaurants, cafeterias, coffee shops, and lunch rooms, shall be enclosed by construction having a fire-resistance rating of at least 2 hours; except that when a sprinkler system is installed in such kitchens and pantries, the enclosure may have a fire-resistance rating of 1 hour. Openings between kitchens or pantries and the public dining rooms which they serve shall be protected with:

Self-closing 1½-hour opening protectives when the kitchens or pantries are not sprinklered, or
Self-closing ¾-hour opening protectives when the kitchens and pantries are sprinklered, or
Self-closing doors having a rating of less than ¾-hour when the kitchens and pantries are sprinklered and sprinkler heads are provided above such openings on each side of the separation.

Kitchen exhaust systems shall be fire-protected as set forth in section B 508-3.3.

b——Kitchens in motels shall be separated from sleeping areas by fire separations having a fire-resistance rating of at least 1 hour.

c——Cooking spaces other than kitchens which are combined with, or located adjacent to or within dining areas, such as in coffee shops, shall be separated from the dining area by a smoke and draft baffle.

d——Public dining rooms, coffee shops and other spaces used for similar purposes, which have no permanently installed equipment for cooking within such space other than incidental counter service equipment provided with exhaust hoods, shall not be required to be enclosed or separated from other public space. When a separation is provided between a dining room and other public space, it shall be of noncombustible material.

B 402-4.6 Enclosure of Heat Producing Equipment (746.4f)

a——Fuel-burning heat producing equipment having an individual or combined rated gross capacity of 1,000,000 Btu per hour or more, or capable of operation at pressures in excess of 15 psi, shall be located in a separate room enclosed by noncombustible construction having a fire-resistance rating of not less than 2 hours and with interior wall and partition openings protected by self-closing 1½-hour opening protectives.

An emergency escape directly to the outside of the multiple dwelling shall also be provided from such rooms.

b——Fuel-burning heat producing equipment having an individual or combined rated gross capacity from 250,000 to 1,000,000 Btu per hour, and operating at pressures of 15 psi or less, shall be located in a separate room enclosed by construction having a fire-resistance rating of at least 1 hour and with interior openings protected by self-closing ¾-hour opening protectives.

c——Fuel-burning heat producing equipment having a rated gross capacity of less than 250,000 Btu per hour and operating at pressures of 15 psi or less, shall not be required to be separately enclosed except in motels, providing the walls, floors and ceilings of the space in which such heating equipment is located have a fire-resistance rating of at least ¾-hour, and an interior finish providing at least 10 minutes of fire protection to the combustible members.

d——Fuel-burning heating equipment for garages other than direct-fired unit heaters installed 8 feet or more above the garage floor level, shall be located in separate buildings or in rooms enclosed by vaportight noncombustible construction having a fire-resistance rating of at least 2 hours. Entrance to such enclosed rooms shall be from the outside of the garage, or through a vestibule ventilated in conformity with the requirements of section B 508-3.1b. Openings in the construction separating the enclosed room and the garage shall be limited to those necessary for the passage of heating pipes and ducts. The space around such pipes and ducts shall be sealed with noncombustible material.

e——Boilers having a rated gross capacity of less than 40,000 Btu per hour for generating steam for accessory cleaning and pressing shall not be required to be enclosed and are excluded from the provisions of this section.

f——Space for fuel-burning heat producing equipment and incinerator and refuse rooms required to be enclosed in conformity with this section, shall not be located below exits or open directly into exits.

g——Incinerator rooms and spaces for the temporary storage of refuse shall be enclosed by noncombustible

construction having a fire-resistance rating of not less than 2 hours with a single opening protected by a self-closing 1½-hour opening protective.

h——Flues for incinerators shall be enclosed in noncombustible material and shall be constructed in conformity with the requirements for flues as set forth in section B 505.

B 402-4.7 (746.4g) Separation of Garages and Open Parking Structures from Multiple Dwellings

a——Each garage area of 1000 square feet or less in, or attached to, a multiple dwelling, shall be separated from the multiple dwelling by construction having a fire-resistance rating of at least ¾-hour but not less than that required for the members and structural elements of the multiple dwelling. Only one opening shall be permitted in the separation between the garage and multiple dwelling, and such opening shall be equipped with a self-closing opening protective having a fire-resistance rating of at least ¾-hour.

b——Each garage area of more than 1000 square feet in, or attached to, a multple dwelling, shall be separated from the multiple dwelling by noncombustible construction having a fire-resistance rating of at least 2 hours but not less than that required for the members and structural elements of the multiple dwelling. Access between such a garage and multiple dwelling shall be through a vestibule of 2-hour fire-resistive construction, ventilated directly to the outer air, as set forth in section B 508-3.1b. The top of the sill in a door opening between such vestibule and garage, or the floor of such vestibule, shall be at least 8 inches above the level of the garage floor. The distance between the openings into and from the vestibule shall be not less than 6 feet, and such openings shall be protected with self-closing opening protectives having a fire-resistance rating of at least 1½ hours.

c——Open parking structures attached to a multiple dwelling, shall be separated from the multiple dwelling by noncombustible construction having a fire-resistance rating of at least 1 hour but not less than that required for the members and structural elements of the multiple dwelling. Access between the open parking structure

and multiple dwelling shall be permitted at any level and such openings shall be protected with self-closing opening protectives having a fire-resistance rating of at least ¾-hour.

d——Where the sale of gasoline and oil, or the greasing of motor vehicles is permitted in an attached garage, the space for such facilities shall be enclosed by noncombustible construction having a fire-resistance rating of at least 2 hours with openings equipped with automatic or self-closing opening protectives having a fire-resistance rating of at least 1½ hours. Such space shall be ventilated directly to the outer air as set forth in section B 508-3.1b.

e——Where space is provided within multiple dwellings for loading or unloading of motor trucks, such space shall be enclosed with noncombustible construction having a fire-resistance rating of at least 2 hours with interior wall openings protected with automatic or self-closing opening protectives having a fire-resistance rating of at least 1½ hours.

f——For purposes of this Code, a carport with no more than two enclosing walls shall not be deemed to be a garage.

B 402-4.8 Openings in Fire Walls and Fire Separations

(746.4h)

a——Openings in fire walls, fire separations, and in other interior walls and partitions required to have a fire-resistance rating, shall be protected by opening protectives having fire-resistance ratings as set forth in table B 402-4.8.

b——Two 1½-hour opening protectives installed on opposite faces of the wall shall be deemed equivalent

TABLE B 402-4.8. (II-746) — OPENING PROTECTIVES FOR INTERIOR WALL OPENINGS

Fire-resistance rating of wall in which opening occurs, in hours	Fire-resistance rating of opening protective, in hours
3 or more	3
2	1½
1 or ¾	¾

to one 3-hour opening protective when installed in conformity with generally accepted standards.

c——Vision panels of materials that will maintain the integrity of the fire-resistance rating shall be permitted in ¾-hour and 1½-hour opening protectives except those that are required to be automatic.

d——Openings in fire walls for ventilating or air conditioning ducts shall be equipped with fire dampers or shutters constructed in conformity with generally accepted standards. Such dampers or shutters in fire walls shall be arranged so that one is on each face of the fire wall and so that both operate automatically when either is exposed to fire in the duct. Openings for ducts in fire separations required to have a fire-resistance rating of not more than 2 hours, shall be protected with fire dampers or shutters, except that such dampers shall not be required in ducts having an area of 20 square inches or less.

e——Service openings for incinerators shall be equipped with self-closing ¾-hour opening protectives arranged so that there is no opening into the flue when the hopper is being filled.

B 402-5 Firestopping

(746.5)

B 402-5.1 General Requirements

(746.5a)

Concealed spaces within wall, partition, floor, stair, attic or cornice construction and around chimney, pipe and duct openings in such construction, shall be firestopped to prevent the passage of flame, smoke, fumes, and hot gases.

B 402-5.2 Materials

(746.5b)

a——Firestopping or fill shall be of nonflammable material which can be shaped, fitted and permanently secured in position.

b——Noncombustible firestopping materials shall be used in buildings of type 1 and 2 construction, and also around fireplaces, flues and chimneys in buildings of any type of construction.

c——Combustible firestopping materials may be used in buildings of type 3, 4 and 5 construction.

d——Flammable materials shall not be permitted as insulation or fill in concealed or attic spaces.

B 402-5.3 Location

(746.5c)

a——Concealed vertical spaces in walls and partitions shall be firestopped at each floor level and at the ceiling of the uppermost story so that such spaces will not be continuous for more than one story, or communicate with concealed horizontal spaces in the floor or roof construction.

b——When combustible materials form a part of the concealed space between surface finish and the base to which they are applied, the concealed space shall be filled with noncombustible material, or be firestopped so that no dimension of such concealed space exceeds 8 feet vertically or 20 feet horizontally.

c——Space between floor joists, where ceilings are attached directly to the joists, shall be firestopped for the full depth of the joists at all points of support, under supported walls and partitions having a required fire-resistance rating, and under all partitions separating dwelling units.

d——Concealed space in stairs shall be firestopped so as not to communicate at the top and bottom of the stairs with concealed space in the floor construction.

e——Exterior cornices and eaves shall be firestopped at the ends of fire and party walls, and at intervals of not more than 20 feet.

f——In buildings of type 3, 4 and 5 construction, the space in attics or between combustible floor or roof construction and a ceiling, shall be firestopped so that no area of such concealed space shall be greater than 3000 square feet, with no dimension greater than 100 feet.

B 403 (747) INTERIOR FINISHES, TRIM AND DECORATIVE MATERIALS

B 403-1 (747.1) General Requirements

a——Interior finish materials used for acoustical correction, surface insulation and decorative treatment on the surfaces of walls and ceilings, and interior trim

materials, shall conform with all requirements set forth in this section.

b——Interior finish and trim shall be of materials that will not, in burning, give off excessive amounts of smoke or objectionable gases.

B 403-2 (747.2) Classification of Interior Finish Materials

Interior wall and ceiling finish materials shall be classified in accordance with their surface flame-spread ratings determined by tests conducted in conformity with generally accepted standards, and as follows:

Class	Surface flame-spread rating
A	0 to 20
B	20 to 75
C	75 to 200
D	200 to 500

B 403-3 (747.3) Use of Interior Finishes

a——Interior wall and ceiling finishes in multiple dwellings shall be as set forth in the following table, except as otherwise provided in this section.

b——Spaces in which class C finish is used shall be enclosed by construction having a fire-resistance rating of at least ¾-hour.

c——Class C finish used on ceilings shall not exceed 500 square feet in area, unless separated into areas not exceeding 500 square feet by class A or B interior finish with a minimum width of 2 feet.

d——In multiple dwellings more than three stories high and in all multiple dwellings of group B2 occupancy, class B interior finish may be used on walls and ceilings of passageways or corridors provided such finish does not extend more than 50 linear feet, or is separated by at least 2 feet of noncombustible material at intervals not exceeding 50 linear feet.

e——Class D finish shall not be used in multiple dwellings more than one story in height nor in multiple dwellings of group B2 occupancy.

f——Where a sprinkler system is provided, class B interior finish may be used in locations where class A is

required, and class C may be used in locations where class B is required.

TABLE B 403-3. (I-747) — INTERIOR FINISH IN MULTIPLE DWELLINGS

Location	Class of interior finish
Enclosed stairways, passageways and exits	A
Passageways and corridors not a part of an enclosed exit	A or B
Public kitchens and pantries, paint and repair rooms, storage rooms, and similar fire hazardous areas	A
Other locations in group B1 occupancy	A, B, or C
Other locations in group B2 occupancy	A or B

g——Luminous ceilings which have a heat distortion point of 200° F. or less shall not be permitted in buildings of group B2 occupancy or in exits and assembly spaces of buildings of any occupancy classification. The material of such ceilings shall be self-extinguishing on the basis of tests in conformity with generally accepted standards. No individual sheet or panel shall exceed 75 square feet in area between supports.

h——A luminous ceiling located below or above sprinkler heads shall be so installed that it will not interfere with the operation of the sprinkler system. Where installed below sprinkler heads, it shall be of material that will fall from its mounting at a temperature of at least 15 degrees lower than the temperature at which the sprinkler heads operate.

B 403-4 (747.4) Use of Interior Trim

a——Interior trim in exists, stairways and passageways serving as required means of egress from buildings more than three stories in height, and in all locations in buildings 150 feet or more in height, shall be of noncombustible material.

b——Interior trim and doors of wood may be used in all locations where noncombustible trim is not required by this section.

c——Wood or other combustible finish flooring may be used in any location in a multiple dwelling except in an exit from:

Building having more than eight dwelling units; or
Building having thirty or more sleeping rooms; or
Building more than three stories in height.

B 403-5 (747.5) Attachment of Interior Finish and Trim

a——Interior finish and trim shall be cemented or otherwise fastened in place so that they will not readily loosen when subjected to a room temperature of 400° F. for a period of 30 minutes.

b——Interior wall and ceiling finishes which are less than ⅛-inch thick may be used when mounted directly on noncombustible material.

c——Interior finish materials applied to walls and ceilings required to be of noncombustible construction, shall be applied directly to a noncombustible base or to furring or nailing strips which do not exceed 1¾ inches in nominal thickness. Concealed space between finish materials and noncombustible base shall be firestopped in conformity with the requirements set forth in section B 402-5.3b.

d——When class C finishes are set out from walls or ceilings more than 1¾ inches, they shall be attached directly to noncombustible backing.

e——In multiple dwellings not more than three stories in height or which contain fewer than thirty sleeping rooms for transient occupancy, interior finish materials may be applied directly to combustible structural members or to a combustible base.

f——In multiple dwellings of type 1 and 2 construction, wood finish flooring and wearing surafce materials including cork, rubber, linoleum, asphalt and composition tile, and other materials of similar combustible characteristics, shall be attached directly to the noncombustible floor construction or to a wood subfloor fastened to wood sleepers or over insulating board.

B 403-6 (747.6) Use of Draperies and Other Decorative Materials

In public spaces and exits of multiple dwellings, draperies, hangings and decorative fabrics and plastics shall

be noncombustible or flame-resistant as determined by tests made in conformity with generally accepted standards.

B 404 (748) FIREPLACES

B 404-1 (748.1) General Requirements

Fireplaces and similar construction intended for burning fuel in open fires shall be designed and constructed of noncombustible material, shall be stable and structurally safe, shall be connected to chimneys in conformity with the requirements set forth in section B 505, and shall be insulated so that, when in use, nearby or adjacent combustible material and structural members shall not be heated to temperatures in excess of 175° F.

B 404-2 (748.2) Hearths and Linings

Hearths and linings or other parts of fireplaces exposed directly to flame shall be of materials that will not melt, disintegrate, spall, or shatter at temperatures up to 2000° F.

B 404-3 (748.3) Mantels and Trim

Wood mantels and trim on fireplaces shall be placed and attached so that they cannot be heated to temperatures in excess of 175° F. or ignited by sparks or embers from the fire.

B 405 (749) FIRE PROTECTION EQUIPMENT

a——Hotels three or more stories in height or buildings which contain thirty or more sleeping rooms for transient occpancy, shall be equipped with fire alarm systems. A sprinkler system conforming to the requirements of section B 510-4.5b shall be permitted in lieu of such fire alarm system.

b——Multiple dwellings of type 3, 4 and 5 construction, designed for group B2 occupancy, having sleeping accommodations for ten or more persons on the second story, shall be equipped throughout with a sprinkler system.

c——Multiple dwellings more than three stories in height of type 1 or 2a construction which contain seventy-five or more sleeping rooms for transient occupancy, and multiple dwellings of type 2b, 3, and 4 construction more than two stories in height which contain fifty or more sleeping rooms for transient occupancy, shall be provided with a watchman's recording system, unless such multiple dwellings are equipped throughout with a fire-detecting system or a sprinkler system.

d——In existing buildings converted to multiple dwelling occupancy, the storage and service rooms and exit enclosures may be protected with a special sprinkler installaiton in lieu of compliance with the provisions of section B 402-4.3 and B 402-4.4.

e——In existing buildings converted to multiple dwelling occupancy, kitchens and pantries serving public dining rooms shall be protected with a special sprinkler installation, except when such areas are completely enclosed by fire-resistive walls and partitions as set forth in section B 402-4.5.

f——In existing buildings converted to multiple dwelling occupancy, cellars or basements shall be equipped with a special sprinkler installation, except when the floor over such cellar or basement is of noncombustible construction or of combustible construction finished with a noncombustible ceiling and having a fire-resistance rating of ¾-hour.

g——A standpipe system with outlets on each story for first-aid hose and for municipal fire department use shall be provided in the following:

In multiple dwellings more than six stories or 70 feet in height, or in which a fire area exceeds 10,0000 square feet;

In multiple dwellings of type 2b, 3, or 4 construction more than three stories or 40 feet in height; and

In garages on premises of multiple dwellings more than three stories or 40 feet in height.

h——Garages with a fire area of 5000 square feet or more per story shall be provided with a sprinkler system.

i——Sprinklers shall not be installed in spaces where the discharge of water would be hazardous. In such spaces, other approved fire-extinguishing equipment shall be provided.

Equipment Retirements

B 501 (755) GENERAL REQUIREMENTS FOR EQUIPMENT

a——Plumbing, heating, electrical, ventilating, air conditioning, refrigerating, fire protection and radiation production equipment, elevators, dumbwaiters, escalators, and other mechanical additions, installations, or systems for the use of the building shall be designed, installed, and located so that under normal conditions of use such equipment and systems will not be a potential danger to health or welfare, a danger because of structural defects, or a source of ignition, or a radiation hazard, and will not create excessive noise, or otherwise become a nuisance. Equipment and systems include, but are not limited to, apparatus, devices, fixtures, piping, pipe hangers, pipe covering, wiring, fittings, and materials used as part of, or in connection with, such installations.

b——Equipment and systems shall be made of approved materials, shall be free from defective workmanship, and shall be designed and installed so as to be durable, without need for frequent repairs or major replacements. Equipment requiring operation, inspection, or maintenance shall be located so that easy access to it is provided.

c——The design and installation of equipment and systems shall conform to the requirements of section B 107.

d——New installation of equipment in existing buildings, and alterations and extensions to existing equipment and systems, shall conform with the requirements of this Code.

e——Equipment and systems shall be subjected to such tests as are appropriate which will disclose defects and leaks. No equipment or part of a system shall be covered or concealed until it has been tested and approved.

f——Equipment and systems shall be capable of performing their functions satisfactorily without being forced to operate beyond the safe design capacity.

g——Equipment and systems subject to damage from freezing shall be adequately protected against freezing.

c——Where a public sewer is not available, a system shall be provided to receive and dispose of sewage without health hazard or nuisance.

d——Sewage or other waste which may be deleterious to surface or subsurface waters, shall not be discharged into the ground or into a waterway unless it has first been rendered harmless through subjection to treatment in accordance with generally accepted standards.

e——Where a drainage system may be subject to backwater, suitable provision shall be made to prevent its overflow into the building.

f——Any substance which will clog the pipes, produce explosive mixtures, destroy the pipes or their joints or interfere unduly with the sewage disposal process, shall be prevented from entering the building drainage system.

g——Liquid waste from a fixture or drain provided in a location where such waste at times would contain volatile, flammable oil, shall be conveyed by an independent drainage system equipped with an approved device for intercepting such substances from liquid wastes; the liquid wastes, after passing through the intercepting device, may be discharged into the building drain or sewer.

h——Liquid waste from a fixture or drain provided in a location where grease or other substances at times would be introduced into the system in quantities that could produce pipe stoppage or hinder sewage disposal, shall be conveyed by a fixture drain equipped with an approved device for intercepting and separating such substances from the liquid waste before it is discharged into a branch or main drainage pipe in the system.

i——Each fixture directly connected to the sewage drainage system shall be equipped with a water seal trap.

j——Adequate cleanouts shall be provided and arranged so that the pipes may be readily cleaned.

k——The drainage system shall be designed so as to provide adequate circulation of air in all pipes in order that siphonage, aspiration, or pressure will not cause a loss of trap seal under ordinary conditions of use.

l——Each vent terminal shall extend to the outer air and be installed so as to minimize the possibilities of clogging, frost closure, the return of foul air to the building, or the creation of a nuisance to adjacent premises.

m——Whenever a structure is to be built higher than the vent terminal of an adjacent building and thereby adversely affects the vent system of the adjacent building, or when such vent is a potential nuisance to the occupants of the higher structure, then the owner of the higher structure shall at his expense and with the consent of the owner of the adjacent building, cause such vent to be extended or altered to correct the condition.

n——Whenever a new vent terminal is to be installed adjacent to an existing higher building, the proposed vent terminal shall be installed by, and at the expense of, the owner of the lower building, in conformity with section B 502-41, including any necessary extension of the vent terminal to a location sufficiently remote so as to prevent the creation of a foul air nuisance to occupants of the existing higher building.

o——Drains provided for fixtures, devices, appliances, or apparatus containing food, water, sterile goods or similar materials, shall be equipped with air breaks, adequate to prevent contamination of such contents from any possible backup of sewage through the direct or indirect drainage piping.

p——Drains provided for fixtures, devices, appliances or apparatus which have interior surfaces not readily accessible to permit effective cleaning, shall be indirectly connected.

q——Horizontal drainage piping shall not be located directly above nonpressure water-supply tanks, manholes of pressure water-supply tanks, or floor areas used for the manufacture, preparation, packaging, storage or display of food unless a watertight barrier is provided to intervene between the piping and such tanks or space immediately below.

B 502-5 (756.5) Storm Drainage System

a——Roofs and paved areas, including yards and courts, shall be drained. Storm drainage shall be conveyed to an adequate and approved system of storm water disposal where available. Storm drains shall be discharged in such manner that water will not flow onto sidewalks.

b——Where a drainage system may be subject to backwater, suitable provision shall be made to prevent overflow into the building.

c——Leaders and gutters, if used, shall be constructed of noncombustible material, except that wood leaders and gutters may be used for buildings not more than three stories high.

B 502-6 (756.6) Minimum Plumbing Facilities

a——Multiple dwellings shall be provided with plumbing systems designed to dispose of the sewage from all fixtures and to furnish cold water to every water closet, and hot and cold water to every sink, laundry tray, automatic laundry washing machine, lavatory, bathtub and shower required therein.

b——There shall be provided within each dwelling unit, plumbing fixtures consisting of at least:

One kitchen sink,
One water closet,
One bathtub or shower, and
One lavatory.

c——Where multiple dwellings contain sleeping accommodations arranged as individual rooms or suites, for each multiple of six sleeping rooms or fraction thereof, there shall be provided plumbing fixtures consisting of at least:

One water closet,
One bathtub or shower, and
One lavatory.

Motels may have such plumbing facilities provided in another building within 50 feet of, and on the same premises with, such motel.

d——Where multiple dwellings contain sleeping accommodations arranged as a dormitory, for each multiple of fifteen persons or fraction thereof so accommodated there shall be provided and located adjacent thereto, plumbing fixtures consisting of at least:

One water closet,
One bathtub or shower, and
One lavatory.

e——Urinals may be substituted in men's toilet rooms for not more than one third of the required number of water closets.

*f——There shall be provided within each dwelling unit, not designed for use primarily by transients, at least one laundry tray or automatic laundry washing machine, or in lieu thereof there shall be provided in a readily accessible location within a general laundry room at least one two-compartment laundry tray for each ten dwelling units or one automatic laundry washing machine for each twenty dwelling units. Such laundry room shall be located within the building and shall be accessible from within the building, except that in multiple dwellings not more than two stories in height accessibility from within the building is not required where access is not more than 100 feet, along a path of paved walkways, from the exterior entrance serving one or more dwelling units.

g——Every kitchen serving public dining spaces shall have installed therein at least one lavatory for the personal use of kitchen employees.

h——Where food or drink is served in public or employee dining places, and the dishes, glasses, or cutlery for such service are to be reused, there shall be at least one machine or 3-compartment sink of suitable type for the effective washing and sanitizing of such articles before reuse. Cold water need not be supplied to such machines and sinks.

i——Facilities for bathers at swimming pools shall be in separate rooms for each sex, shall be accessible to bathers at all times, and shall be located so that bathers can use the facilities before entering the bathing area. The number and type of fixtures shall consist of at least the following: one water closet for each 60 males; one water closet for each 40 females; one urinal for each 60 males; one lavatory for each 60 males; one lavatory for each 60 females; one shower for each 40 males; and one shower for each 40 females.

j——Privies, privy vaults and outhouses shall be permitted only for temporary use in connection with new building construction. Such facilities shall be maintained in a sanitary and serviceable condition. Prior to the occupancy of a multiple dwelling, such facilities and

the sewage remaining therefrom shall be removed and the area cleaned, disinfected, and filled with clean earth.

B 502-7 (756.7) Plumbing Fixtures

a——Plumbing fixtures shall be made of smooth nonabsorbent material and shall be free from concealed fouling surfaces.

b——Plumbing fixtures shall be so spaced as to be reasonably accessible for their intended use.

c——Plumbing fixtures shall be located in spaces that are accessible, lighted, and ventilated.

d——Water closets, urinals, showers, and bathtubs shall be located only in toilet rooms or bathrooms provided with waterproof floors and with waterproofing extending 6 inches or more above the floor.

e——Water closets, urinals, showers, and bathtubs shall not be located on the next floor directly above space used for manufacture, preparation, packaging, storage, or display of food, except they may be so located if an additional watertight barrier is provided to intervene between the toilet room or bathroom floor and such space immediately below.

B 502-8 (756.8) Swimming Pools

a——Swimming pools shall conform with the requirements of section B 501.

b——Water supply used for filling or for cleaning of the pool shall be clean. Water supply shall be protected against potential pollution from all sources, including cross-connection and backflow.

c——Pool inlets and outlets shall be located and spaced so as to secure satisfactory dispersion and complete circulation.

d——Water overflow drains shall be provided at the high water line.

e——Drains shall be provided so that the pool can be safely and completely drained in 4 hours or less. Drains shall be provided in floors surrounding the swimming pool, and arranged so that water from such areas will drain without entering the pool.

f——Filtering, sterilizing, and auxiliary equipment, where required, shall be adequate to maintain the sanitary quality of water during each period the pool is in use. Equipment containing gases or disinfectants capable of giving off irritating, toxic, or flammable fumes shall be located in ventilated rooms.

g——The installation shall be designed to prevent dirt, sand, or other foreign matter from entering the bathing area.

B 502-9 (756.9) Water Supply Tanks

a——Water supply tanks shall be designed and constructed so as to be watertight, verminproof, and rodentproof, resistant to corrosion, and capable of withstanding the pressures under which they are to operate.

b——Tanks shall be provided with safe and easy means of access for inspection.

c——The capacity of any single tank in or on a building shall not exceed 30,000 gallons. Where tanks are located on flat roofs and the total capacity exceeds 30,000 gallons, drain pipes from the tanks shall discharge so as to distribute water over separate drainage areas of the roof.

d——Supports for tanks shall be of noncombustible construction.

e——Tanks and their supports shall not be used to support equipment or structures other than for tank use, except where specially designed for such other use.

f——Means shall be provided for emptying water supply tanks. The emptying pipe and valve shall be of a size to permit quick emptying, shall be located and arranged so as to prevent damage from water discharged, and shall be connected through an air break to the drainage system.

g——Gravity tanks shall be provided with overflow pipes at least one pipe size larger than the filling pipe.

h——Tanks shall not be located over openings in floor or roof construction. Openings in floor or roof for piping are permitted provided they are made watertight.

i——Potable water supply tanks for domestic supply and standpipe or automatic sprinkler systems shall be

designed and installed to furnish water in sufficient quantity and pressure for such systems.

j——A tank used to supply water both to a domestic system and a standpipe or automatic sprinkler system, shall have the outlet for the domestic supply located a sufficient distance above the bottom of the tank to maintain the minimum reserve required for fire protection service.

k——Potable water supply tanks which supply water for domestic supply and also for standpipe and automatic sprinkler systems, shall have the outlet for the standpipe system located a sufficient distance above the bottom of the tank to maintain the minimum reserve required for the sprinkler system.

B 503 (757) FUEL GAS PIPING EQUIPMENT AND SYSTEMS

B 503-1 (757.1) General Requirements

a——Fuel gas piping systems shall be in conformity with the requirements of section B 501.

b——Fuel gas piping systems shall be of approved materials resistant to the corrosive effects of gases conveyed by them. Systems shall be designed and installed so as to remain gastight, safe and operative under conditions of use.

c——Gas piping shall not be installed in cinder fill or other corrosive material unless protected against corrosion.

d——Cleanouts shall be provided where condensate, dirt or other foreign matter may collect.

e——Fuel gas piping and equipment shall not be located in ducts, chutes, chimneys, flues, hoistways, stairways, or exits.

f——Fuel gas piping systems shall be designed and installed so as to provide a supply of gas sufficient to meet the maximum expected demand of the installed gas burning appliances connected thereto.

B 503-2 (757.2) Shutoff Valves

a——Gas piping systems supplied from utility mains shall have at least two accessible means for shutting off

all gas supply. One means of shutoff shall be located outside and at a safe distance from the building, and shall be suitably protected against unauthorized use, and the other shall be located ahead of the meter and as close as practicable to the point of service entrance.

b——An easily accessible shutoff valve or cock shall be provided in the piping in close proximity to, and ahead of, every gas appliance or outlet for a gas hose connection.

B 503-3 (757.3) Service Equipment for Gas Supplied from Utility Mains

a——Gas meters shall be located in spaces that are dry, well ventilated, readily accessible, free from steam or chemical fumes and protected against extreme heat. Gas meters shall be located as near as practicable to the point of entry of the gas service. Gas meters shall not be installed in a stairway, nor in any public hall above the cellar, nor above the lowest story if there is no cellar. Gas meters shall not be installed in spaces designed for the storage of paints or flammable products.

b——Gas services, gas meters, and gas pressure regulators shall be located so that they are protected from damage. Such equipment shall be sufficiently removed or separated from the bottom termination of a stairway so as not to constitute a potential hazard.

B 503-4 (757.4) Gas Refrigerators

a——Gas refrigerators shall be installed with clearance for ventilation.

b——Refrigerator parts serving as flues shall be resistant to the action of the products of combustion.

B 503-5 (757.5) High Pressure Gas

a——Buildings supplied with gas from utility mains at pressures exceeding 1 psi gage shall have all exterior wall openings below grade and within 10 feet of the gas service pipe made gastight. Where such openings are provided for service pipes, the pipes shall be protected from damage by settlement or corrosion.

b——Any service connection supplying gas at a pressure in excess of 1 psi gage shall be provided with a device to reduce such pressure to not more than 1/2 psi gage prior to entering the meter, except where such service supplies equipment using gas at high pressures.

B 503-6 (757.6) Liquefied Petroleum Gas

a——Undiluted liquefied petroleum gas in liquid form shall not be conveyed through piping equipment and systems in buildings.

b——Liquefied petroleum gas shall not be vaporized by devices utilizing open flame or open electrical coil.

c——Where two or more containers are installed, connection shall be arranged so that containers can be replaced without shutting off the flow of gas to equipment.

d——Containers shall be designed, stored, and located so as not to be a hazard to the premises served, or to the surrounding property.

e——Gas service entrance shall be above ground, and shall be protected from damage by settlement or corrosion. Exposed exterior wall openings located below and within 5 feet horizontal distance of gas service entrance shall be made gastight.

f——Liquefied petroleum gases shall be odorized so that the presence of gas will be recognizable by a distinctive odor when the concentration is equal to, or greater than, one fifth the lower limit of combustibility.

g——Systems shall be provided with safety devices to relieve excessive pressures, and shall be arranged so that the discharge terminates at a safe location.

h——Systems supplied from containers exceeding 125 gallons of capacity shall have at least two accessible means for shutting off the gas at the main supply. Shutoff valves shall be located in conformity with the requirements of section B 503-2a.

i——Systems supplied from containers not exceeding 125 gallons of capacity shall have at least one accessible means for shutting off the gas. Such means shall be located outside the building.

B 504 (758) HEATING

B 504-1 (758.1) General Requirements

a——Heating systems shall conform to the requirements of section B 501.

b——Multiple dwellings intended for occupancy between the first day of November and the first day of May of the following year shall be provided with heating equipment designed to maintain a temperature of not less than 70° F. at a distance of 3 feet and more from exterior walls, and at a level of 5 feet above the floor, in habitable spaces, kitchenettes, bathrooms and toilet rooms. The capability of the heating equipment to maintain such indoor temperature shall be based on the average of the recorded annual minimum outside temperatures for the locality.

c——Equipment for heating shall not be required for open deck structures.

d——Swimming pools, shower and dressing rooms, shall have heating equipment designed and installed so as not to be a hazard owing to accidental contact.

B 504-2 (758.2) Heat Producing Equipment

B 504-2.1 Combustion Space

(758.2a) Fuel-burning heat producing equipment shall have combustion space designed and constructed to withstand the maximum temperature attained and to operate efficiently at the expected loads.

B 504-2.2 Smoke Control

(758.2b) Fuel-burning heat producing equipment shall be designed and installed so that the emission or discharge into the atmosphere of smoke, dust, particles, fly ash, odors or other products of combustion will not create a nuisance or be detrimental to the health, comfort, safety or property of any person.

B 504-2.3 Warm Air Heating

(758.2c) Ducts and other air handling equipment used for heating shall conform to the requirements of such equipment used for ventilating purposes.

B 504-2.4 Prohibited Locations for Heat Producing Equipment

(758.2d) a——Fuel-burning equipment or ash removal equipment shall not be installed in spaces intended for the storage or use of paints, paper or trash.

b——Fuel-burning water heaters shall not be located in sleeping rooms, bathrooms or toilet rooms.

c——Fuel-burning space heaters shall not be installed in buildings of group B2 occupancy unless located at least 6 feet above the floor.

B 504-2.5 Fuel Supply Connection

(758.2e) Fuel-burning equipment, except that which is fully portable, shall be permanently fastened and connected in place. Fuel supply connection to such equipment shall be made with pipe or tubing of solid metal.

B 504-2.6 Installation and Clearance

(758.2f) Where heat producing equipment is installed on, or adjacent to, combustible materials, the location, insulation, clearance, and the control of the equipment shall be such that the temperature on the surface of the combustible materials will not exceed 175° F.

B 504-2.7 Air Supply

(758.2g) a——Direct-fired heat producing equipment and the enclosure in which it is located shall be provided with a supply of air adequate both for complete combustion at the rated gross output of the equipment and for the ventilation of the enclosure to prevent the accumulation of heat. Where such enclosure contains ventilating equipment, the requirements for air supply shall conform to section B 508-3.2c.

b——Rooms containing fuel burning equipment having an individual or combined rated gross capacity of 250,000 Btu per hour or less, may have such air supply provided by means of one or more openings to the exterior, or by means of fixed openings to interior spaces which open to the exterior. Where the combined rated gross capacity exceeds 250,000 Btu per hour, the air supply shall be provided by means of fixed openings to the exterior.

c——Openings shall be adequate to provide air for the simultaneous operation of all equipment within such rooms. Openings designed for the purpose of supplying air for combustion or ventilation shall be fixed and shall provide a clear ventilating area equal to not less than

the combined cross-sectional area of all the smoke pipes or gasvent connections leading from such equipment.

B 504-2.8 Removal of Products of Combustion

(758.2h) a——Equipment for burning solid or liquid fuel shall be connected to suitable chimneys or flues and shall not be connected to gasvents.

b——Gas-fired equipment shall be connected to a suitable chimney, flue or gasvent when the discharge of products of combustion into the space where the equipment is installed would be a hazard.

B 504-2.9 Safety Devices

(758.2i) a——Equipment capable of developing hazardous pressures or temperatures shall be provided with means to relieve safely such pressures and temperatures.

b——Controls for the safe operation of automatically operated heat producing equipment shall be provided to function as follows:

When failure or interruption of flame or ignition occurs, the fuel supply shall be cut off.

When a predetermined temperature or pressure is exceeded, the input of additional heat shall be prevented or reduced to a safe rate.

When the water level in a steam boiler drops below a predetermined level, the fuel supply shall be cut off.

When failure or interruption of pilot light or main burner of liquefied petroleum gas equipment occurs, the fuel supply to such pilot light and main burner shall be cut off.

c——Fuel burning space heaters located in bathrooms or toilet rooms less than 100 square feet in area, or in sleeping rooms, shall be provided with controls to cut off the fuel supply upon the failure or interruption of the flame or ignition, or whenever a predetermined temperature or pressure is exceeded.

d——Heat producing equipment containing two or more automatically operated burners within a combustion space shall be arranged so that the operation of the safety device for any burner will control the operation of all burners within such combustion space.

B 504-2.10 Insulation

(758.2j) a——Insulation provided to reduce the rate of heat flow through building construction shall conform to the requirements of section B 501.

b——Insulation on surfaces of heat producing equipment shall be of noncombustible materials.

B 504-2.11 Expansion Tanks

(758.2k) Hot water heating systems shall be provided with expansion tanks or other means to allow for the expansion of water in the system.

B 504-2.12 Temporary Heat During Construction

(758.2l) Equipment using solid or liquid fuel and furnishing temporary heat during construction, except fully portable equipment, shall be provided with a smokepipe, chimney or flue to convey the products of combustion to the exterior without creating a nuisance.

B 504-2.13 Heating of Assembly Spaces

(758.2m) a——Warm air heating systems for assembly spaces shall have automatic controls to stop blowers and close dampers in case of abnormal rise in temperature, as set forth in section B 508-3.5.

b——Registers or grilles shall not be permitted in the floors of required exits.

B 504-2.14 Heating of Garages

(758.2n) a——Fuel burning equipment for garages shall be located in heater rooms as set forth in section B 402-4.6d, except that equipment burning gas or liquid fuel, located in the vehicle storage space, shall be permitted in stories at or above grade where elevated so as not to be exposed to possible accumulation of flammable gases.

b——Garages heated by recirculated air shall be provided with a mechanical means of air handling designed to introduce a sufficient quantity of fresh air to prevent the accumulation of vapors or gases near the floor. Recirculated air shall not be taken from stories below grade level. For stories above grade level, openings for return air shall be at least 18 inches above floors.

B 505 CHIMNEYS, FLUES, AND GASVENTS

(759)

B 505-1 General Requirements

(759.1) a——Chimneys, flues, gasvents and their supports shall be designed and constructed so as to be structurally safe, durable, smoketight, noncombustible, and capable of withstanding the action of flue gases without softening, cracking, corroding, or spalling.

b——Such facilities shall effectively convey the products of combustion to the outer air.

c——Masonry chimneys, except approved prefabricated chimneys, shall have noncombustible foundations.

d——Flue linings shall be capable of withstanding the action of flue gas without softening, cracking, corroding, or spalling at the temperature to which they will be subjected. Flue linings are not required for chimneys capable of withstanding the action of flue gases at the design temperatures.

e——Chimneys without flue linings and metal smokestacks shall be sufficiently separated from building construction so as not to constitute a potential hazard.

f——Openings for smoke pipes or gasvent connections shall be provided with means for easy connection without restriction of flue.

g——No flue shall have smoke-pipe or gasvent connections in more than one story of a building.

h——Fuel burning equipment and fireplaces located in different tenancies shall not be connected to the same flue.

i——Incinerator flues equipped with service openings shall not be used as flues for other fuel burning equipment.

B 505-2 Draft

(759.2) Chimneys, flues, and gasvents or other draft producing devices installed on fuel burning equipment, shall provide sufficient draft to develop the rated output of the connected equipment.

B 505-3 Fire Safety

(759.3) Chimneys, flues, and gasvents shall be located, designed and constructed so that under conditions of use, the temperature of any combustible materials adjacent thereto, insulated therefrom or in contact therewith, does not exceed 175° F.

B 505-4 Spark Arresters

(759.4) Any chimney or flue connected to an incinerator, and any chimney or flue which may emit sparks, shall be provided with a spark arrester of noncombustible construction. Spark arrester shall have sufficient total clear area to permit unrestricted passage of flue gases. Openings in spark arrester shall be of such size as to prevent passage of embers and to minimize clogging by soot.

B 505-5 Location of Outlets

(759.5) The horizontal distance separation of outlets of chimneys, flues, and gasvents from windows or other exterior openings and the vertical distance of such outlets from unprotected combustible material on the same or adjacent premises, and from the point where the flue passes through the roof, shall be in accordance with the following table:

TABLE B 505-5. (I-759) — LOCATION OF OUTLETS

Minimum distance in feet

Relation of outlets to other construction	Incinerator flues	Other flues	Gasvent
Horizontal distance to windows or other exterior opening where the bottom of such exterior opening is at a higher level and less than 30 feet above the flue outlet	(1)	20[1]	15
Vertical distance between the top of the outlet and the highest point on the roof where the flue passes through	10[2]	3	2
Vertical distance of outlet above unprotected combustible material where the horizontal distance to such conbustible material is:			
Within 10 feet	10[2]	3	2
Over 10 feet and within 15 feet	3	2	

[1] Outlets of incinerator flues and flues from fuel burning equipment having a rated gross capacity exceeding 1,000,000 Btu per hour, shall be carried above the top of windows or other exterior openings in walls within a horizontal distance of 50 feet.

[2] Where roofs are noncombustible and cannot be used for promenade, clothes hanging, or similar uses, minimum distance shall be 3 feet; where roofs are noncombustible and can be used for such purposes, minimum distance shall be 8 feet.

B 505-6 Extending Existing Chimneys, Flues, and Gasvents

(759.6) a——Where a structure is built higher than an existing chimney, flue, or gasvent on the same or adjacent premises, the minimum distance of windows, other exterior openings and unprotected combustible material of such structure from the outlet of the chimney, flue, or gasvent shall be in accordance with the applicable requirements of section B 505-5.

b——Where a structure is built higher than an existing chimney, flue, or gasvent on the same or adjacent premises and causes a deficiency in the draft of heat producing equipment connected thereto, or where a chimney, flue, or gasvent is a potential nuisance to the occupants of such higher structure, then the owner of such higher structure shall, at his expense, and with the consent of the owner of the adjacent building, cause the existing chimney, flue, or gasvent to be extended or altered to correct the conditions.

c——Where a new chimney, flue, or gasvent is to be erected adjacent to an existing higher building, the proposed chimney, flue, or gasvent shall be installed by the owner of the lower building in conformity with section B 505 and may, at his expense, and with the consent of the owner of the higher building, be attached to such higher building.

B 506 INCINERATORS

(760)

B 506-1 General Requirements

(760.1) a——Incinerators shall conform to the applicable requirements of sections B 501, B 504, and B 505. They shall be of adequate capacity for the intended use.

b——Flue-fed incinerators shall be equipped with means for burning auxiliary fuel in sufficient quantity to assure complete combustion of refuse.

c——Incinerator combustion space shall be designed and constructed so as to be durable and gastight.

d——Incinerators shall be equipped with means for regulating the draft and for minimizing the emission of fly ash, smoke, dust, particles, and odors.

e——Every flue serving an incinerator shall be provided with a substantially constructed spark arrester.

f——Every incinerator shall be connected to a suitable noncombustible chimney, smokestack, or flue.

g——Incinerator flues used also for dropping refuse shall be vertical, of noncombustible construction, shall have a smooth finish on the inside, and shall have connections to incinerators arranged to provide free passage of refuse without clogging.

h——Incinerator rooms may contain boilers, furnaces, and heating equipment, but shall not be used for any other purpose.

B 506-2 (760.2) Service Openings

a——Service openings shall be readily accessible to the building occupants.

b——Service openings shall be equipped with metal, self-closing charging devices of fire-resistive construction as set forth in section B 402-4.8e. An incinerator flue used also for dropping refuse shall have charging devices constructed so that openings to the flue are closed while the charging devices are in the open position. No part of the charging devices shall project into a refuse chute or incinerator flue.

c——Durable signs with plainly legible letters prohibiting disposal of highly flammable substances in incinerators shall be provided near service openings.

B 506-3 (760.3) Incinerator Rooms and Refuse Rooms

Openings in refuse rooms used to charge refuse into incinerators shall be provided with charging doors designed and installed so as to minimize the heat transmitted to the refuse room and to prevent tampering by unauthorized persons.

B 507 (761) ELECTRICAL WIRING AND EQUIPMENT

B 507-1 (761.1) General Requirements

a——Electrical wiring and equipment shall conform with the requirements of section B 501, and shall be designed and installed so as not to be a potential source

of ignition of combustible material or a potential source of electrical hazard.

b——Electrical wiring and equipment shall be firmly secured to the surface on which it is mounted.

c——Electrical wiring and equipment installed in damp or wet locations or where exposed to explosive or flammable gases, or to excessive temperatures, shall be of a type approved for the purpose and location.

d——Exposed live parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by enclosure, elevated position, or other suitable means.

e——Electrical wiring and equipment shall be grounded or otherwise protected by insulation, isolation, or guarding so as to minimize the danger of high voltages from lightning or other causes.

f——Electrical equipment which in ordinary operation produces arcs, sparks, flames or molten metal, shall be enclosed unless separated and isolated from all combustible material.

g——Where the service entrance conductors have a rated capacity of 200 amperes or more or where the voltage between such conductors exceeds 600 volts, a room or enclosure shall be provided to be used for electric service, metering and main distribution equipment. Such room or enclosure may also contain gas or water meters and shall be of ample size to provide proper clearance for the equipment and shall be ventilated as required in section B 508-3.3.

h——Temporary wiring and equipment, during construction, shall be installed so as not to be a hazard, and shall be protected from damage. Separate circuits shall be provided for light and power, except that small portable power tools may be supplied from lighting circuits. Circuits supplying lighting outlets in stairways and shafts shall not supply any other outlets. Conductors within 7 feet of the floor level, or in hoistways, shall be installed in raceway, or otherwise suitably protected. Overcurrent protective devices and switches not integral with motors shall be installed in cabinets or boxes. Frames of motors, portable tools, and metal cabinets and boxes shall be grounded.

B 507-2 Artificial Lighting (761.2)

B 507-2.1 General Requirements

(761.2a) a——Multiple dwellings and accessory structures shall be wired for electricity, and lighting equipment shall be installed throughout to provide adequate illumination for the intended use of each space. Electricity shall be obtained from public utility or private sources, except as otherwise set forth in sections B 507-2.2 and B 510-2.4.

b——During occupancy, electric light of intensity sufficient for safe travel shall be provided throughout exits, excluding fire escapes, for garages having a floor area of more than 1000 square feet, for spaces to which the public has access, and for spaces in which fire protection equipment is installed. Switches controlling such light shall be provided in a central location and, if accessible to other than authorized persons, shall be designed so as to be protected against unauthorized use.

c——There shall be a switch or other means for controlling a light in each dwelling unit or room for transient occupancy near the point of entrance to such unit or room.

B 507-2.2 Emergency Lighting

(761.2b) a——Emergency lighting shall be provided in multiple dwellings for transient occupancy three or more stories in height and having 100 or more sleeping rooms, and in multiple dwellings having one or more spaces for public assembly with an individual capacity of 200 persons or more, except where the floor area of such space does not exceed 7000 square feet and all exit doors open directly to the outside at grade level.

b——Emergency lighting shall be provided to illuminate adequately public space and exits, excluding fire escapes.

c——Emergency lighting shall be designed and installed so as to permit occupants to make their way safely out of the building in the event of failure of the normal lighting.

d——Emergency lighting shall be furnished through an independent electrial wiring system supplied from a main source, and from an auxiliary source, except that

where electric service is obtained from a reliable underground network distribution system, the auxiliary source shall not be required.

e——Where a single source of electricity is permitted, the connection for the emergency lighting shall be taken on the supply side of the main service disconnect and shall be sufficiently separated from the main service protective device to minimize the possibility of simultaneous interruption of supply.

f——Where an auxiliary source is required, means shall be provided for automatically transferring the emergency lighting supply from the main source to the auxiliary source within 15 seconds in the event of failure of the main source.

g——The auxiliary source shall have a capacity sufficient to supply and maintain the total emergency lighting load for a period of at least 30 minutes, with not more than a 9 per cent reduction from rated system voltage.

B 507-2.3 Exit and Directional Signs

(761.2c) a——Exits in multiple dwellings shall be provided with exit and directional signs, visible from the approach to the exits, except that such signs shall not be required in those portions of a building which contain dwelling units only, or in which exit from sleeping rooms is directly to the outside.

b——Directional signs shall be provided at locations from which the exit doorway is not readily discernible.

c——Such signs shall be worded in plainly legible block letters with the word **EXIT** for exit signs and the words **TO EXIT** with a suitable pointer or arrow indicating the direction of exit, for directional signs. Letters for signs shall be conspicuous, readily discernible, and at least 6 inches high except that for internally illuminated signs the height of such letters shall be at least 4½ inches.

d——Exit and directional signs shall be illuminated either externally or internally by electric lights, and shall be kept illuminated at all times when the building is occupied. Where a system of emergency lighting is provided, electric lights illuminating exit and directional signs shall be supplied with current from the emergency lighting system. When such system is not provided,

current shall be supplied from a separate circuit or circuits controlled from a central location. Circuits supplying exit and directional sign outlets shall supply no other outlets.

B 508 (762) REFRIGERATION, AIR CONDITIONING AND MECHANICAL VENTILATION

B 508-1 (762.1) Refrigeration

B 508-1.1 General Requirements

(762.1a) Mechanical refrigeration equipment shall conform to the requirements of section B 501, and shall be designed and installed so as not to be a potential source of hazard from excessive pressure or refrigerant leakage.

B 508-1.2 Location

(762.1b) Refrigerating equipment shall not be permitted in exits, except that self-contained refrigerating units shall be permitted in lobbies provided that they do not obstruct or diminish the width of exits, and the refrigerant contained in any such unit is limited so as not to constitute a potential hazard.

B 508-1.3 Materials

(762.1c) Refrigerating equipment shall be of materials resistant to the corrosive effects of refrigerant conveyed by them, so as to remain gastight and safe. All parts of such equipment shall be designed, constructed, and installed so as not to exceed the allowable working stresses of the material used.

B 508-1.4 Refrigerants

(762.1d) a——Refrigerants shall be classified as to their flammable or toxic qualities.

b——Refrigerants that are highly flammable shall not be used in multiple dwellings.

c——In direct refrigerating systems using nonflammable and nontoxic refrigerants, the amount of refrigerant contained in each system shall not exceed the amount that in case of leakage may be contained safely in the space in which the equipment is located, or in the spaces in which the refrigerant would be dissipated.

d——Direct systems using refrigerants that are flammable or toxic shall not be used for air conditioning purposes.

e——Systems containing refrigerants exceeding the limit stated in paragraph c of this section shall be of the indirect type using chilled water or nontoxic, nonflammable brine as the cooling medium, and equipment containing the refrigerant shall be located in a machinery room.

B 508-1.5 Refrigerant Piping

(762.1e) a——Refrigerant piping shall not be located in ducts, chutes, exits, stairways, or hoistways, or where it may be subject to mechanical damage.

b——Direct systems containing nonflammable and nontoxic refrigerants may have refrigerant piping carried through floors, provided that where passing through spaces not served by the systems, such piping shall be enclosed in rigid, noncombustible material and shall be arranged so that leakage of gas will not enter such spaces.

B 508-1.6 Machinery Room

(762.1f) a——No apparatus to produce an open flame shall be installed in any required refrigeration machinery room unless such flame is provided with a suitable hood and equipment that is capable of effectively removing the products of combustion to the outer air.

b——Refrigeration machinery rooms shall be used for no purpose other than for mechanical equipment.

c——Refrigeration machinery rooms shall be in conformity with the requirements set forth in section B 402-4.3c, and shall have no openings that will permit the passage of escaping refrigerant to other parts of the building. Machinery rooms shall be provided with ventilation in accordance with generally accepted standards.

d—Motor control for machinery room ventilating equipment shall be located outside the room.

B 508-1.7 Safety Controls

(762.1g) Refrigerating equipment shall be provided with means to relieve excessive pressures safely.

B 508-1.8 Plumbing Connections

(762.1h) Plumbing connections for refrigerating equipment shall be in conformity with the requirements set forth in section B 502.

B 508-2 Cooling Towers

(762.2)

a——Cooling towers in exterior locations inside fire limits shall be constructed of noncombustible materials, including the exterior finish, with the exception that the drip bars and drift eliminators may be of wood.

b——Cooling towers shall be designed, installed, and located so that when in operation noise, fog, or water spray will not cause a nuisance.

c——Outdoor cooling towers located on multiple dwellings shall permit access for fire fighting, and shall not constitute a fire hazard.

B 508-3 Ventilating Systems

(762.3)

B 508-3.1 General Requirements

(762.3a)

a——Ventilating systems shall be designed and installed so that the rapid spread of heat, flame, or smoke through the system will be prevented, and so that under conditions of use the temperature of any combustible material adjacent thereto, or in contact therewith, will not exceed 175° F.

b——Systems designed for exhaust ventilation of toilets, garages, interior passageways or vestibules separating garages from buildings, and spaces where the exhaust may be toxic or irritating in nature, shall each be independent of other systems, except that such systems may be interconnected at a fan located on the roof which serves as a common means of exhaust.

c——Stairways, passageways, exits, shafts, hoistways, or attics shall not be used as plenum chambers, except that in a motel an attic conforming to the requirements of section B 402-3d or B 402-5.3f may be used, provided openings in fire separations for air flow are equipped with fire dampers, and controls are provided which will stop the fans whenever there is an abnormal rise of temperature in the system. Such controls shall require manual reset.

d——Ducts shall be securely fastened in place, and shall be firestopped as set forth in section B 402-5.1.

e——Material used for the insulation or soundproofing of ducts shall be noncombustible, except that slow-burning material may be used on the outside when the inside is subject to temperatures not exceeding 150° F.

f——Ducts and other air handling equipment shall be of noncombustible material.

g——Filters shall be designed and installed so as not to constitute a fire or smoke hazard.

h——Ducts passing through or located within combustible construction shall be separated from such construction by a clearance of at least ½-inch or by a noncombustible insulating material at least ¼-inch thick.

i——Ducts passing through fire walls shall be equipped with fire doors as set forth in section B 402-4.8d. Ducts passing through other fire separations shall be protected as set forth in section B 402-4.8d, or be provided with other means to prevent the spread of heat, smoke or flame.

j——Plenum chambers or enclosures for ventilating purposes shall conform to the requirements for ducts.

k——Exhaust ducts operated by gravity or wind shall have no connection to other ducts, except that when they are the same length and serve the same story, such ducts may be combined. The capacity of wind-operated devices to exhaust the required air quantities shall be based on their performance when subjected to wind velocities of 4 miles per hour.

l——Ducts shall not be located between fire-protective material and structural members which such material is designed to protect, except that ducts are permitted in the concealed space between a ceiling of fire-resistive construction and beams or joists protected by such ceiling, in conformity with section B 402-3d, provided that where they pass through fire separations, fire dampers are installed.

m——Air required for ventilation shall be taken from the exterior or shall be quality-controlled.

B 508-3.2 Air Intake and Exhaust Openings

(762.3b)

a——Air intake and exhaust openings shall be designed, located, and installed so as not to constitute a hazard or nuisance, and so as to prevent the possibility of fire, smoke, fumes, or foreign matter being drawn into the system.

b——Ventilating systems shall be provided with adequate openings for incoming and outgoing air to obtain the required circulation. Intake openings shall provide air from an uncontaminated source.

c——Where openings for mechanical exhaust are located in spaces that also contain fuel-burning equipment, there shall be provided fixed intake openings from the exterior to supply sufficient air so that the fuel-burning equipment is not adversely affected.

d——Exhaust openings shall be located so that the exhaust air will not create a nuisance.

B 508-3.3 Ventilation Requirements

(762.3c) a——Enclosures or spaces where heat, gases, vapors, or odors may accumulate and become a potential source of hazard or nuisance, shall be provided with adequate means of ventilation to remove such excess.

b——Public spaces shall be provided with means for obtaining air supply for the maximum number of persons for which such spaces are designed.

c——Cooking equipment in kitchens serving restaurants or public dining rooms shall be provided with mechanical exhaust systems which are not connected with any other exhaust system. Such systems shall be designed and constructed with openings of size to permit easy inspection and cleaning. Systems shall be equipped with effective means to extinguish fires, and shall be designed and installed so that in the event of fire within the system the danger of spread to other parts of the building will be minimized.

d——Ventilating systems shall be designed and installed so that the air coming into contact with occupants is directed and is at a temperature or velocity that does not constitute a health hazard.

e——Required ventilation shall be provided in accordance with section B 209 and tables B 508-3.3e and B 508-3.3f.

B 508-3.4 Air Flow

(762.3d) Exhaust air from a dwelling unit or a space whose contents may emit odors, fumes, or vapors shall not be circulated to other occupied spaces within the building.

TABLE B 508-3.3e. (I-762) — MEANS FOR OBTAINING REQUIRED VENTILATION

(See table B 508-3.3f for quantity requirements)

Classification of space	Required ventilation obtained by means of —		
	Openings to the outer air	Ducts connected to wind- and gravity-operated ventilators	Mechanical ventilating equipment
Spaces other than those listed below	Permitted	Permitted	Permitted
Habitable spaces	Required	[3]	[3]
Water closet compartments and bathrooms	Permitted	Permitted	Permitted
Exits, passageways and stairways	Permitted	Permitted	[3]
Garage areas over 1000 square feet[1]	[2]	[2]	Required
Kitchens serving restaurants or public dining rooms[2]	[2]	[2]	Required

[1] Garage areas of more than 1000 square feet, in basements and cellars, shall be provided with an air intake and adequate air circulation at floor level.
[2] For requirements for cooking equipment in such areas, see section B 508-3.3c.
[3] Not permitted as a means for obtaining required ventilation, but permitted as an additional means.

B 508-3.5 Safety Controls

(762.3e) a——Manually operated controls shall be provided to stop the operation of all central fan equipment. Such controls shall be conspicuously identified and in readily accessible locations outside the fan room.

b——Every system using recirculated air and serving an assembly space or more than one fire area or more than one story of a building, shall be provided with controls arranged so that under abnormal rise in temperature of the air in the system the fans causing normal circulation shall stop and require manual restart.

c——Every system for ventilating an assembly space shall be provided with an emergency switch conveniently located and with a durable sign giving instructions for shutting down the system in case of fire.

B 508-4 (762.4) Emergency Ventilation

a——Telephone rooms, pumps rooms, and other places which require the attendance of an operator during a fire or other emergency, shall be provided with natural ventilation, or in lieu thereof, with an independent mechanical system for obtaining fresh air from outside the building. The mechanical system shall be capable of introducing outside air in sufficient quantity to minimize the effect of smoke from other parts of the building.

TABLE B 508-3.3f. (II-762) — MINIMUM VENTILATION REQUIREMENTS

Space	Amount of ventilation
Habitable spaces	See section B 209-3
Cellar or basement spaces	One-half air change per hour
Exits, passageways, and stairways:	
above grade	One-half air change per hour
below grade	1 air change per hour
Cooking space with domestic type range for:	
private use	150 cfm
public use	250 cfm per range
Water closet compartments and bathrooms:	
private use	25 cfm
public use	40 cfm per water closet or urinal
Recreation rooms	2 air changes per hour
Assembly space	10 cfm per person
Refrigerator machinery rooms	In accordance with generally accepted standards
Boiler rooms	To limit the temperature to a maximum of 120° F.
Elevator machinery rooms	To limit the temperature to a maximum of 10° F. above the outdoor temperature
Small workshops, service rooms, paint storage rooms, utility service rooms	1 air change per hour
Kitchens serving public dining rooms	4 air changes per hour
Hoods for cooking equipment in kitchens serving public dining rooms	100 cfm per square foot
Locker rooms and dressing rooms[1]	6 air changes per hour
Garage areas:	
above grade exceeding 1000 sq. ft.	4 air changes per hour
below grade	6 air changes per hour
Interior passageway or vestibule seperating garage from multiple dwellings	Not less than 4, nor more than 10, air changes per hour

[1] Where ducts are directly connected to lockers, the ventilation or rooms in which lockers are located may be reduced 50 per cent.

b——Required emergency ventilation shall be provided with a manual control in a conspicuous location near the exit, and with a durable sign giving instructions for starting the system.

c——Required emergency ventilation shall have a capacity to provide at least 10 air changes per hour.

B 509 (763) EQUIPMENT FOR FUEL OIL

B 509-1 (763.1) General Requirements

Fuel oil shall be received, stored, and conveyed by means of fixed liquidtight equipment designed and installed in conformity with the requirements set forth in section B 501.

B 509-2 (763.2) Storage Tanks

a——Fuel oil storage tanks shall rest on noncombustible supports.

b——Tanks shall be protected against settling, sliding, or displacement because of buoyancy. Where located in areas subject to traffic, they shall be protected against physical damage.

c——Tanks shall be located at a safe distance from the property line and from spaces which are at an elevation lower than the top of the tank so as to reduce the potential hazard in the event of discharge of liquid.

d——Underground tanks shall be located so as not to receive any foundation load.

e——Tanks shall be provided with means for venting.

f——Tanks shall be designed and installed so as not to be a hazard to the premises served or the surrounding property.

B 509-3 (763.3) Storage Tanks Inside of Buildings

a——Fuel oil storage tanks inside of buildings shall be provided with liquid-level indicating devices of fixed vaportight construction.

b——Unenclosed fuel oil storage tanks shall not be located in garages exceeding 1000 square feet in area.

In garages not exceeding 1000 square feet in area, capacity of such tanks shall not exceed 550 gallons.

c——Maximum capacity of fuel oil storage tanks shall be in accordance with table B 509-3c.

B 509-4 Piping

(763.4)

a——Pipes for fuel oil entering buildings shall be protected from damage by settlement or corrosion.

b——Where such pipes enter a building below grade, all exterior wall openings below grade and within 10 feet of such pipe entrance shall be vaportight.

TABLE B 509-3c. (1-763) — PERMISSIBLE MAXIMUM CAPACITY OF FUEL OIL STORAGE TANKS INSIDE OF BUILDINGS

Construction classification	Minimum fire-resistance rating of tank enclosure, in hours	Permissible maximum aggregate storage capacity, in gallons	Permissible maximum storage capacity of an individual tank, in gallons
Type 5	(1)	550	550
Type 1, 2, 3, 4	(1)	1,100[2]	550
Type 2, 3, 4	2	10,000	5,000
Type 1	2	15,000	10,000
Type 1, 2	4	50,000	25,000

[1] No enclosure required where separated by a distance of at least 5 feet from an open flame or open electrical coil.
[2] Valves shall be provided to limit capacity of tanks connected to an oil burner to 550 gallons at any one time.

c——Such pipes having discharge outlets located within buildings shall be provided with remote control to stop the flow during fire or other emergency.

d——Filling, emptying, and venting of tanks shall be by means of fixed piping. Pipes to underground tanks shall be pitched toward tanks. Terminals of fill and vent pipes shall be located outside buildings at a safe distance from building openings.

B 510 FIRE PROTECTION EQUIPMENT

(764)

B 510-1 General Requirements

(764.1)

Fire protection equipment shall be provided as set forth in section B 405, and shall be in conformity with the requirements set forth in this section.

B 510-2 Fire Alarm Systems

(764.2)

B 510-2.1 General Requirements

(764.2a)

a——Fire alarm systems shall conform with the requirements of section B 501, and shall be designed and installed so as to warn all the occupants in the event of fire or other emergency.

b——The component parts of a fire alarm system shall be designed, made and assembled for fire alarm purposes, and so as not to require frequent major replacements.

c——Fire alarm systems shall be under constant electrical supervision so that failure of the main power supply or an open or grounded circuit which prevents the normal operation of the system will be instantly and audibly indicated. Where such electrical supervision is impracticable for certain types of sounding devices, such as vibrating bells, such sounding devices shall be connected alternately on separate circuits and shall be equally distributed throughout the building.

d——Fire alarm systems required in group B2 occupancies shall be of the coded type.

e——Installation of presignal systems shall be permitted only in buildings where an authorized person is available at all times on the premises to receive the alarm and take proper action.

B 510-2.2 Manual Fire Alarm Boxes

(764.2b)

a——Fire alarm systems shall have manually operated fire alarm signaling devices, mounted in durable boxes, and designed to transmit an alarm signal to the sounding devices on the premises.

b——There shall be at least one such box in each fire area.

c——Boxes shall be located in a public hall or passageway in the natural path of escape from fire and shall be accessible on every story without passing through a fire door.

d——Boxes shall be located so that the horizontal distance from any point on a story not divided into rooms or from any door opening out of a room or suite to the

nearest box shall not exceed 100 feet except that for buildings of type 1 construction, or where such horizontal distance is protected by sprinklers, the distance may be increased to 150 feet.

e——Boxes shall be in a position and ready at all times to operate when actuated.

f——Boxes shall be identified and shall have a conspicuous exterior color.

g——Boxes shall be designated to be used only for fire protection purposes or other emergency.

B 510-2.3 Sounding Devices

(764.2c) a——Fire alarm systems shall be provided with sounding devices designed to sound a clear audible alarm signal that is distinct from all signals of other sounding devices used in the vicinity.

b——All fire alarm sounding devices within a building shall be of the same type.

c——A sufficient number of sounding devices shall be provided and so located that the alarm is audible in all parts of the building.

B 510-2.4 Electrical Requirements

(764.2d) a——Fire alarm systems shall be supplied with electrical energy from a main source and, in case of failure of the main source, from an auxiliary source, except that where electric service of three-, four-, or five-wire type is obtained from a reliable underground network distribution system, the auxiliary source shall not be required.

b——Circuits used for the transmission of alarms shall be used for fire protection or other emergency purposes only, and shall be arranged and installed so that there can be no interference with the operation of the sounding devices.

c——Electrical wiring shall be protected against corrosion, moisture, or mechanical damage. Wiring shall be protected by a metallic raceway or armor, except that such raceway or armor shall not be required for wiring installed at least 7 feet above the floor, provided the input to the circuit is limited to 100 volt-amperes, current does not exceed 5 amperes, and voltage does not exceed 50 volts.

d——Raceway and boxes containing fire alarm conductors shall not contain conductors used for any purpose other than fire protection.

B 510-2.5 Tests

(764.2e) The trouble signal of fire alarm systems shall be tested daily, and all fire alarm boxes and sounding devices shall be tested at least once a month during periods of occupancy.

B 510-3 Fire-Detecting Systems

(764.3)

B 510-3.1 General Requirements

(764.3a) a——Fire-detecting systems shall conform with the requirements of section B 501, and shall be designed and installed so as to detect a fire in its initial stage, or to detect a rapid or excessive rise of temperature, and automatically to actuate an alarm.

b——The component parts of a fire-detecting system shall be designed, made and assembled for fire-detecting purposes, and shall be reasonably free from false alarm possibilities.

c——Fire-detecting systems shall be provided with fire-detecting devices arranged to transmit an alarm signal to sounding devices located throughout the building.

B 510-3.2 Fire-Detecting Devices

(764.3b) Fire-detecting devices shall be located so that they are protected from damage and will operate without delay.

B 510-3.3 Manually Operated Fire Alarm Box

(764.3c) Fire-detecting systems shall be equipped with at least one manual fire alarm box located in a natural path of escape from fire to provide an auxiliary means for actuating the alarm system. Where practicable, such box shall be located on the grade story near the main exit.

B 510-3.4 Miscellaneous Requirements

(764.3d) In addition to the regulations set forth herein for fire-detecting systems, such systems shall also conform to the applicable requirements of sections B 510-2.1, B 510-2.3, B 510-2.4, and B 510-2.5.

B 510-4 Sprinkler Systems
(764.4)

B 510-4.1 General Requirements

(764.4a) a——Sprinkler systems shall conform to the requirements of section B 501, and shall meet the requirements for light hazard conditions as defined in generally accepted standards.

b——Sprinkler systems shall, upon actuation by heat produced by fire, automatically distribute water upon the fire in sufficient quantities either to extinguish it entirely or confine it without spread.

c——The component parts of sprinkler systems shall be designed, constructed, and assembled so as to function as a unified system.

d——Connection to a sprinkler system for other than sprinkler use is prohibited, except as otherwise provided in sections B 510-4.6 and B 510-4.8.

e——Sprinklers connected to a potable water supply system shall be designed and installed so that they will not cause pollution.

f——Piping shall be connected so that water from any designated source of supply can flow to any one or combination of risers to deliver its full rated capacity without excessive friction loss.

B 510-4.2 Water Supply

(764.4b) a——Sprinkler systems shall have at least one approved source of water supply of adequate pressure, capacity, and reliability.

b——Water pressure at the highest sprinkler shall be at least 15 psi gage when an amount of water is discharged which is equivalent to the flow from the probable maximum number of sprinkler heads that may operate during a fire.

c——Water supply shall be sufficient to maintain the required pressure for a minimum period of 20 minutes for the probable maximum number of sprinkler heads that may operate in a fire.

d——When connection to a reliable public water supply can furnish at the highest sprinkler a pressure of at least 5 psi gage, the balance of the required pressure may be

supplied by an automatic pump. Such pump shall be designed and installed for fire service, shall be protected against possible interruption of service by fire, and shall be under constant electrical supervision with connection to transmit signals to an approved central station or to a trained fire brigade available at all times to receive the signals and take proper action.

e——Sprinkler systems of adjacent multiple dwellings may be connected from a common source of water supply provided such buildings are designed to remain permanently under a single ownership and provided the source is of sufficient capacity for the largest sprinkler system within any one building.

B 510-4.3 Sprinkler Heads

(764.4c) a——Sprinkler heads shall be located and arranged to spray all parts of the area to be protected, including closets and alcoves.

b——In locations where ceiling temperatures up to 100° F. prevail, the temperature at which sprinkler heads operate to discharge water shall be from 135° F. to 165° F.

c——In locations such as furnace, boiler and laundry rooms, where ceiling temperatures are over 100° F. but do not exceed 150° F., the temperature at which sprinkler heads operate to discharge water shall be from 175° to 212° F.

d——Sprinkler heads shall be located so that there is no interference with the effective distribution of water.

e——Luminous ceilings located above or below sprinkler heads shall be installed in conformity with sections B 403-3g and B 403-3h.

B 510-4.4 Fire Department Connections

(764.4d) a——Fire department connections shall be required for sprinkler systems where there is a total of thirty-six or more sprinkler heads connected in any one building.

b——Fire department connections shall be of approved Siamese type to fit the equipment of the nearest local fire department that would respond to an alarm, shall be of corrosion-resistive metal, and shall be conspicuously identified for sprinkler use.

c——Fire department connections shall be located on a street front of the building accessible for fire department use without being a potential hazard.

d——Where the building faces or abuts more than one street, additional connections shall be provided so that at least one connection is located on each street frontage which is 50 feet or more in length, except that where the frontage is continuous only one connection shall be required.

B 510-4.5 (764.4e) Sprinkler Alarm

a——A required sprinkler system in a multiple dwelling occupied by transients shall be equipped with automatic means for sounding an alarm audible throughout the building when there is a flow of water through any sprinkler head. In lieu of such an alarm, a signal shall be transmitted to the telephone switchboard or other approved central location in the building, provided a signal is also transmitted automatically to the local fire department or recognized central station.

b——A sprinkler system installed in lieu of a required fire alarm system shall be equipped with automatic means for sounding an alarm audible throughout the building when there is a flow of water through any sprinkler head, and shall be equipped with at least one manual fire alarm box located in a natural path of escape from fire to provide an auxiliary means for actuating the alarm system.

c——Any valve controlling the water supply to a sprinkler head shall be provided with means for sealing in the open position, or in lieu thereof, there shall be provided a means to give warning of the closure of any valve controlling such water supply. The warning shall be an automatically operated alarm signal audible to the occupants or transmitted to an approved central station.

d——Sprinklers required for the protection of exits, public halls, and stairways, and for a garage within a multiple dwelling, and any sprinkler installation containing more than ten heads, shall be provided with a local alarm, except as provided in paragraphs a and b of this section. Local alarm shall function so that the flow of water from the system equal to or greater than that from

a single sprinkler head will result in the sounding of an audible alarm signal on the premises.

e——Tanks supplying sprinkler systems shall be provided with means to transmit an alarm for signaling a high or low water level in gravity tanks, or a high or low pressure in pressure tanks. For gravity tanks, in lieu of such alarm, a water-level indicating device at an approved central location shall be provided. Alarms shall be electrically operated and shall transmit signals to an approved central station or approved central location in the building where trained personnel is available at all times to receive the signal and take proper action.

B 510-4.6 (764.4f) Domestic Water Service Supply from Sprinkler System Service

a——Sprinkler systems shall be maintained for sprinkler use only, except that a domestic water service connection may be made from the largest diameter of sprinkler water service connection to the water main, provided the domestic service connection is not more than 1¼ inches for a 4-inch sprinkler service connection to the water main, and not more than 2 inches for a 6-inch or larger sprinkler service connection to the water main. Where the size of the domestic water connection exceeds that set forth above, the water service shall be deemed inadequate for supplying a sprinkler system but may be used to supply a special sprinkler installation.

b——Domestic water supply connection shall be made so as to be free of the hazard of potential pollution from the sprinkler system.

B 510-4.7 (764.4g) Special Sprinkler Installation Supplied from the Domestic Water System

a——Sprinkler heads installed in conformity with this section do not constitute a sprinkler system.

b——Special sprinkler installations may be supplied from the domestic water service within the building, or from a branch, provided the size of the domestic water supply piping up to the point at which sprinkler connections are made is at least equal to the size required by generally accepted standards for the number of sprinkler heads to be served.

c——Where the sprinkler connection to the domestic water supply piping is made within the building at a point other than the water service connection, the sprinkler connection shall be made to a main or branch from the main with no intervening means of shutoff from the main or main riser.

B 510-4.8 Connections for First Aid Hose

(764.4h) First-aid hose connections may be made from a 2½-inch or larger automatic wet sprinkler pipe, provided that the number of connections in a fire area is such that, when in use, the water supply and pressure required by the sprinklers are not reduced.

B 510-5 Standpipe Systems

(764.5)

B 510-5.1 General Requirements

(764.5a) a——Standpipe systems shall conform to the requirements of section B 501, and shall be designed and installed so that all parts of every floor area can be quickly reached by an effective stream of water.

b——Standpipe systems shall be designed for furnishing heavy hose streams for severe fires and first-aid streams to control incipient fires.

c——Required standpipe systems shall be available during construction.

B 510-5.2 Piping

(764.5b) a——Standpipes shall be of ample size to convey water from any designated source in sufficient quantity to supply the hose streams that are likely to be in simultaneous use.

b——At least one riser shall be located in an enclosed stairway.

c——Piping shall be connected so that water from any designated source of supply can flow to any one or combination of risers to deliver its full rated capacity without excessive friction loss.

B 510-5.3 Hose Stations

(764.5c) a——Hose stations shall be located in, or in close proximity to, enclosed stairways; they shall be conspicuously identified, and shall be arranged for easy accessibility.

b——Hose and equipment for first-aid fire protection or heavy stream shall be provided at hose stations, and shall be arranged so as to permit quick and easy handling by occupants or trained personnel.

c——Hose shall be installed in locations that are dry, ventilated, and free of excessive heat, so as to prevent deterioration; and they shall be connected for immediate use.

d——Where first-aid fire hose is located so as not to be conspicuous to the occupants, it shall be located in spaces which are accessible and unlocked at all times. A durable sign, conspicuously located, shall be provided directing attention to the location of such fire hose.

e——Cabinets used to enclose first-aid fire hose shall be conspicuously identified, of noncombustible construction, equipped with keyless doors, and arranged so as to provide for the quick and easy removal of equipment.

B 510-5.4 Water Supply

(764.5d) a——Standpipe systems shall have a reliable and adequate source of water to supply the hose streams that are likely to be needed simultaneously for protecting the building.

b——Where a single source of supply is used it shall be capable of automatically supplying water to maintain at least one heavy hose stream for buildings containing no more than two risers, and two heavy hose streams for buildings containing more than two risers.

c——Where more than one source of supply is used, at least one of the sources shall be capable of automatically supplying water to maintain one heavy hose stream until other sources can be brought into action.

d——Water supply for fire department use shall have sufficient pressure at the nozzle of the highest outlet to permit the discharge of an effective stream.

e——Water supply designed for use only as first-aid fire protection shall have sufficient pressure at the noz-

zle of the highest outlet to permit discharge of an effective first-aid stream when another such stream in the system is being discharged simultaneously.

B 510-5.5 Fire Department Connection

(764.5e) a——At least one fire department connection shall be provided.

b——Fire department connections shall be conspicuously identified for standpipe use, and shall be in conformity with the requirements set forth in sections B 510-4.4b and B 510-4.4c.

B 510-5.6 Controls

(764.5f) Control of water flow shall be obtained by means of devices located at each hose station.

B 510-6 Watchman's Systems

(764.6) a——Watchman's systems shall conform to the requirements of section B 501 and shall be designed and installed so that routes are established to cause the watchman, in his patrol, to pass sufficiently close to each space of the building to detect evidence of fire or other emergency.

b——Stations shall be located so that a watchman can visit every space to be patrolled within a period of 40 minutes.

c——Equipment for watchman's systems shall be tamperproof and designed to record legibly and completely the movements of the watchman so that a check can be made of the patrol of his route.

B 511 ELEVATORS, DUMBWAITERS, AND ESCALATORS

(765)

B 511-1 General Requirements

(765.1) a——Elevators, dumbwaiters, and escalators shall conform with the requirements of section B 501, and shall be designed and installed so as to be free from physical and fire hazards.

b——Elevators, dumbwaiters, and escalators shall be designed and installed to sustain safely the loads to which they are subject.

c——Elevator and dumbwaiter cars shall be provided with durable signs in conspicuous locations on which the rated capacity shall be indicated.

d——Elevators, dumbwaiters, and escalators shall be maintained in proper working order, and elevators and escalators shall be inspected and tested periodically.

e——One or more passenger elevators shall be provided in multiple dwellings of group B2 occupancy exceeding three stories in height. In such buildings at least one landing opening shall be provided at each story for access to an elevator.

f——One or more passenger elevators shall be provided in multiple dwellings of group B1 occupancy exceeding four stories in height. In such buildings sufficient landing openings shall be provided so that it will not be necessary to travel by stairs more than one story, up or down, to gain access to an elevator.

g——Elevator landing openings shall not be required at basement or penthouse levels. From such levels, travel by stairs for one story in group B2 occupancy and for two stories in group B1 occupancy to gain access to a required elevator, shall be permitted.

B 511-2 Elevators and Dumbwaiters

(765.2)

B 511-2.1 Hoistway

(765.2a) a——Elevators and dumbwaiters shall be installed in enclosed hoistways constructed of noncombustible materials having fire-resistance ratings as set forth in table B 202-2 for outside exposure, except for hoistway enclosures of elevators and dumbwaiters which are entirely within one story or which pierce no solid floors and serve two or more open galleries, or sidewalk elevators having a travel of not more than one story below the grade level.

b——Hoistway and machinery space enclosures extending into the top story shall be carried to a point at least 3 feet above the roof or to the underside of a roof of fire-resistive construction.

c——Not more than four elevators shall be installed in a multiple hoistway.

d——A pit with a ready means of access shall be provided at the bottom of every power elevator hoistway. A manually operated stop switch which will prevent the operation of the elevator machinery by the operating device shall be provided in the pit.

e——Hoistways of elevators and dumbwaiters shall be provided with natural means for venting smoke and hot gases to the outer air in the event of fire. Such ventilating openings shall conform to the requirements set forth in sections B 402-4.4i and B 402-4.4j.

f——Pipes, conduits, and cables, except traveling cables, shall be securely fastened to the hoistway construction. Sewage drainage piping and piping or ducts conveying gases, vapors, or liquids and not used in connection with the operation of the elevator or dumbwaiter, shall not be installed in the hoistway, except that pipes for heating or fire protection of the hoistway shall be permitted.

g——Clearances shall be maintained in the hoistway to prevent the car or counterweight from striking any part of the structure or equipment other than buffers.

h——Elevator hoistways shall have not more than two landing openings on a floor for each car.

i——Elevator and dumbwaiter hoistway landing openings shall be provided with opening protectives having fire-resistance ratings as set forth in section B 402-4.8.

j——In portions of single hoistways for elevators, where landing openings are more than 36 feet apart, there shall be provided at least one door assembly and door for emergency exit at every third floor, but in no event shall such doors be more than 36 feet apart.

k——Safe and convenient access shall be provided at the top of the elevator hoistway for inspection and servicing of elevator machinery, sheaves, and governors.

l——Window openings shall be permitted only in exterior building walls of hoistways. Such openings shall be provided with opening protectives in conformity with section B 401-4.

m——Hoistway window openings ten stories or less above a thoroughfare, or three stories or less above a roof of the same or an adjacent building, shall be guarded on the outside by fixed construction of strength

sufficient to prevent access. Such windows shall be provided with a corrosion-resistant metal sign located outside at sill level, worded **HOISTWAY** in letters not less than 12 inches high.

n——Hoistways of sidewalk elevators shall not be located either wholly or partially in front of any entrance or exit of a building.

o——Where the top terminal landing opening of a sidewalk elevator is in the sidewalk or other area outside the building, electrical wiring shall be in rigid metal conduit, and other electrical equipment shall be of weatherproof type.

B 511-2.2 Machine Rooms

(765.2b) a——Power dumbwaiter machinery installed outside the hoistway, and all elevator machinery, shall be enclosed in a room or roof structure. Machine rooms directly connected with the hoistway shall be of construction having fire-resistance ratings as set forth in section B 402-4.4.

b——Machine rooms shall be provided with natural or mechanical ventilation to avoid overheating of electrical equipment and to insure safe and normal operation of the hoisting equipment.

c——Machine rooms shall be maintained free of refuse and shall not be used for the storage of articles or materials unnecessary for the maintenance of the elevator or dumbwaiter. Flammable liquids shall not be kept in such rooms.

d——Moving parts of elevator machinery used in raising or lowering the elevator car shall be guarded to protect against accidental contact.

B 511-2.3 Machines and Machinery

(765.2c) a——Electric elevators shall be of the counterweighted traction type, except that non-counterweighted drum-type and screw machines may be used when designed in conformity with generally accepted standards.

b——Motors shall be direct-connected or gear-connected to the hoisting machine, and shall be used for no other purpose. No belt- or chain-driven machine shall be used to drive a power elevator.

c——Machines and machinery shall be supported and held in place so as to prevent effectively any part from becoming loose or displaced under the conditions imposed in service.

B 511-2.4 Car Construction

(765.2d) a——Passenger elevator cars shall be fully enclosed at sides, top, and bottom, except that openings shall be provided for entrance, escape, and ventilation.

b——Freight elevator cars shall be enclosed as required for passenger elevator cars, except that sides above 6 feet from platform floor and top may have metal screened enclosures with openings not exceeding 1½ inches in any dimension. Sidewalk elevators located outside the building are not required to be enclosed at the top.

c——Elevator cars shall be provided with ventilation by natural or mechanical means.

d——The interior of passenger elevator cars may be lined with class A or B interior finish material, as classified in section B 403-2, firmly bonded flat to the sides without intervening air spaces. Such material shall not be padded or tufted.

e——Glass used in elevator cars shall be of the nonshatterable type.

f——Dumbwaiter cars shall be of such strength and stiffness that they will not deform appreciably if the load leans or falls against the side of the car.

g——Freight elevator cars and operator-controlled passenger elevator cars shall be provided with a door or gate at each entrance. Automatic passenger elevator cars shall be provided with a door at each entrance.

h——No elevator car shall have more than one compartment.

i——No elevator car shall be arranged to counterbalance another elevator car.

j——Passenger elevator cars shall have not more than two entrances.

k——An emergency exit shall be provided in the top of elevator cars.

B 511-3 Escalators
(765.3)

B 511-3.1 Design and Construction

(765.3a) a——Escalators shall be constructed of noncombustible materials throughout, except for handrails and step wheels.

b——The angle of inclination, the width and the speed of escalators, shall be designed so as to provide for the safety of the passengers.

c——Clear and unobstructed access and egress shall be provided for each escalator.

d——Step treads and landings shall be of a material and design affording a secure foothold.

e——Minimum clearance between all exposed moving parts shall be maintained and guards shall be provided so as to prevent injury to passengers.

f——Escalators shall be provided with solid balustrading on each side. Such balustrading shall have no sharp projections or edges nor any abrupt change in width.

g——Each balustrading shall be equipped with a handrail moving at substantially the same speed and in the same direction as the travel of the steps.

h——Escalators, including floor openings, shall be protected by enclosures in conformity with the requirements set forth in section B 402-4.4.

i——The sides and undersides of escalator trusses and machinery spaces shall be fully enclosed with noncombustible material having fire-resistance ratings as required for escalator enclosures.

B 511-4 Controls
(765.4)

a——Elevators, dumbwaiters, and escalators shall be provided with operating, safety, and emergency controls to insure proper operation of the equipment and the safety of operators and passengers.

b——Power elevators shall not be controlled by direct hand-operated rope, rod, wheel or lever mechanism.

c——Hydraulic elevators shall be provided with full electric control.

d——Sidewalk elevators shall be operated by continuous-pressure or automatic operating devices. When the car is in contact with the sidewalk level doors, it shall be operable only by a manual continuous-pressure type control located at the sidewalk level nearby.

e——Sidewalk elevators shall be provided with an audible warning device at the sidewalk level arranged to sound when the elevator is ascending.

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