CHAPTER V—SPECIAL OCCUPANCY REQUIREMENTS

SECTION 500—FIRE PROTECTION STANDARDS

500.1

Except as specifically provided for by N. C. State Law or otherwise provided by rules promulgated by the N. C. Building Code Council, the standards of the National Fire Protection Association as listed in Appendix H shall be complied with for special occupancies or hazardous processes, materials or equipment covered by such Standards.

SECTION 501—GROUP "H"—HAZARDOUS OCCUPANCIES

501.1—GENERAL REQUIREMENTS

(a) Buildings of occupancies in Group H not specifically provided for in this Code, which involve the storage, manufacture, or use of highly combustible or flammable materials shall be constructed to provide a degree of fire protection adequate for the hazard involved. Such protection may exceed the fire-resistive requirements prescribed for Type I, Fireproof construction, if deemed necessary by the Building Official, but in all cases the construction shall meet the minimum requirements specified for Group H occupancies.

(b) Approved automatic sprinklers shall be installed throughout all buildings of Group H occupancies except that where the nature of the fire hazard is such that application of water is not effective as a means of protection other approved means of protection shall be provided.

(c) Buildings of Group H occupancies shall not be located in Fire District No. 1.

(d) Warehouses used to store combustible fibres such as cotton, sisal, jute, hemp, kapok, excelsior and similar materials having a flash fire hazard, shall be limited to story heights of not over 12 feet, floor to ceiling, and no single storage compartment shall exceed 5,000 square feet in floor area or 36,000 cubic feet in capacity.

(e) Stables, for storing hay, which do not exceed 1 story and storage loft, or a maximum of 20 feet in height, and do not exceed 3,000 square feet in floor area, may be of Type VI Wood Frame construction if located 30 feet or more from adjoining property lines and other structures.

(f) Buildings or structures of occupancies involving the use of highly combustible material or processes, and their equipment, shall be erected, altered, and installed in accordance with safe practice. Except as otherwise provided in this Code, the provisions of the various regulations or standards of the National Fire Protection Association governing the particular occupancy shall be considered as constituting safe practice. Those standards include, among others, the following:

N.F.P.A. Standards for the storage, handling and use of flammable liquids (National Fire Codes, Volume 1, 1966-67 Edition), NFPA No. 30-1966.

N.F.P.A. Standards for spray finishing using flammable materials (National Fire Codes, Volume I, 1966-67 Edition), NFPA No. 33-1966.

N.F.P.A. Standards for dip tanks containing flammable or combustible liquids (National Fire Codes, Volume 1, 1966-67 Edition), NFPA No. 34-1966.

N.F.P.A. Standards for the installation and operation of oxygen-fuel gas systems for welding and cutting (National Fire Codes, Volume 2, 1966-67 Edition), NFPA No. 51-1964.

N.F.P.A. Standards for the storage and handling of liquefied petroleum gasses (National Fire Codes, Volume 2, 1966-67 Edition) NFPA No. 58-1966.

N.F.P.A. Recommended good practice requirements for the installation and use of combustion engines and gas turbines (National Fire Codes, Volume 2, 1966-67 Edition), NFPA No. 37-1963.

N.F.P.A. Standards for the storage and handling of pyroxylin plastic in warehouses and wholesale jobbing and retail stores (National Fire Codes, Volume 3, 1966-67 Edition), NFPA No. 43-1962.

N.F.P.A. Standards for the storage, handling and use of pyroxylin plastic in factories making articles therefrom (National Fire Codes, Volume 3, 1966-67 Edition), NFPA No. 42-1962.

N.F.P.A. Standards for the storage and handling of combustible fibres (National Fire Code, Volume 3, 1966-67 Edition), NFPA No. 44-1953.

N.F.P.A. Standards for the installation, maintenance and use of gasoline vapor lamps and systems (National Fire Codes, Volume 2, 1966-67 Edition), NFPA No. 53-1932.

N.F.P.A. Standards on the fundamental principles for the prevention of dust explosions in industrial plants (National Fire Codes, Volume 3, 1966-67 Edition), NFPA No. 63-1964.

N.F.P.A. Code for the prevention of dust explosions in the manufacture of aluminum powder (National Fire Codes, Volume 3, 1966-67 Edition), NFPA No. 651-1963.

Note: The above standards are published by the National Fire Protection Association in the several volumes of National Fire Codes and may be obtained from them at 60 Batterymarch Street, Boston, Mass. 02110. (See Appendix H).

501.2—DRY CLEANING, DYEING OR SIMILAR HIGH FIRE HAZARD OCCUPANCY

(a) No building used for dry cleaning or similar hazardous occupancy shall be located within Fire District No. 1, unless only non-flammable liquids are used for cleaning purposes.

(b) Dry cleaning, dyeing, or similar establishments using combustible or flammable liquids or solvents with a flash point of 190° F, or lower (closed cup test), shall be of Type I, Fireproof, or Type II, Fire-Resistive construction, and shall not exceed 1 story in height or 10,000 square feet in area, without attics, concealed roof spaces, basements or pits. Floors shall not be below grade.

(c) Roofs shall be flat. If, due to local conditions, the Building Official deems it desirable to vent possible explosions upward, the roof may be of light, non-combustible construction.

(d) An approved automatic sprinker system shall be installed throughout each drying room in accordance with Section 901 of Chapter IX.

(e) Partitions shall have not less than 2-hour fire-resistance.

(f) Drying rooms, if under the same roof as the dry cleaning and dry dyeing rooms, shall be separated from such rooms by each wall having a fire-resistance of not less than 4 hours. The entrance to such drying rooms shall be provided with self-closing fire doors.

(g) Except for necessary openings for vents, ducts, piping and shafting, all openings in exterior walls shall be protected with fire doors or windows. Windows shall be of wire glass in metal sash so hung that they will readily swing out in case of explosion.

(h) Exterior walls except those on street fronts, which are located less than 10 feet from adjacent property lines shall have no openings therein and shall have a fire-resistance rating of not less than four hours, or the equivalent, but in no case shall more than two sides of the building have blank walls.

(i) Skylights shall be provided. They shall be constructed with metal frame and sash with plain thin glass and with wire screen provided above the skylight as prescribed in Section 707, or with wire glass arranged to swing outward readily in case of an explosion.

(j) Mechanical systems of ventilation, of explosion-proof type, shall be provided to insure complete and continuous change of air once every 3 minutes in dry-cleaning and dry-dyeing rooms.

(k) All other regulations contained in this Code pertaining to construction, ventilation, storage, heating and lighting, or the like, shall apply as well as any laws of the State regulating the construction and maintenance of dry-cleaning, dyeing, or similar plants.

(l) The installation, ventilation, erection, alteration, maintenance or use of equipment, of buildings or structures for dry-cleaning or dry-dyeing purposes shall be in accordance with the provisions of the Standards of the National Fire Protection Association for dry cleaning and dry dyeing plants (National Fire Codes, Volume 1, 1964-65 Edition), NFPA No. 32-1964.

501.3—HANDLING OR STORAGE OF COMBUSTIBLE FILM

(a) *Construction of Buildings Where Films Are Stored or Processed.*

(1) All buildings in which combustible films are stored or processed, such as film exchanges, film laboratories, motion picture studios, etc. shall be of Type I or Type II construction and shall be equipped throughout with approved automatic sprinklers in accordance with Section 901 of Chapter IX. Such buildings shall not be located in Fire District No. 1 and shall not exceed the maximum height and area limitations specified for Group H in Section 411.5.

(2) The following regulations shall govern the handling and storage of combustible film except that they do not apply to the following: Films in original packages in quantities less than 50 pounds, and films stored in motion picture projection booths (See Section 512.15).

(3) Except as otherwise specified herein, the handling and storage of combustible film shall be governed by the Standards of the National Fire

Protection Association for storage and handling of cellulose nitrate motion picture film. (National Fire Codes, Volume 3, 1964-65 Edition), NFPA No. 4-1962.

(4) All rooms in which combustible films are stored or handled, except motion picture projection booths and film vaults, shall be enclosed in partitions of non-combustible construction having not less than 2 hours fire-resistance. Openings in such partitions shall be protected by approved fire doors. Floors and ceilings of such rooms shall provide fire-resistance of not less than 2 hours and vents that open automatically in case of fire shall also be provided. Tables and racks used in connection with the handling of film shall be of metal or other non-combustible material and shall be at least 4 inches away from any radiator or heating apparatus. Fire-fighting appliances using water, or water solutions, shall be provided in every room. In rooms where film is stored or handled in quantities greater than 50 lbs., cabinets shall be provided with insulated metal vents. Film storage rooms in which two or more persons work, shall have at least two exits remote from each other.

(5) Combustible film in amounts of more than 1,000 lbs. shall be kept in vaults constructed as prescribed in this Section.

(6) Amounts of combustible film in excess of 25 lbs. shall be kept in approved metal cabinets of capacity not exceeding 375 lbs. Cabinets having a capacity of over 50 lbs. of film, shall be provided with insulated metal vents of at least 14 square inches per 100 lbs. of film. Cabinets holding over 75 lbs. of film shall be provided with at least one automatic sprinkler, unless so built that each roll is in a separate compartment so constructed that the film will burn out without communicating fire to film in any other compartment.

(7) Unexposed film, when stored in the original shipping cases with each roll in a separate container, shall be stored only in a room provided with an approved automatic sprinkler system. (Section 901 of Chapter IX.)

(b) *Film Vaults.*

(1) Vaults used for the storage of combustible film shall not exceed 750 cubic feet inside and shall not be located near chimneys or other sources of heat.

(2) Walls, floors and roofs of film vaults and their supports shall be of not less than 4-hour fire-resistance construction built without cracks or holes that will permit escape of gases. Drains, or scuppers, to the outside of the building shall be provided. All door openings shall be protected with approved fire doors on each face of the wall; the inner door shall be automatic, the outer door shall be of the self-closing swinging type.

(3) Each vault shall have an independent vent having not less than 140 square inches effective area per 1,000 lbs. of film capacity (equivalent to 70 square inches per 100 standard rolls) but the vent area for a vault of 750 cubic feet shall in no case be less than 1400 square inches. Vents shall be of non-combustible materials and shall be located at least 50 feet from all openings exposed thereto.

(4) Film shall be protected against ignition by rays of the sun and by radiated heat.

(5) Vaults shall have no skylights or glass windows except as specified for vents. Vents may be protected against the weather by a single thickness

of glass (1/16" thick) not less than 200 square inches in area, in a sash arranged to open automatically in case of fire, or by equivalent protection.

(6) Vaults shall be protected by an approved system of automatic sprinklers (Chapter IX) with a ratio of one head to each 62½ cubic feet of total vault space. A vault of 750 cubic feet shall have not less than 12 sprinkler heads.

(7) Wire guards shall be provided so that no film could be placed within 12 inches of heating pipes or radiators.

(8) Vault heating shall be automatically controlled so as not to exceed a temperature of 70 degress F. or a steam pressure of 10 lbs.

(9) All racks and equipment in vaults shall be of metal or other non-combustible material.

501.4—GRAIN ELEVATORS

(a) Grain elevators, or structures used to store grain, shall not be located within fifty (50) feet of adjoining property lines of other structures, except railway rights of way or adjoining navigable waters, nor shall they be located within Fire District Number One.

(b) Grain elevators, or structures used to store grain, shall be constructed of steel, concrete, or other non-combustible material or with lumber exterior or interior framing, including plank and laminated walls, when the sizes of the members used conform to the requirements for Type III—Heavy Timber Construction to meet the approval of the Building Official, and all such structures, buildings, and equipment shall be erected, altered, or installed in accordance with the provisions of Section 501.1(f).

(c) Where combustible material, other than grain, is present in quantity sufficient to produce a serious fire, fire protection equivalent to Type I construction shall be provided unless approved automatic sprinkler protection is provided (Section 901 of Chapter IX). In no case, however, shall the requirements for grain elevators, or grain storage buildings, be less restrictive than those applying to Group H occupancies.

SECTION 502—AIRPLANE HANGARS

(a) Airplane hangars may be of any type of construction, except that if located within 50 feet of a common property line or of the opposite side of a public street or thoroughfare or other building, the hangar shall be Type I, Fireproof, or Type II, Fire-Resistive or Type III—Heavy Timber Construction.

(b) The floor areas of hangars shall not exceed those permitted for Group F Storage buildings in Section 409.4 (see area exceptions, Section 403).

(c) Where hangars have basements, the floor over the basement shall be of Type I Fireproof construction and shall be made tight against seepage of water, oil or vapors. There shall be no opening or communication between basement and hangar. Access to basement shall be from outside only.

(d) Floors shall be graded and drained to prevent water or gasoline from remaining on the floor. Floor drains shall discharge through an oil separator to the sewer or to an outside vented sump.

(e) Heating of hangars shall be from plants located in a detached building.

(f) The process of "doping", involving use of a volatile flammable solvent, or of painting, shall be carried on in a separate detached building equipped with automatic sprinkler equipment in accordance with Section 901 of Chapter IX.

(g) Each hangar of area exceeding 10,000 square feet shall be equipped with approved automatic sprinklers in accordance with Section 901 of Chapter IX.

SECTION 503—COAL POCKETS

Coal pockets, and other similar structures, shall be constructed of steel, concrete, or other non-combustible material, or of lumber sizes which meet the requirements of Type III—Heavy Timber Construction to meet the requirements of this Code and the approval of the Building Official.

SECTION 504—TEMPORARY STRUCTURES

504.1—PERMIT

A special building permit for a limited time must be obtained before the erection of Temporary Structures such as construction sheds, seats, canopies, tents and fences used in construction work or for temporary purposes such as reviewing stands. Such structures shall be completely removed upon the expiration of the time limit stated in the permit.

504.2—TENTS FOR PUBLIC ASSEMBLY

(a) Before a temporary permit is granted, the owner or agent shall file with the Building Official a certificate executed by an acceptable testing laboratory, certifying that the tent, decorative materials and tarpaulins meet the requirements for resistance for fire prescribed in the National Fire Protection Association Standard for flameproofed textiles (National Fire Codes, Volume 3, 1964-65 Edition), NFPA No. 701-1951, and that such fire-resistance is effective for the period for which the permit is to be granted.

(b) *Tent Exits*—Tent exits, aisles, seating, etc., shall conform with the requirements for places of assembly. All exits shall be kept free and clear of obstructions while the tent is occupied by the public.

(c) Ground within and adjacent to tents shall be cleared of all grass, underbrush or similar fire hazards.

504.3—TEMPORARY SEATS

A special permit shall not be issued unless all seats, stands and structures conform to the requirements of Chapter XII (Minimum Design Loads). All seats shall be marked allowing a space for each person of not less than eighteen inches in width. Aisles and seating arrangements shall conform to the requirements of Assembly Occupancies (Section 512.7).

SECTION 505—AUTOMOTIVE SERVICE STATIONS

(a) An automotive service station of Group B occupancy is a place of retail business at which outdoor automotive refueling is carried on using

fixed dispensing equipment connected to underground storage tanks by a closed system of piping, and at which goods and services generally required in the operation and maintenance of motor vehicles and fulfilling of motorist needs may also be available. The building consists of a sales office where automotive accessories and packaged automotive supplies may be kept or displayed. It may also include one or more service bays in which vehicle washing, lubrication and minor replacement, adjustment and repair services are rendered. An automotive service station building shall have no cellar or basement, but may have open pits if such pits are continually ventilated. An automotive service station building shall be of Type I, Fireproof; Type II, Fire-Resistive; Type III, Heavy Timber; Type IV, Non-Combustible; Type V, Ordinary, or Type VI, Wood Frame.

(b) Canopies and their supports, over pumps, shall be of non-combustible materials, or of construction providing 1-hour fire-resistance.

(c) All equipment likely to cause an explosion, or to be capable of igniting gasoline vapor from heat, sparks, or open flames, shall be located at least 8 feet above the floor, or be completely and tightly enclosed by non-combustible construction, or construction of not less than 1-hour fire-resistance. Any openings to such enclosures shall be from the outside with the sill raised at least 1 foot above the adjoining outside level, and shall be located at least 5 feet from any property line or adjacent building.

SECTION 506—PRIVATE GARAGES

(a) Garages which are provided for the storage of motor vehicles owned by tenants of buildings on the premises, and with maximum undivided space used for storage of not more than four automobiles, or trucks of one ton or less capacity, but not exceeding 850 square feet, shall be considered private garages. All other garages shall be considered public garages.

(b) Private garages except for dwellings may be of Type I, II, III, IV, V or VI construction, but no private garage shall occupy space above the first floor of Type VI building or shall be erected in the fire districts except as provided in Section 304.2. No private garage shall be located within, or attached to, a building occupied for any other purpose, unless it is separated from such other occupancy by walls, partitions, floors and ceilings that have a fire-resistance rating as specified in Section 412.5 (Mixed Occupancy Separations). Walls, floors, partitions and ceilings that effect such separation shall be continuous and unpierced. A single flush-type solid core wooden door of not less than 1¾ inch nominal thickness, equipped with a self-closing device, may be permitted provided the sill is raised at least 8 inches above the garage floor when the doorway connects directly with any room in which there is any direct-fired heating device or gas fixture. In no case, however, shall a garage have an opening directly into a room used for sleeping purposes.

SECTION 507—PARKING LOTS AND PUBLIC PARKING DECKS

507.1—PARKING LOTS

Open sheds or canopies may be erected up to two-thirds (⅔) the area of a lot, provided such construction is not less than required for Type IV, Non-Combustible, and that all such construction meets the approval of the Building Official.

507.2—PUBLIC PARKING DECKS

(a) As defined in Section 201.2, Public Parking Decks may be constructed of Types I, II, and IV Construction without exterior walls. When such structures are within ten (10) feet of common property lines they shall be provided with an enclosure wall along the common property line of not less than two (2) hours fire-resistance without openings therein.

(b) Type IV structures with at least 50% of two sides open, shall be limited to a height of eight (8) stories and an area limitation of 30,000 square feet per floor with roof parking permitted. The above area may be increased by 25% if open on three sides and 50% for four sides. When of Type I Fireproof or Type II Fire-Resistive Construction, the height and area shall not be limited.

(c) Each floor of such structure shall have a continuous wheel guard not less than six (6) inches in height above the floor, with a clear passage of four (4) feet between the wheel guard and edge of structure. In such structures without exterior walls there shall be placed in addition to the wheel guard a continuous protective railing not less than three (3) feet six (6) inches above the floor around the entire outside perimeter of the structure.

SECTION 508—PUBLIC GARAGES

(a) A garage shall be any building or part thereof wherein is kept or stored a motor vehicle having any gasoline or other volatile flammable fuel in its fuel storage tank, or wherein painting, body and fender work, engine overhauling or other major repair of motor vehicles is performed. This occupancy shall not include automotive service stations as defined in Section 505. A garage exceeding 850 square feet in area or used to store more than four automobiles, shall be considered a public garage.

(b) Public garages shall be of Type I, II, III, IV, V, or VI construction. If of Type V construction it shall not exceed one story in height, but shall not exceed the maximum height and areas allowed for Group F storage buildings. Public garages of Type VI may be used only for dead storage and display of automobiles.

(c) No public garage shall be located within, or attached to, a building occupied for any other purpose, unless it is separated from the other occupancies as prescribed in Section 412, but in no case by walls having fire-resistance less than two hours. Such separation shall be continuous and unpierced, except for doors leading to salesrooms, or offices, operated in connection with such garages, provided such openings are approved by the Building Official as being required or essential, and provided such openings are equipped with self-closing fire doors conforming to the requirements of Section 703.

(d) Unenclosed ramps shall not be considered as providing required exit facilities. Enclosed ramps shall be in accordance with the Exit Requirements of Chapter XI.

(e) Basement and subbasement garages shall be continuously ventilated by a mechanical system with positive means for both inlet and exhaust of at least 1 cubic foot of air per minute per square foot of floor area, controlled from a location close to the entrance door.

(f) Garage floors shall be covered with concrete or similar non-combustible and non-absorbent material. Floors which drain to sewers or storm drains shall be provided with an oil separator or trap.

(g) Sprinkler equipment shall be provided as required in Section 901 of Chapter IX.

(h) Heating equipment, other than direct-fired units placed at least 8 feet from the floor, shall be placed in a separate room cut off by construction equivalent to 8-inch brick walls and 4-inch reinforced concrete floor and ceiling with no opening except as required for heating pipes and ducts and with outside entrance only.

(i) Connection between garage and any room having a direct-fired device, or gas fixture, shall be by means of a doorway with sill raised at least 8 inches above the garage floor level, or through a vestibule providing two doorway separations.

SECTION 509—GREENHOUSES

Greenhouses more than 35 feet in height shall have a non-combustible structural frame. Greenhouses not over 400 square feet in area, or 15 feet high, shall be considered accessory structures and may be of any construction except that any greenhouse with wood frames shall be located not less than 5 feet from any adjoining structure or property line.

SECTION 510—STADIUMS AND GRANDSTANDS

(a) Stadiums and grandstands may be constructed of steel, iron, reinforced concrete, or wood, designed for live loads and for wind pressures in accordance with the requirements of this Code. They shall not be erected on the roof of any building or structure.

(b) In stands constructed of wood or other combustible materials, the level of the highest seats above the ground (level of ground at immediate front of the stand) shall not exceed 25 feet, and such stands shall not be located within 20 feet of adjoining property lines, or within 50 feet of adjoining Type VI Wood Frame structures.

(c) When the space under a stand is used for any purpose, the space shall be enclosed in construction having not less than 1-hour fire-resistance and shall meet the separation requirements of Section 412.

(d) Aisles not less than 3 feet 6 inches wide shall be provided so that there are not more than 20 seats between any seat and an aisle. Where backs are provided, seats shall be spaced not less than 30 inches back to back.

(e) A distance of 18 inches along any bench shall constitute one seat in figuring the required exit facilities.

(f) Other specifications shall be in accordance with NFPA No. 102.

SECTION 511—AMUSEMENT PARK BUILDINGS

(a) Amusement park buildings used as dining rooms, theaters, or for other purposes shall conform to the requirements of this Code governing the particular use or occupancy.

(b) Amusement park buildings over one story in height, or 1200 square feet in floor area, shall have exterior walls, floors and their supports of not less than 1-hour fire-resistive construction.

(c) Where amusement park buildings are located within 30 feet of adjacent property lines, buildings or other structures, the exterior walls shall be constructed of non-combustible materials, or shall be protected to provide not less than 1-hour fire-resistance.

(d) Structures of open skeleton frame type shall not be limited in height or area, except that grandstands shall comply with the requirements of Section 510.

(e) Amusement structures shall provide adequate safety for all loads to which they may be subjected and shall be equipped with approved safety devices and safeguards.

SECTION 512—ASSEMBLY OCCUPANCIES

This Section 512 shall apply to all places of public assembly, except churches or places of worship which shall be governed by the requirements of Section 514. For Exits, refer to Chapter XI.

512.1—TYPES OF CONSTRUCTION

(a) Buildings of Group E-1 Large Assembly with stage shall be of Type I Fireproof or of Type II Fire-Resistive Construction, except that in auditoriums, ornamental trim, and trusses may be of wood.

(b) Buildings of Group E-1 Large Assembly—without stage shall come within the limitations of use prescribed in Section 408.6.

(c) Buildings of Group E-2 Small Assembly shall come within the limitations of use prescribed in Section 408.6 as modified herein.

(d) Gymnasiums and similar occupancies may have running tracks constructed of wood or unprotected metal.

(e) For requirements for stadiums and grandstands see Section 510, for amusement park structures see Section 511.

512.2—EXCEPTION TO AREA LIMITATIONS

Where there are no balconies or galleries in Group E-2, Small Assembly Places, and the assembly floor is located at, or within, 21 inches of street or grade level and all exits meet the street or grade level by ramps having a slope not exceeding 1 foot in 10 feet, the maximum allowable areas of Type III, IV, and V construction may be increased 50 percent over those specified for Group E Assembly occupancies in Table 402.

512.3—INTERIOR FINISH AND DECORATIONS

(a) Use of combustible materials or materials which develop toxic or noxious gases for interior wall finishes shall not be permitted in Group E Assembly occupancies, except as provided in Section 512.1. For regulations governing ceiling materials see Section 704.3.

(b) In no event shall imitation leather or other material, consisting of, or coated with, a pyroxylin or similarly hazardous base, be used in Group E, Assembly occupancies. The use of combustible materials for decorative purposes in Group E Assembly occupancies, including among others, cur-

tains, cloth, paper, streamers, draperies, vines, leaves, trees, moss, or other interior decorations, shall be prohibited unless it is flame treated according to ASTM D626 and tested periodically.

512.4—WALLS AND PARTITIONS

(a) All walls and partitions for enclosing stairs, passageways or corridors (except foyers or waiting space) which are used for exits, in Group E, Assembly buildings, shall have not less than 2-hour fire-resistance. Also refer to Section 702.

(b) Where Group E, Assembly occupancy is involved in a building used for any other purpose, separation of occupancies shall be as provided in Section 412.

512.5—LOCATION OF BUILDING

All buildings of Group E, Assembly occupancy shall front directly upon at least one public street not less than 30 feet wide, in which front shall be located the main entrance and exit of such building.

512.6—AISLES AND SEATING

(a) Every aisle shall lead to an exit door or to a cross aisle running parallel to the seats and leading directly to an exit.

(b) Aisles, cross-aisles, corridors, and passageways shall be of width at least equal to the minimum width required for exits in this Code, but in no case shall the width of an aisle or cross-aisle be less than the width of the widest aisle, passage, cross-aisle or exit which it serves. No aisle shall be less in width than 36 inches, measured at its narrowest point at the end farthest from the foyer, plus an increase of 1½ inches for each 5 feet of length of such aisle from its beginning to an exit, except that aisles with seats on one side only may be 6 inches less in width, and except that when not to exceed 60 seats are served by an aisle, its width may be 30 inches. Where egress is provided at both ends of an aisle, the aisle may have a uniform width not less than the average widths herein specified. No cross-aisle shall be less than 3 feet-6 inches wide. An aisle bordering on a means of entrance shall be not less than 4 feet wide.

(c) In all balconies and galleries having more than 20 rows of seats, there shall be provided a cross-aisle not less than 4 feet wide leading directly to an exit.

(d) There shall be no obstructions of any kind in any aisle. Aisles shall not have a slope of more than one in ten except that the maximum gradient in aisles on the main auditorium floor shall not exceed one in five. Ramps steeper than one in eight shall have non-slip surface.

(e) Rows of seats between aisles shall have not more than 14 seats.

(f) Rows of seats opening on to an aisle at one end only shall have not more than 7 seats. Seats without dividing arms shall have their capacity determined by allowing 18 inches per person.

(g) Exits and aisles shall be so located that the travel distance to an exit door shall not be great than 100 feet measured along the line of travel.

(h) Steps shall not be used in aisles of the main auditorium floor, or in other aisles, where differences of level can be overcome by gradients not exceeding those permitted herein. Where steps are used in aisles, such

steps shall extend across the full width of aisles and shall be illuminated; treads and risers shall be as required elsewhere in the Code for exit stairs. No isolated steps shall be permitted nor shall the aggregate rise of a group of steps exceed 21 inches.

(i) In places of assembly used regularly for theatrical or similar performances, or for the display of motion pictures, the seats shall be securely fastened to the floor. All other Group E, Assembly occupancies seating more than 200 persons shall have seats fastened to the floor. All seats in balconies or galleries shall be secured to the floor except that in railed-in enclosures, boxes, or loges, with level floors and having no more than 14 seats, the seats need not be fastened to the floor, or have separating arms.

(j) The spacing of rows of seats from back to back shall be not less than 30 inches, and not less than 27 inches plus the sum of the thickness of the back and the inclination of that back; but in all cases there shall be a space of not less than 12 inches between the back of one seat and the front of the seat immediately behind it as measured between plumb lines.

512.7—BLEACHER SEATING FOR INDOOR ASSEMBLIES

(a) *Where Permitted.*

Bleacher seating installed in conformance with the following requirements may be used in school gymnasiums, recreation buildings and other buildings of like occupancy. Bleacher seating (seats without backs) shall not be permitted in theatres, auditoriums, and buildings of like occupancy. (Rollaway, telescoping and fold-up bleacher seats without backs shall conform to the requirements of bleacher seating).

(b) *Design Standards.*

1. The materials, design, fabrication and construction of bleacher type gymnasium seats used in school gymnasiums, etc., shall comply with approved construction standards for the safety to life property and in compliance with Chapter XII.

2. Bleacher seating shall be so designed and assembled that the maximum expansion, contraction, settlement or misalignment likely to occur will not cause stresses in excess of those permissible, nor jeopardize the structure or its occupants. It shall be of such design as to remain stable, so as not to be overturned. Members comprising the seating, walkways, railings, bracing, and supporting members shall be structurally sound.

3. Tiers of bleacher seating shall be self-contained having within themselves all the necessary parts to withstand and restrain all forces which might reasonably be developed during human occupancy.

4. Bleacher type gymnasium seats shall be designed to support in addition to their own weight a uniformly distributed live load of not less than 100 pounds per square foot of gross horizontal projection of the bleacher seating. All seats and footboard members shall be designed for live loads of not less than 120 pounds per linear foot.

5. Bleacher seating shall be designed to resist a horizontal swaying force applied to the seats in a direction parallel to the length of the seats, of 24 pounds per linear foot of seats, and in a direction perpendicular to the length of the seats, of 10 pounds per linear foot of seats.

6. Members in which the stresses are greater under a partial loading of the bleacher seating than under full load shall be designed to meet the conditions causing the largest stress.

7. Railings or guards shall be capable of sustaining a vertical load of 100 pounds per linear foot and a horizontal thrust of 50 pounds per linear foot.

(c) *Materials.*

1. All supporting members of footboards and seatboards of portable bleachers must be of non-combustible materials.

2. The materials used in the construction of fixed bleacher seating and their supports must be the same as required for floor construction and its supports. (The materials required will depend upon the type of construction of the building where they are installed, see Chapter VI for floor construction).

3. Where space under fixed bleacher seating is used for any purpose, the bleacher seating assembly overhead must have a fire resistance rating of not less than two hours in buildings of fire resistive construction and not less than one hour for other buildings.

(d) *Aisles.*

1. All bleacher seating containing more than eleven rows, or when a railing or guard along the front is installed, must be provided with aisles so located that no seat of a row shall have more than eleven seats between it and the nearest aisle. Aisles shall be provided as required above when vertical distance between seats exceeds twelve inches.

2. There shall be not more than fifteen rows of bleacher seating in a tier without a cross-aisle running the entire width of seating. Each tier of fifteen rows must have sufficient exits to the ground independent of bleacher seating below or above it. In no case shall the highest level of seats of any bleacher type seating (seating without back rests) be more than eleven feet above the floor or surface at the front of the bleacher seating.

3. Aisles shall be not less than 40" in width except that aisles serving not more than sixty seats may be 30" in width. Where an aisle is divided by a portal, column or other obstruction, each part shall be not less than 24" wide. Where the entrance to an aisle is elevated above the floor level, such aisle shall be provided with a stairway or ramp whose width is not less than the width of the aisle.

4. Steps or ramps shall be provided for aisles. Steps shall not be placed in aisles to overcome differences in level unless the gradient shall exceed one foot in 10 feet of run. Where steps are required, they shall be provided on same level with the footrests or seatboards except that when the rise of seating platforms exceeds 11 inches, an intermediate step shall be provided the full width of the aisles and so proportioned as to provide two steps of equal rise per platform. When the rise of the seating platform exceeds 18 inches, two intermediate steps shall be provided the full width of the aisles and so proportioned as to provide three steps of equal rise per platform.

(e) *Seating.*

1. The horizontal distance back to back of seats shall be not less than 30 inches for seats having back rests or not less than 22 inches for

bleacher type seats. Where the same level is used for both seats and footrests these levels shall be not less than 22 inches in width. There shall be a space of not less than 12 inches between the back of each seat and the front of the seat immediately behind it. All measurements shall be taken between plumb lines.

2. The width of footboards (footrests) in bleacher seating shall be not less than 9½ inches and that of seat boards not less than 7½ inches. Where the same level is not used for both seat foundations and footrests, footrests, independent of seats, shall be provided.

3. In portable seating, the open space between footboards and seatboards or other horizontal members, shall not be more than nine inches at any point running the entire length of the seating.

4. The distance between the top of footboard and top of seat shall be not less than 16".

(f) *Railings and Guards.*

1. Railings or guards not less than 42 inches high above the aisle surface or platform tread, whichever is adjacent, shall be provided along those portions of the backs and ends of all bleacher seating where the seats are more than four feet above the floor.

2. Where the front footrest of any bleacher seating tier is more than 2 feet above the floor, railings or guards not less than 33 inches high above such front footrests shall be provided.

3. Vertical openings between the top railing or guard and walkway surface below, if more than 18 inches in height, shall be not more than 11 inches. When bleacher seating is used adjacent to a wall, railings or guards may be omitted from those portions where such walls afford equivalent safeguard.

4. Provisions (by the use of guard rails or other physical barriers) shall be made to discourage entrance by public to areas under tiers of seating.

(g) *Exits.*

1. The usual line of travel, from any seat to the nearest exit on the seating area, shall be not greater than 150 feet.

2. Sufficient exits in compliance with Chapter XI of the Code shall be provided from each space to be occupied by bleacher type seating with the number of occupants figured on the basis of 18" of seating width allotted for each person.

3. Exits for the building as a whole must be provided in accordance with Chapter XI.

512.8—RAILINGS

(a) The facia of boxes, balconies and galleries shall have substantial railings not less than 26 inches high above the floor. The railing at the ends of aisles extending to the facia shall be not less than 30 inches high for the width of the aisle, or 36 inches high if at foot of steps.

(b) Cross-aisles, except where the backs of seats on the front of the aisle project 24 inches or more above the floor of the aisles, shall be provided with railings not less than 26 inches high.

(c) In balconies, galleries, or other locations where seats are arranged on platforms or successive tiers, and the height of the rise from one platform to another exceeds 21 inches, a substantial railing of not less than 30 inches high shall be placed at the edge of the platform along the entire row of seats.

512.9—PLACARD INDICATING CAPACITY

A placard indicating the allowable maximum legal capacity of every Group E, Assembly occupancy, in number of occupants other than employees, shall be displayed in a prominent place. Such signs shall read as follows:

"Occupancy by more than _____ persons is dangerous and unlawful."

_____Building Official

512.10—CONSTRUCTION OF STAGE, PROSCENIUM AND APPURTENANT ROOMS

(a) Any working stage (see definition) shall be enclosed on all sides with walls having a fire-resistance of not less than four hours and extending from foundation to a height of four feet above roof.

(b) There shall be no openings in the wall separating the stage from the auditorium except the stage or proscenium opening, one doorway at each side of the proscenium opening at the stage floor level, at the level of the musicians pit, and where necessary to the organ. Each such doorway shall be not more than 21 square feet in area and shall be protected by an automatic fire door on one side of the wall and a self-closing fire door on the other side of the wall. Door openings leading from the stage to the outer air shall be equipped with approved self-closing fire doors.

(c) There shall be no windows in such enclosure walls within 5 feet of property line other than a street line, and all windows shall be of approved fire-resistive type.

(d) All mouldings and decorations around proscenium opening shall be constructed entirely of non-combustible or fire-resistant materials.

(e) Above the proscenium opening shall be a girder or other structural member of adequate strength to support all loads, constructed of non-combustible material and protected to provide not less than 4-hour fire-resistance.

(f) All that portion of the stage except that used for the working of scenery, traps and other mechanical apparatus for the presentation of a scene, approximately equal to the width of the proscenium opening, shall be of Type I Fireproof construction, and all appurtenant rooms and compartments shall be of Type I Fireproof or Type II Fire-Resistive construction.

(g) The rigging loft, fly galleries, including pin-rails, shall be of non-combustible materials.

(h) The roof over the stage shall be of Type I Fireproof construction.

(i) Dressing rooms, scene docks, property rooms, workshops, store-rooms, and other rooms or compartments appurtenant to the stage shall be of Type I Fireproof or Type II Fire-Resistive construction and shall be separated from the stage and other parts of the building by walls having

a fire-resistance rating of not less than 3-hours. Such rooms and spaces shall be separated from each other by non-combustible partitions providing not less than 2-hours fire-resistance, except that partitions separating dressing rooms from each other shall have at least 1-hour fire-resistance. In no case shall openings other than the necessary doorways at stage level, protected with self-closing fire doors, connect such rooms with the stage.

(j) Openings through stage floors shall be equipped with tight-fitting trap doors of wood not less than 2 inches thick.

(k) The troughs or frames for footlights and border lights shall be of metal or other non-combustible materials. The suspension lines of border lights shall be of wire for at least 10 feet from the frames.

(l) All electrical equipment shall be protected from falling objects and from contact with stage equipment, and shall conform with the City electrical requirements.

(m) All woodwork and all scenery, drapes, and sets used upon the stage shall be coated or treated by approved method to make them non-flammable or fire-resistive.

(n) All shelving, closets, etc., property rooms, or storage rooms, shall be constructed of metal or other non-combustible material.

512.11—VENTILATION OF STAGE

Over the stage shall be provided one or more ventilators of metal or other non-combustible material, equipped with movable shutters or sash, having an aggregate clear area of not less than one-eighth the area of the stage, constructed to open automatically and instantly by approved heat-actuated devices. Suitable means for manual operation shall be provided in addition. If glass is used in the construction, only wired glass shall be used in such parts where the breaking of glass would cause it to fall on the stage.

512.12—PROSCENIUM CURTAIN

(a) Every proscenium opening shall be provided with a curtain of metal or other non-combustible material, so designed and constructed that for at least thirty minutes it will prevent all passage of flame and withstand without failure a temperature of not less than 1700 degrees F. and an air pressure normal to its surface of not less than 10 lbs. per square foot. When closed, proscenium curtain shall be reasonably tight against the passage of smoke. The Building Official may require a fire test or other satisfactory evidence of its sufficiency in respect to these requirements. Curtain shall be subjected to operating tests and be approved by the Building Official before initial performance shall be held and shall be lowered after every performance.

(b) Every proscenium curtain shall overlap the proscenium opening by at least 2 feet at the top and 18 inches at each side, and shall slide vertically at each side within iron or steel grooves which shall have a minimum depth of 12 inches. Every such curtain shall be so arranged and maintained that, in case of fire, it would be released automatically and instantly by an approved heat-actuated device, and will descend slowly and safely by its own weight to completely close the proscenium opening within 30 seconds, taking not over 5 seconds for the bottom 5 feet. It shall also be equipped with effective devices to permit prompt and immediate closing of the proscenium opening by manual means.

(c) No part of any proscenium curtain shall be supported by or fastened to combustible material.

512.13—SPRINKLERS

(a) Every theater classified as a Group E-1, Large Assembly Place, shall have an approved system of automatic sprinklers conforming with Section 901 over the stage, in toilet rooms, lounges, smoking rooms, and all other hazardous areas including basements. cellars, property rooms, dressing rooms, storerooms, workshops, and all portions of stage and rooms under the stage floor level except as noted below.

(b) Sprinklers shall not be placed over dynamos or switchboards without proper protection, or in the immediate vicinity of automatic stage ventilators.

512.14—STANDPIPES

In Group E-1, Assembly occupancies, a standpipe outlet with hose attachment shall be provided on each side of the rear of the place of assembly, on each side of the rear of each balcony and gallery, on each side of the stage, on each tier of dressing rooms, and within 50 feet of all property rooms, storerooms and workrooms. Such outlets shall connect with a standpipe which shall conform to the requirements of Section 902.1, but which shall have a diameter of not less than 4 inches except that standpipes on each side of the stage shall be of diameter not less than 2½ inches.

512.15—INDOOR MOTION PICTURE PROJECTION BOOTHS
(Using Flammable Film)

(a) Every motion picture projector using *flammable films*, together with all electrical devices, rheostats, and other film equipment, and all films shall be enclosed in a booth constructed as specified herein.

(b) The floor of such booths shall be of masonry or concrete not less than 2 inches thick, and the walls and ceiling shall be of non-combustible construction providing not less than 1-hour fire-resistance with all joints sufficiently tight to prevent the discharge of smoke.

(c) The size of the projection booth shall depend upon the equipment and apparatus to be placed therein. In general, there shall be at least 30 inches of clear space to the right and rear of each projector with ample space about spot lights and other devices for normal operation. For a single projector without sound equipment, the booth shall in no case be less than 8 feet wide, 10 feet deep and 8 feet high; where two projectors with sound equipment are used, the minimum size of booths shall be increased to 16 feet wide and 12 feet deep.

(d) Storage batteries shall be located in a separate compartment provided with an acid-resisting, metal ventilating duct leading to outdoors. Motor generators shall also be located in a separate compartment. These compartments shall be of construction as specified for projection booths.

(e) The projection enclosure or booth shall have not less than two exit doors each not less than 30 inches or more than 32 inches wide and 6 to 7 feet high, protected by approved self-closing fire doors. Top of openings shall be at least 1 foot below booth ceiling.

(f) Openings for projectors shall be no larger than necessary, and for the projectionist's view shall in no case exceed 10 inches in any dimension. Such openings shall be provided with automatic metal shutters and shall

conform to the Standards of the National Board of Fire Underwriters for Storage and Handling of Cellulose Nitrate Motion Picture Film, Pamphlet No. 40, 1962.

(g) All shelves, racks, furniture, and fixtures within the booth shall be of metal or non-combustible material. No combustible material shall be allowed within the booth except the films and cement used in the operation of the machine. Every motion picture machine shall be securely fastened to the floor.

(h) Metal cabinets or boxes with tight self-closing doors, each with a capacity not in excess of 10 reels of film, with individual compartments for each reel, shall be provided to store films not in use; no solder shall be used in the construction of such cabinets and boxes.

(i) Ventilation shall be provided by one or more mechanical exhaust systems which shall draw air from each arc lamp housing and from one or more points near the ceiling. Systems shall exhaust to outdoors either directly or through a non-combustible flue used for no other purpose. Exhaust capacity shall be not less than 15 cubic feet nor more than 50 cubic feet per minute for each arc lamp, plus 200 cubic feet per minute for the room itself. For a booth containing two projectors, the exhaust flue shall be not less than 18 inches in diameter or equivalent size. Systems shall be controlled from within the enclosure and have pilot lights to indicate operation. The exhaust system serving the projection room may be extended to cover rooms associated therewith, such as rewind rooms. No dampers shall be installed in such exhaust systems. Ventilation of these rooms shall not be connected in any way with ventilating or air conditioning systems serving other portions of the building.

(j) Exhaust ducts shall be of non-combustible material, and shall either be kept 1 inch from combustible material or covered with ½ inch of approved, non-combustible, heat insulating material.

(k) Fresh air intakes other than those direct to the open air shall be protected by approved fire shutters arranged to operate automatically with the port shutters.

(l) Provisions shall be made so that the auditorium lights can be turned on from inside the projection booth and from at least one other convenient point in the building.

512.16—OUTDOOR MOTION PICTURE PROJECTION BOOTHS

Every motion picture projector, films or equipment shall be enclosed in a booth of not less than non-combustible construction throughout. Flammable films shall be kept in separate metal containers, stored in metal cabinets tightly closed. Every such booth shall have two exits or exitways located as remotely from each other as possible.

512.17—REWINDING OF FILM

All rewinding of flammable film shall be done either in a projection booth, or in a room enclosure constructed to meet the fire-resistance requirements prescribed for film projection booths. If done in projection room, approved enclosed type rewind machines shall be used and an approved can with self-enclosing hinged cover shall be provided for scrap film.

512.18—SUPPLEMENTARY LIGHTING SYSTEM

There shall be installed in every Group E-1, Large Assembly Places, a supplementary lighting system, in addition to the regular system furnished by local electrical power; such supplementary system shall comprise storage batteries, or equivalent emergency systems, of sufficient power to augment the regular lighting system, in case of failure in emergency. Every supplementary lighting system shall be maintained in good working order and shall be tested at least once every ten days. (See Table 1125)

SECTION 513—BOWLING ALLEYS

513.1—GENERAL

(a) Bowling Alleys shall comply with Section 405, Group "B"—Business and all provisions related thereto and with the provisions of this Section.

(b) Where bowling pin finishing or refinishing operations are carried on, such a separate building, or a separate room, constructed as specified herein, shall be provided.

(c) Such a room shall be located at or above street level and shall have one or more windows opening to the outside of the building.

(d) Walls and ceiling of such rooms shall have not less than one-hour fire-resistance. Floors shall be of concrete at least two inches thick or of equivalent non-combustible protective material.

(e) Door openings shall be provided with non-combustible sills, raised six inches above floor level and protected with approved fire doors.

(f) Shelving, containers, and all furnishings shall be of non-combustible material. Machinery shall be effectively grounded. (See Section 501.1(f).)

(g) Ventilation sufficient to effect complete change of air at least once every three minutes shall be provided.

SECTION 514—CHURCHES

514.1—SCOPE

This section shall apply to churches or places of worship. All other places of public assembly shall be governed by the regulations as set forth in Section 512.

514.2—TYPES OF CONSTRUCTION

For types of construction permitted and other limitations related thereto, see Section 408.6.

514.3—EXITS

Refer to Chapter XI, Means of Egress Requirments, for exits and exit access requirements.

514.4—INTERIOR FINISH AND DECORATIONS

All interior finishes and decorations shall conform with Section 512.3 except that nothing in this Section shall prevent the use of wood trim for ornamental purposes, or chancel furnishing.

514.5—AISLES AND SEATING

(a) Every aisle shall lead to an exit door or to a cross aisle running parallel to the seats and leading directly to an exit. No aisle shall be less in width than 36 inches plus an increase of 1½ inches for each five feet of such aisle from its beginning to an exit, except that aisles with seats on one side may be six inches less in width; where egress is provided at both ends of an aisle, the aisle may have a uniform width of not less than specified herein. No cross aisle shall be less than 3 feet 6 inches. An aisle bordering on a means of entrance shall be not less than 4 feet wide.

(b) There shall be no obstructions of any kind in an aisle. Aisles shall not exceed a gradient of more than one in eight. No steps shall be used in any aisle where differences of level can be overcome by gradients. Where it is necessary in balconies to use steps, they shall extend the full width of aisles and risers shall not exceed six and one-half inches.

(c) Rows of seats between aisles shall have not more than 20 seats. Rows of seats opening onto an aisle at one end shall have not more than 7 seats. Seats without dividing arms shall have their capacity determined by allowing 18 inches per person.

(d) The spacing of rows of seats from back to back shall be not less than 30 inches. In every case there shall be a clear space of not less than 12 inches between the back of one seat and the front of one seat immediately behind it, measured at the seat line.

SECTION 515—FARM BUILDINGS

515.1—GENERAL

Farm Buildings outside municipalities are not covered by this Code.

Farm Buildings shall include those structures other than residences and structures appurtenant thereto, for on-farm use (barns, sheds, poultry houses, etc.). Maximum allowable deflection for structural members of such farm buildings should not exceed 1/180 of span. Design limitations based on deflection as prescribed elsewhere in this code shall not be applicable.

SECTION 516—INSTITUTIONAL BUILDINGS

516.1—INSTITUTIONAL BUILDINGS

(a) Institutional buildings for occupants involuntarily detained shall be of Type I or Type II construction.

(b) Institutional buildings for occupants which are not involuntarily detained, when of other than fireproof construction or semi-fireproof construction, shall not exceed two stories in height and shall have floors and partitions with fire-resistance ratings of not less than one hour and with one hour ceilings under roofs, and if of wood frame construction shall not exceed one story in height nor 2500 sq. ft. in area.

(c) Institutional buildings for the boarding or specialized care or nursing care on a 24 hour basis of 6 or more children, infants, convalescents and for aged persons, as defined in G.S. 131-126.1 (referred to as Group Care Facilities in this Section) shall be equipped with fire protection devices and fire extinguishers in accordance with Section 1 through 6 below:

"1. Unless automatic sprinkler protection is provided, automatic fire detection systems installed in conformance with Pamphlets No. 71, No. 72 and No. 74 of the National Fire Protection Association shall be provided in all Group Care Facilities, such detection systems must bear the Underwriters' Laboratories label of approval and should be subject to semi-annual inspection and test conducted under contract by a qualified organization which should also provide maintenance service.

"2. Required automatic sprinkler systems shall be in accordance with Chapter IX for systems in light hazard occupancies.

"3. The sprinkler piping for any isolated hazardous area which can be adequately protected by a single sprinkler head may be connected directly to a domestic water supply system having a flow of at least 25 gallons per minute at 15 pounds per sq. inch residual pressure at the sprinkler head and the connection to the domestic water supply.

"4. Every facility shall have a manually operated fire alarm system, except that visible alarm devices may be used in occupants areas. Audible alarm devices shall be used in non-occupant areas.

(The system required by this paragraph may be the same system as required by paragraph (1) above, if so equipped as to perform both functions.)

"5. Arrangements shall be made for the prompt notification of the public fire department or such other outside assistance as may be available in case of fire or other emergency. An outside bell or horn should be provided in addition to the inside alarm so connected that both will sound at the same time.

(It is highly desirable that fire alarm equipment installed for the notification of the occupants of buildings in localities under protection of regularly organized fire departments be arranged to cause automatic transmission of alarms, directly or through an approved central sending station or system. When no such connection is provided, it is recommended that a fire alarm box arranged to signal the fire department be installed either at the main entrance to the building, at the telephone switchboard or outside the building plainly visible by day or night and conveniently accessible from the main entrance.)

"6. *Fire Extinguishers:* Approved first aid fire appliances shall be provided in accordance with the standard of the National Fire Protection Association for First Aid Fire Appliances (NFPA No. 10). They shall be so located on each floor level that a person will not have to travel more than 100 feet from any point to reach the nearest unit. At least one 2½ gallon water type extinguisher shall be required for each 2,500 sq. feet of floor area or fraction thereof. In addition, an approved first aid fire appliance shall be installed at each kitchen and workshop."

SECTION 517—APARTMENTS

Partitions in Multifamily Houses: In multifamily houses partitions and ceilings separating apartments or apartments from hallways or apartments from other occupancies shall have a fire-resistance rating of not less than one hour, with openings equipped with approved fire doors or with substantial metal or metal covered doors or solid wooden doors of the flush type of nominal thickness not less than 1¾-inch.

SECTION 518—FALLOUT SHELTERS

This Section shall establish the minimum criteria which must be met before a building space can be constructed, occupied, used or designated as a fallout shelter.

518.1—SCOPE AND APPLICABILITY

The scope of this section extends to a building or to a building space when it is being used as a fallout shelter in time of national emergency or for reasonable periods of drill and instruction. If the space is being used as a shelter, the provisions of this article shall apply, and if it is not being so used, other applicable provisions of this code shall apply.

518.2—DEFINITIONS

Fallout Shelter—A fallout shelter is any room, structure or space designated as such and providing its occupants with protection at a minimum protection factor of forty (40) from gamma radiation from fallout from a nuclear explosion as determined by an architect or engineer certified by the Office of Civil Defense as a Qualified Fallout Shelter Analyst.

Dual-use Fallout Shelter—A dual-use fallout shelter is a space having a normal, routine use and occupancy as well as having an emergency use as a fallout shelter.

Single-Purpose Fallout Shelter—A single-purpose fallout shelter is a space having no other use or occupancy than as a fallout shelter.

Protection Factor—A factor used to express the relation between the amount of fallout gamma radiation that would be received by an unprotected person and the amount that would be received by one in a shelter.

Unit of Egress Width—A unit of egress width is 22 inches, the space required for free travel of one file of persons.

518.3—GENERAL

Nothing in these regulations shall be construed as preventing the dual use or multiple use of normal occupancy space as fallout shelter space, providing the minimum requirements for each such use are met.

518.4—EXIT FACILITIES

There shall be no fewer than two widely spaced exits from a fallout shelter, leading directly to other spaces of the building or outdoors. In no case shall a single exit be less than 24" wide. In addition, the following requirements must be met:

(a) GROUP I-1 (dual-use fallout shelters)

When requirements for normal occupancy of the space as detailed in Chapter XI exceed the preceding, the normal occupancy requirements shall govern.

(b) GROUP I-2 (Single Purpose Fallout Shelters)

Exits from the fallout shelter shall aggregate at least one unit of egress width for every 200 shelter occupants or fraction thereof. Interior circulation within the fallout shelter shall be governed by requirements of Chapter XI of these regulations.

518.5—SPACE AND VENTILATION

A minimum of ten (10) square feet of net floor area shall be provided per fallout shelter occupant. Minor partitions, columns, and area for storage of Federal shelter supplies may be included in net area. A minimum of sixty-fire (65) cubic feet of volume shall be provided per fallout shelter occupant. A minimum of three (3) cubic feet of fresh air per minute per person shall be provided.

Fallout shelter capacity or occupancy time may be limited by the volume of room and not by its net area. The following table shall be used in determining volume of space required per person:

Time for Complete Air Change (Minutes)*	Volume of Space Required Per Person (Cu. Ft.)
1000 or more	500
600	450
400	400
200	300
100	200
60	150
35	100
22	65

*Computed as ratio: $\frac{\text{net volume of space (cu. ft.)}}{\text{fresh air supply (cfm.)}}$

518.6—WINDOWS

No requirements.

518.7—ILLUMINATION

No special lighting levels are required.

518.8—SANITATION

Toilets, either flush type operating from the normal water supply system or chemical or other types shall be provided on the basis of one toilet per 50 fallout shelter occupants. Fifty per cent (50%) of the toilets may be provided outside the fallout shelter area. Empty water containers may be considered as fulfilling this requirement.

CHAPTER VI—CLASSIFICATION OF BUILDINGS BY CONSTRUCTION

SECTION 601—CLASSIFICATION BY TYPE OF CONSTRUCTION

601.1—TYPES

All buildings shall be classified into six general types according to the character of materials employed and their method of assembly as follows:

TYPE I —FIREPROOF
TYPE II —FIRE-RESISTIVE
TYPE III—HEAVY TIMBER
TYPE IV—NONCOMBUSTIBLE
ONE-HOUR PROTECTED
UNPROTECTED
TYPE V —ORDINARY
ONE-HOUR PROTECTED
UNPROTECTED
TYPE VI—WOOD FRAME
ONE-HOUR PROTECTED
UNPROTECTED

601.2—FIRE RESISTIVE REQUIREMENTS

All fire-resistive requirements are expressed in terms of the number of hours of satisfactory performance in accordance with the "Standard Methods of Fire Tests of Building Construction and Materials of the American Society for Testing and Materials" (ASTM Designation E119-61).

601.3—MATERIALS AND CONSTRUCTION APPROVED FOR FIRE PROTECTION

The degree of fire resistance and the materials, assemblies, and constructions providing such resistance shall be as defined in Chapter XXV of this Code, except that other materials, assemblies, and constructions shall be approved, provided test data of a recognized engineering or testing laboratory are submitted, establishing that they develop the required fire-resistance ratings under tests made in accordance with the Standard Methods of Fire Tests of Building Construction and Materials, (ASTM Designation E119-61 of the American Society for Testing and Materials).

Where structural requirements necessitate assemblies providing greater fire resistance than specified in this Chapter, such structural requirements shall govern.

601.4—FIRE DISTRICTS—SECTION 301

601.5—ALLOWABLE HEIGHTS AND AREAS—SECTION 402, 403 and TABLE 402

601.6—REGULATIONS GOVERNING EXTERIOR USE OF COMBUSTIBLE MATERIALS

(a) Skylights ..... Section 707
(b) Dormer Windows ..... Section 709
(c) Gutters and Leaders ..... Section 711
(d) Towers, Spires and Cupolas ..... Section 712
(e) Tanks ..... Section 713
(f) Cooling Towers ..... Section 714

601.7—REGULATIONS GOVERNING INTERIOR USE OF COMBUSTIBLE MATERIALS

(a) Group E, Assembly Occupancies ..... Section 512.2
(b) Floor Finish ..... Section 704.2
(c) Ceilings and Interior Wall Finish ..... Section 704.3
(d) In Group H. Special Hazardous Occupancy, only non-combustible finishes shall be used.

601.8—STRUCTURAL AND ENGINEERING REQUIREMENTS

(a) Minimum Design Loads ..... Chapter XII
(b) Foundations ..... Chapter XIII
(c) Masonry and Veneered Walls ..... Chapter XIV
(d) Steel ..... Chapter XV
(e) Concrete ..... Chapter XVI
(f) Wood ..... Chapter XVII
(g) Lathing and Plastering ..... Chapter XVIII
(h) Safeguards During Erection ..... Chapter XXIV
(i) Elevators and Escalators ..... Chapter XXXI
(j) Stair Construction ..... Section 1108

601.9—FIRE PROTECTIVE REQUIREMENTS

(a) Roof Coverings ..... Sections 301 and 706
(b) Private Garages ..... Section 506
(c) Protection of Wall Openings ..... Section 703
(d) Firestopping ..... Sections 705 and 1703.1
(e) Stairway Construction ..... Section 1108

SECTION 602—TYPE I—FIREPROOF CONSTRUCTION

Type I, Fireproof Construction, is that in which all exterior walls are of masonry or reinforced concrete, or of other approved materials or combination of materials, and in which all the structural members are of noncombustible materials, and provide fire resistance not less than specified in Table 600.

SECTION 603—TYPE II—FIRE-RESISTIVE CONSTRUCTION

Type II, Fire-Resistive Construction, is that in which all exterior walls are of masonry or reinforced concrete, or of other approved materials or combinations of materials and in which all the structural members are of noncombustible materials, and provide fire resistance not less than specified in Table 600.

SECTION 604—TYPE III—HEAVY TIMBER CONSTRUCTION

604.1—GENERAL

Type III, Heavy Timber Construction, is that type in which fire resistance is attained by the sizes of heavy timber members (sawn or glued-laminated) being not less than indicated in this Section and Table 600, or by providing fire resistance not less than one-hour where materials other than wood are

used; by the avoidance of concealed spaces under floors and roofs; by the use of approved fastenings, construction details, and adhesives for structural members; and by providing the required degree of fire resistance in exterior and interior walls.

604.2—COLUMNS

Columns shall be continuous or superimposed by means of properly designed reinforced concrete or metal caps, or by timber splice plates affixed to the columns by means of timber connections or by other approved methods.

604.3—WALLS

Party and fire walls shall extend not less than three (3) feet above the roof. (See Section 716)

Exterior walls shall extend not less than twenty-four (24) inches above the roof, except that parapet walls need not be constructed on buildings where the roof slopes more than four (4) inches vertical to twelve (12) inches horizontal from the back of the exterior wall of such building, or where the exterior of such buildings is located fifteen (15) feet or more distance from the property line or other building on the same property, or faces on an alley or public way fifteen (15) feet or more in width. (718)

604.4—FLOOR DECKS

Heavy timber floors shall be of sawn or glued-laminated plank, splined, or tongued and grooved of not less than 3 inches, nominal, in thickness or of planks not less than 4 inches, nominal, in width set on edge and well spiked together. The planks shall be laid so that no continuous line of joints will occur except at points of support.

Planks shall be covered with 1 inch, nominal, tongued and grooved flooring laid crosswise or diagonally. Planks and flooring shall not extend closer than ½ inch to walls to provide an expansion joint, and the joint shall be covered at top and bottom.

604.5—ROOF DECKS

Heavy timber roof decks shall be sawn or glued-laminated, splined or tongued and grooved plank, not less than 2 inches, nominal, in thickness, or of planks not less than 3 inches, nominal, in width set on edge and spiked together as required for floors. Other types of roof decking may be of other material if manufactured for roof decking, and is not less than two inches, nominal, thickness, nor more combustible than two (2) inch nominal wood sheathing, and is used within spans which have been proved structurally safe by approved tests.

604.6—FRAMING

For minimum sizes of columns, trusses, girders and beams see Table 600.

Framed or glued-laminated arches which spring from grade or the floor line and support floor loads shall be not less than 8 inches, nominal, in any dimension.

Framed or glued-laminated arches for roof construction which spring from grade or the floor line and do not support floor loads shall have members not less than 6 inches, nominal, in width and not less than 8 inches, nominal, in depth for the lower half of the height and not less than 6 inches, nominal, in depth for the upper half.

Framed or glued-laminated arches for roof construction which spring from the top of walls or wall abutments, framed timber trusses, and other roof framing which do not support floor loads, shall have members not less than 4 inches, nominal, in width and not less than 6 inches, nominal, in depth. Spaced members may be composed of two or more pieces not less than 3 inches, nominal, in thickness when blocked solidly throughout their intervening spaces or when such spaces are tightly closed by a continuous wood cover plate of not less than 2 inches, nominal, in thickness, secured to the underside of the members. Splice plates shall be no less than 3 inches, nominal, in thickness. When protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches, nominal, in width.

SECTION 605—TYPE IV—NONCOMBUSTIBLE CONSTRUCTION

Type IV, Noncombustible Construction, is that in which all structural members, including wall framing, floors, roofs and their supports, shall be of steel, iron or other metal, or of other noncombustible materials, and in which the exterior surface of the building is of steel, iron or other metal, or of asbestos, masonry, reinforced concrete, or other noncombustible materials, and are fire protected as required in Table 600.

SECTION 606—TYPE V—ORDINARY CONSTRUCTION

Type V, Ordinary Construction, is that construction not meeting the requirements of Type III, but in which the exterior walls are of masonry or reinforced concrete or of approved materials or assembly of materials that provide fire resistance as required in Table 600, and in which the interior framing is partially or wholly of unprotected wood, or of unprotected iron or steel, and are fire protected as required in Table 600.

SECTION 607—TYPE VI—WOOD FRAME CONSTRUCTION

Type VI, Wood Frame Construction, is that in which the enclosing walls are of wood or other combustible materials, including construction having exterior masonry veneer, stucco, or metal, which is dependent upon wood for support, stability or rigidity, and in which interior framing is of wood or other combustible materials and are fire protected as required in Table 600.

SECTION 608—EXCEPTIONS TO FIRE PROTECTION

608.1—ELEVATOR FRAMES

Structural members of frames for elevators will not be required to have the fire protection required for structural steel, provided such members are erected within an enclosure of the prescribed fire resistance rating. Section 701—Enclosure of Vertical Openings.

608.2—LINTELS

Lintels over openings in walls shall be protected to provide a fire resistance rating at least equal to that required for beams, except that when such lintels are used over openings less than four (4) feet wide, such protection may be omitted. The outer member of an assembled steel

lintel, which supports face masonry that is securely bonded to backing need not be protected, provided that the load carrying member of such lintel is protected as herein required.

SECTION 609—MIXED TYPES OF CONSTRUCTION

609.1

When two or more types of construction occur in the same building and are not separated by the fire separation specified in Section 412 for Mixed Occupancies, the entire building shall be subject to the occupancy restrictions of the least fire resistive type.

609.2

Where a building is constructed of more than one type of construction, the following limitations shall be observed:

TYPE I construction shall not be supported by any other type.

TYPE II construction shall not be supported by construction other than Type I or Type II.

TYPE III construction shall not be supported by construction other than Type I, Type II, or Type III.

TYPE IV construction shall not be supported by Type V, or Type VI.

TYPE V construction shall not be supported by Type VI.

SECTION 610—NONCOMBUSTIBLE EXTERIOR WALLS OR PANELS
(See Table 600)

Noncombustible walls or panels may be permitted in exterior nonbearing walls under the following conditions:

(1) Provided such walls are of noncombustible material.

(2) Provided that in buildings over two stories in height, exterior openings located in a story above a Group D, Institutional; Group F, Storage; Group G, Industrial; Group H, Hazardous Occupancy are separated from such an occupancy by a 2-hour fire-resistive wall construction not less than 3 feet in height.

(3) Provided such walls face a street or other permanent open space at least 30 feet in width.

SECTION 611—BUILDINGS LOCATED ON THE SAME LOT

Where the exterior walls of two or more buildings located on the same lot face one another, and one of the walls is not constructed as required for a fire wall, a common-property line shall be assumed between them. The fire resistance requirements for such facing walls and for the protection of openings therein shall be the same as required by this code for walls and openings facing common-property lines.

TABLE 600—FIRE PROTECTIVE REQUIREMENTS
Required Fire Resistance in Hours (See Volume I-A)

Structural Member	Type I Fireproof	Type II Fire Resistive	Type III Heavy Timber	Type IV—Noncombustible		Type V—Ordinary		Type VI—Wood Frame	
				1 Hour Protection	Unprotected	1 Hour Protected	Unprotected	1 Hour Protected	Unprotected
	Section 602	Section 603	Section 604	Section 605		Section 606		Section 607	
Party and Fire Walls	(a) Min. 8" 75% Solid Masonry (Sec. 716)	(a) Min. 8" 75% Solid Masonry (Sec. 716)	(a) Min. 12" 75% Solid Masonry (Sec. 716)	(a) Min. 8" 75% Solid Masonry (Sec. 716)	(a) Min. 8" 75% Solid Masonry (Sec. 716)	(a) Min. 12" 75% Solid Masonry (Sec. 716)	(a) Min. 12" 75% Solid Masonry (Sec. 716)	(a) Min. 12" 75% Solid Masonry (Sec. 716)	(a) Min. 12" 75% Solid Masonry (Sec. 716)
Exterior Bearing Walls Horizontal Separation*	(Percent Indicates Percentage of Window Opening Allowed) (For openings to be protected with wire glass, See 703.1(a))								
	NC	NC	NC (b)	NC (c) (b)	NC (c) (b)	(b) (d) NC (e)	(b) (d) NC (e)		
0'— 3'	4(0%)	4(0%)	3(0%)	3(0%)	3(0%)	3(0%)	3(0%)	1(0%)	1(20%)
3'—20'	4(20%)	3(20%)	2(20%)	2(20%)	2(20%)	2(20%)	2(20%)	1(30%)	0(30%)
20'—30'	4(30%)	3(30%)	2(30%)	2(30%)	1(30%)	2(30%)	1(40%)	1(40%)	0(40%)
Over 30'	4(40%)	2(40%)	2(40%)	2(40%)	NC(40%)	2(40%)	1(40%)	1 No Limit	0 No Limit
Exterior Non-Bearing Walls Horizontal Separation*	*(Horizontal Separation is distance from property line or another building) (Percent Indicates Percentage of Window Opening Allowed)								
					(c) (b)	(e) (d)	(d) (e)		
0'— 3'	3(0%)	3(0%)	3(0%) (b) (h)	2(0%)	2(0%)	3(0%) (b)	3(0%) (b)	1(0%)	1(20%)
3'—20'	2(30%)	2(30%)	2(30%) (b)	1(30%)	1(30%)	2(30%) (b)	2(30%) (b)	0(30%)	0(30%)
20'—30'	1(40%)	1(40%)	1(40%) (b)	NC(40%)	NC(40%)	1(40%) (b)	1(40%) (b)	0(40%)	0(40%)
Over 30'	NC	NC	NC	NC	NC	NC	NC	No Limit	No Limit
Inner Court Walls	3	2	3	3	1	1	1	1	None
Penthouse Walls	2 (f)	2 (f)	2 (f)	1 (f)	NC (f)	None (f)	None (f)	None (f)	None
Partitions Interior Bearing	4	3	3	1	NC	1 (g)	None (g)	1	None
Interior Non-Bearing	See Sections 412, 701, and 702								

TABLE 600—FIRE PROTECTIVE REQUIREMENTS
Required Fire Resistance in Hours (See Volume I-A)

Structural Member	Type I Fireproof	Type II Fire Resistive	Type III Heavy Timber	Type IV—Noncombustible		Type V—Ordinary		Type VI—Wood Frame	
				1 Hour Protection	Unprotected	1 Hour Protected	Unprotected	1 Hour Protected	Unprotected
	Section 602	Section 603	Section 604	Section 605		Section 606		Section 607	
Columns									
Supporting Masonry or Bearing Walls	4	3 (j)	2 (j)	2 (i) (j)	2 (i) (j)	(j)	(j)	1 (i)	1 (i)
Supporting Roof only	3	2	6 x 8 or 1 (h)	1	NC	1	None	1	None
Other Columns	4	3	8 x 8 or 1 (j) (h)	1	NC	1	None	1	None
Trusses, Girders and Beams:									
Supporting Masonry or Bearing Walls, Columns, Girders, Trusses	4	3	2 (i)	2 (i)	2 (i)	2 (i)	2 (i)	1 (i)	1 (i)
Supporting Roofs	2 (k)	1½ (m) (k)	4 x 6 or 1 (h)	1	NC	1	None	1	None
Other Trusses Girders and Beams	4	3	8 x 8 or 1 (h)	1	NC	1	None	1	None
Arches	2	1½ (k)	(h) Section 604.6	1	NC	1	None	1	None
Floors	3	2	Section 604.4	1	NC	1	None	1	None
Roofs									
Deck Construction	2	1½	(h) Section 604.5	1	NC (l)	1 (n)	None (n)	1 (n)	None (n)
High above floor	2 (k)	1½ (k) (m)	Section 604.5	1 (k)	NC (l)	1	None	1	None

(a) Party and Fire Walls shall extend not less than three (3) feet above the roof, except that fire walls need not extend above the roof where the roof and all structural supports are of noncombustible construction. (See Section 718.)

(b) Inside any fire district, all exterior walls, except walls facing a street 30 feet or more in width shall be constructed of 75% Solid Masonry Units (12" min. thickness) in conformance with Section 716. See note (c) and (g) for exception.

(c) For Type IV buildings located within the fire districts, exterior walls shall provide the following fire resistance against outside exposure when building does not exceed 3500 square feet:

0 10 Feet	1 Hour
Over 10 Feet	None

(d) Exterior walls shall not extend less than twenty-four (24) inches above the roof, except that parapet walls need not be constructed on buildings where the roof slopes more than four (4) inches vertical to twelve (12) inches horizontal from the back of the exterior wall of such buildings or where the exterior wall of such building is located on an alley or public way of fifteen feet or more in width.

(e) For Type V buildings less than 2,000 square feet in area located within the fire districts, exterior walls shall provide 2 hour fire resistance.

(f) Where penthouse walls are set back less than five (5) feet from exterior walls, they shall conform to the fire resistance requirements for exterior walls.

(g) The use of combustible construction for interior bearing partitions shall be limited to the support of not more than 2 floors and a roof.

(h) Where horizontal separation of twenty (20) feet or more is provided, wood columns, arches, beams and roof deck conforming to heavy timber sizes may be used externally.

(i) This requirement applies only to structural member supporting masonry walls, except that this does not apply in one (1) story buildings or where the only masonry supported is a masonry veneer.

(j) Same rating as required for wall it supports.

(k) In buildings of Group C and E (School and Assembly occupancies, where structural steel members supporting a roof only are not less than twenty feet clear above any floor or balcony used for any purpose other than seating, fire protection of structural steel members supporting roof construction only may be omitted.

(l) In one story buildings, approved Fire-Retardant Treated Wood may be used as an alternate to noncombustible in buildings of Group C and E (School and Assembly) occupancies.

(m) Fire-proofing of structural members may be omitted in buildings of Group C and E (School and Assembly) occupancies where structural members support a roof only and are twenty feet or more clear above any floor or balcony. In (1) one-story buildings approved fire-retardant (pressure-treated) wood may be used as an alternate to such unprotected structural steel members.

(n) Combustible roof construction must be subdivided into areas not exceeding 8000 square feet. (See Section 705(f).)

CHAPTER VII—FIRE PROTECTION REQUIREMENTS

SECTION 701—PROTECTION OF VERTICAL OPENINGS, STAIRS AND ELEVATORS

701.1—GENERAL REQUIREMENTS FOR ENCLOSURE, OF VERTICAL OPENINGS OR SHAFTS

(a) Every series of openings in floors or roofs, except one and two family dwellings, shall be enclosed to prevent spread of fire from story to story, as herein specified, unless otherwise specifically provided in this code.

(b) In buildings more than one (1) story in height, other than one and two family dwellings, all vertical shafts extending through more than one story shall be enclosed in all stories with partitions of not less than 2-hour fire-resistive construction (or same as stairway enclosure in Section 1106), unless otherwise prescribed in Section 701.2., 701.3 and 701.4. In Group A, Residential buildings not over three (3) stories in height, such partitions shall provide at least 1-hour fire resistance. A shaft that does not extend through the roof shall have its top enclosed with construction having fire-resistance at least equal to that of the enclosing walls. Where Chapter XI permits stairs to be open, shafts need not be enclosed. (See Section 1106)

(c) For bearing partition requirements see types of construction, Chapter VI.

(d) Parapet walls at least thirty-six (36) inches in height above the roof shall be provided around all open shaft enclosures that extend through a roof except that where the roof is of non-combustible construction a hand rail at least thirty (30) inches high may be used around openings instead of a wall.

(e) All shaftway enclosures extending above the roof of a building, except those open at the top, shall have a skylight with metal frame glazed with plain glass and with protective wire mesh screen below, conforming with Section 707; such skylight shall have an area equal to at least seventy-five (75) percent of the area of the shaftway at the top story, or other equivalent ventilation shall be provided. A window of plain glass of equivalent area, located in the side of the shaft may be used instead of a skylight provided it has its sill not less than two (2) feet above the roof and does not face a property line within (10) feet. (See Section 1127)

(f) In every building where the enclosing walls or shafts are open to the outer air at the top, they shall be constructed to provide fire resistance equivalent to that specified in Chapter VI, for the inner court walls of such a building.

(g) Openings in all shaft enclosures shall be limited to those absolutely necessary for the purposes of the shaft and shall be protected with approved fire doors, fire shutters, or fire windows (See Section 703.6).

701.2—STAIRWAY AND EXIT ENCLOSURES

Refer to Chapter XI for requirements of stairway and exit enclosures.

701.3—ELEVATOR ENCLOSURES

(a) Not more than three (3) elevators shall be placed in one shaft and such shaft enclosure shall have at least 2-hour fire resistance, except that

in residential buildings of Group A, or any Group B building, not over three (3) stories in height, enclosures may be of construction having 1-hour fire resistance.

(b) In shaftways for elevators there shall be at least one (1) door in every thirty (30) feet of height. All openings shall be protected as required in Section 703.6.

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

(d) An elevator shaft that does not extend to the bottom of a building shall be enclosed at its lower point to provide fire-resistance not less than that required for the lowest floor through which the elevator passes, but in no case less than is required for Type II construction.

(e) The compartment that contains machinery for operating an elevator shall be separated from the elevator shaft by Type I, Fireproof, or Type II, Fire Resistive construction, and shall be enclosed with partitions having at least 2-hour fire resistance and all openings shall be equipped with approved fire doors.

701.4—ESCALATOR ENCLOSURES

The same requirements shall apply to escalator enclosures as apply to stairway enclosures; (see Section 1106), except that in Type I, Fireproof, or Type II, Fire Resistive construction, the escalator opening (from one floor level to the next) need only be enclosed by fire resistive partitions at the upper floor level served, provided such escalator is not used as a required means of exit.

701.5—RUBBISH CHUTES, LINEN CHUTES, AND FLUE-FED INCINERATORS

(a) Every chute and incinerator flue shall be enclosed in accordance with Section 701.1, and the openings therein shall be protected. No such chutes or incinerator flues shall, in new construction, open directly on any exit, or corridor to an exit, but shall be in a separate room or closet separated from the exit (or from the corridor) by an approved self-closing fire door, except that this requirement shall not apply to private dwellings and that in apartment houses, automatic sprinkler protection may be provided in lieu of the self-closing fire door. (Special designed pneumatic chutes with "B" Label openings are exempt from these requirements.)

(b) Every incinerator flue, rubbish chute, and linen or laundry chute shall be of a standard type properly designed and maintained for fire safety.

(c) In new construction, any chute other than an incinerator chute shall be provided with automatic sprinkler protection at the top and every second floor level.

SECTION 702—PARTITIONS

702.1—GENERAL

(a) This section shall apply to partition requirements for the various occupancies and types of construction. Fire resistance ratings shall conform to provisions of Chapter X. Height and thickness of masonry partitions shall not be less than specified in Section 1404.

(b) Non-bearing masonry partitions shall be built solidly against the floor and ceiling construction below and above.

(c) Solid or hollow non-bearing partitions of plaster continuously reinforced with metal or gypsum lath applied over vertical steel or iron studs or solid, studless gypsum or metal lath and plaster partitions shall be anchored or firmly attached to a metal track which is suitably anchored to floor and ceiling construction. Such solid reinforced plaster partitions shall have a minimum thickness of not less than two (2) inches and their minimum out-to-out thickness shall be governed by their unsupported heights.

(d) For hollow partitions of metal lath and plaster construction, the thickness of plaster of each side shall be not less than three-quarters (¾) inch, with not less than one (1) inch separation.

(e) For the fire resistance ratings of partitions, see Vol. I-A.

702.2—PARTITION REQUIREMENTS

All non-bearing partitions shall conform to these fire-resistance requirements, except as otherwise specified. See interior finish requirements of Section 704.

TYPE I—FIREPROOF—Partitions, except as modified in this section, shall be of non-combustible material or Fire Retardant treated wood and of not less than one-hour fire-resistance construction.

TYPE II—FIRE-RESISTIVE—Partitions, except as modified in this Section, shall be of non-combustible material or of 1-hour fire resistance.

TYPE III—HEAVY TIMBER—Partitions shall be of one-hour fire-resistive construction or of solid wood laminated construction not less than three and five-eighths (3⅝) inches thick.

TYPE IV—NON-COMBUSTIBLE AND

TYPE V—ORDINARY—In buildings over two (2) stories in height, unless sprinklered, if located within the First Fire District, all permanent partitions shall be of not less than one-hour fire-resistance.

GROUP A—RESIDENTIAL—All partitions, except one and two family dwellings, along public hallways or partitions that separate apartments, or that separate apartments from other occupancies, shall be of not less than one-hour fire-resistance.

GROUP B—BUSINESS BUILDINGS—In buildings more than one-story in height, partitions along public hallways shall have one-hour fire-resistance. Regardless of type construction, temporary non-fire resistant partitions may be constructed. All such non-fire resistant partitions shall be used only within rooms or spaces not exceeding three thousand (3,000) square feet; provided such room or space be enclosed within partitions having not less than one-hour fire-resistance. The area occupied by each tenant shall be separated from adjacent tenants by a partition of not less than one-hour fire-resistance. (See Section 412 for mixed occupancy separation).

GROUP C—SCHOOLS—Partitions in buildings two or more stories in height shall be of not less than one-hour fire-resistant construction. All partitions in one-story buildings, except in rooms having direct exit to outside, shall be protected with non-combustible material. (See Section 1104.7)

GROUP D—INSTITUTIONAL—All partitions shall be of not less than one-hour fire-resistance.

GROUP E—THEATERS AND PUBLIC ASSEMBLY—See Section 512.4 and Section 1106 for partition requirements.

GROUP F—STORAGE

GROUP G—INDUSTRIAL AND

GROUP H—SPECIAL OCCUPANCIES—Partitions in Group F and Group G buildings over three (3) stories, and all partitions in Group H buildings shall be of not less than one-hour fire-resistance, except where greater fire-resistance is required. Combustible partitions may be used within accessory offices and rooms necessary for transacting the principal business of such occupancies, provided that such rooms are used for non-hazardous purposes.

GROUP I—FALLOUT SHELTERS—Fire Resistive partitions in fallout shelters are not required. Fallout shelters designed to be used for other uses shall have partitions meeting the requirements for the occupancy.

SECTION 703—PROTECTION OF WALL OPENINGS

703.1(a)—WHERE PROTECTION IS REQUIRED

For the purpose of this section, when a building is divided by fire walls into two or more sections, each section shall be regarded as a separate building.

Every building (except one and two family dwellings which are less than three (3) stories in height, churches, buildings of Type VI, Wood Frame construction, and public parking decks as defined in Section 507.2), shall have approved fire windows, fire doors or other approved protectives, in every opening in the exterior walls under the following conditions:

1. In buildings where the distance is fifteen (15) feet or less from the property line.

2. In buildings where such opening is above and less than thirty (30) feet distance from any part of a neighboring roof of combustible construction.

3. In buildings where such openings are within 30 feet of each other except when the total area of the buildings does not exceed the area allowed for type of construction.

Exceptions: Such protection shall not be required for show windows facing on a street or public place which do not extend above the second full story above grade nor shall such protection be required when the opening to be protected and the opening against which it is to be protected are facing in the same direction being located in walls in the same or parallel lines. All required opening protection shall be of approved type as defined elsewhere in this section.

703.2(a)—APPROVED TYPES OF FIRE WINDOWS, FIRE DOORS, AND FIRE SHUTTERS

Fire windows, fire doors and fire shutters shall be deemed approved if satisfactory evidence is given that they have successfully passed a fire test as specified in this section, conducted by an accredited laboratory, provided a test report is filed with the Building Official from such accredited

laboratory. Every fire window, fire door and fire shutter shall bear the label or identification of an approved testing agency showing the classification.

703.2(b)—FIRE TESTS OF PROTECTIVE DOOR OR SHUTTER ASSEMBLIES

Tests of opening protective assemblies shall be made upon complete full size assemblies, except that in any case the assembly need not exceed one hundred eight (108) Sq. Ft. in area, constructed and installed in all essentials as in actual service and subjected to a fire on one side continuously for periods in accordance with the time-temperature curve of the standard fire test specifications prescribed in Section 601 (ASTM "Standard Methods of Fire Tests of Building Construction and Materials" (E119-61).

Opening protective assemblies tested to establish a fire-resistive rating (one hour or more) shall be subjected to a hose stream test conducted in accordance wtih the standard ASTM fire test specifications, "Fire Tests of Door Assemblies, E152-58."

The duration of the fire test shall be as follows:

For fire doors required in fire walls or 4-Hr. fire-resistive walls or partitions	3-Hrs.
For fire doors required in 3-Hr. fire-resistive walls or partitions	1½-Hrs.
For fire doors required in 2-Hr., or less, fire-resistive walls	1-Hr.
For fire shutter assemblies	¾-Hr.

When two fire door assemblies each of which has been accepted for a one and one-half (1½) hour fire-resistance rating, are installed on two (2) sides of the same opening, such combined assembly shall be accepted as having a 3-hour fire-resistance rating. Similarly, two door assemblies, each having a three-quarter (¾) hour rating, shall be accepted as having a one and one-half (1½) hour rating.

Exception: Required exits through fire walls in Group C, D, and E occupancies may be 1 Hr.

703.2(c)—FIRE SHUTTERS

Tests of fire shutters to be successful shall meet the requirements for fire doors except that no restriction shall be made as to the amount of heat transmitted through the shutters.

703.2(d)—FIRE WINDOWS

(1) Fire windows shall have a fire-resistance rating of not less than three-quarters (¾) of an hour, and shall have frame and sash of solid steel sections or of hollow metal forms fabricated by pressing, riveting, interlocking, welding or crimping together but not by the use of solder or other fusible alloy.

(2) Wire glass not less than one-quarter (¼) inch thick shall be used in all fire-resistant windows. Size of individual glass lights shall not exceed seven hundred and twenty (720) Sq. In. of exposed area. Continuous glazing angles shall be provided on the inside of all fire windows, except such casement section sash, outside glazed, having wire clips, as have been approved by the Underwriters Laboratories.

(3) Maximum sizes of fire windows shall be as follows:

Hollow metal window frames shall be limited to a height not exceeding ten (10) Ft. and a maximum width of six (6) Ft. for double hung and for counterweighted type and for counterbalanced type; a maximum width of six (6) Ft. for fixed sash windows and of five (5) Ft. for all other types. Hollow metal mullions shall be used for non-bearing purposes only.

Solid section window frames shall be limited to a maximum size of eighty-four (84) Sq. Ft. with maximum dimension not exceeding twelve (12) Ft. except that solid section windows when used with the unprotected steel mullions shall be limited to seven (7) Ft. in width. Solid section mullions when used in length exceeding twelve (12) Ft. shall be fire protected to provide the same degree of fire-resistance as is required for the wall construction of the building in which they are placed.

703.3—VERTICAL SEPARATION OF OPENINGS

Exterior openings in a building (exceeding 3 stories in height), that are located vertically above one another and which are not protected by approved types of fire windows or fire doors shall have a space of not less than three (3) Ft. between the top of one opening and the bottom of the next above, or such openings above the lowest shall be protected against fire by an approved protective device. Such wall space shall be constructed of materials having fire-resistance meeting the requirements for the exterior walls of the type of construction used for such building, as prescribed in Chapter VI of this code.

703.4—PROTECTION OF DOOR OPENINGS IN WALLS AND PARTITIONS

(a) Wherever protection of door openings is required by this code and in all walls and partitions which are required to have 2-hour or more fire-resistance, door openings shall be protected with approved fire doors meeting the requirements of Section 703.2. In addition, wherever deemed necessary by the Building Official, approved fire doors may be required for the protection of exits or of adjoining property.

(b) In 4-hour and 3-hour fire-resistive walls or partitions, no opening shall exceed one hundred twenty (120) Sq. Ft. in area with no dimension greater than twelve (12) Ft., and the aggregate width of all openings at any level shall not exceed twenty-five percent of the length of such wall or partition. Every door opening in such wall or partition shall be protected on each side with an approved automatic fire door; provided that when such wall or partition serves also as a horizontal exit, it shall have no openings other than door openings not exceeding forty-eight (48) Sq. Ft. in area, and one of the automatic fire doors at each opening shall be replaced by a self-closing fire door.

(c) In 2-hour fire-resistive walls or partitions, no single door opening shall exceed one hundred eighty (180) Sq. Ft. in area. The aggregate width of all openings in such walls or partitions at any level shall not exceed that permitted for three-hour walls. Every door opening shall be protected with an approved automatic or self-closing fire door, provided that when such wall serves also as a horizontal exit, no opening shall exceed forty eight (48) Sq. Ft. in area and protection shall be provided by an approved self-closing fire door.

(d) In 1-hour fire-resistive walls or partitions, unless otherwise specified, all door openings shall be protected with approved metal or metal covered doors or wooden doors of the solid core flush type of nominal thickness of at least one and three quarters (1¾) inch in all parts.

(e) See Section 703.2 for fire-resistance requirements of fire doors.

(f) When proof satisfactory to the Building Official is furnished that a larger size of opening than prescribed herein is necessary, the area may be increased if such opening is provided with protective devices that meet the approval of the Building Official.

703.5—FIRE SHUTTERS

(a) When equipped with fire shutters of the swinging type, at least one in every three openings facing a street in each story shall have such shutters arranged to be readily opened from the outside. Distinguishing marks shall be provided on these shutters.

(b) Fire shutters of the rolling type shall be carefully counter-balanced and so arranged that they can be readily opened from the outside.

703.6—OPENINGS IN STAIRWAYS OR SHAFTWAYS

Shaft walls or enclosures of vertical openings shall have no openings other than such as are necessary for the purpose of the shaftway; all openings in shafts shall be protected with approved fire doors, approved fire shutters or approved fire windows.

703.7—OPENINGS IN MIXED OCCUPANCY SEPARATIONS

See Section 703.4 for requirements governing door openings in walls and partitions required to be of fire-resistive construction.

SECTION 704—RESTRICTIONS ON INTERIOR USE OF COMBUSTIBLE MATERIALS

704.1—GENERAL

Combustible materials may be used for ceilings, floor finish or other interior finish of buildings as provided in this Section. Show windows in the first story of buildings may be of wood or of unprotected metal framing.

704.2—FLOOR FINISH

(a) In buildings of Type I, Fireproof construction or of Type II, Fire-Resistive construction, floor finish, if of combustible material, shall be applied directly upon the floor construction except that a floor finish of wood, linoleum, rubber, tile or cork may be secured to a subfloor of wood. Where wood sleepers are used for laying wood floors in such buildings, they shall be firestopped so that there will be no open space extending under any permanent partition. Where the space between the underside of the floor and floor slab is more than 2½", such space shall be filled with non-combustible material.

(b) Combustible insulating boards may be used for sound deadening, or insulating of floors, except that in buildings required to be of Type I, Fireproof Construction or of Type II Fire-Resistive Construction, such insulating board shall not be more than one-half (½) inch thick and cemented directly to the floor slab or secured to wood sleepers fire stopped as called for above and covered with approved finish flooring.

704.3—CEILINGS AND INTERIOR WALL FINISH*

In every building except one and two family dwellings, and sprinklered buildings, flame spread ratings for walls and ceilings using ASTM Standard E84, U.L. No. 723 or NFPA 255, shall not exceed the following:

Ceilings and Interior Wall Finish

Occupancy	*Exits*	*Access to Exits*	*Other Spaces*
GROUP A			
Residential, new — apartment houses	A or B	A or B	A, B, or C
Residential, existing — apartment houses	A or B	A, B, or C	A, B, or C
Residental—dormitories	A or B	A, B, or C	A, B, or C
Residential, new — 1- and 2-family, lodging or rooming houses			A, B, or C
Residential, existing — 1- and 2-family, lodging or rooming houses			A, B, C, or D
Residental, new — hotels	A or B	A or B	A, B, or C
Residential, existing — hotels	A or B	A or B	A, B, or C
GROUP B			
Mercantile — Class A[4]	A or B		ceilings—A or B walls—A, B, or C
Mercantile — Class B[5]	A or B		ceilings—A or B walls—A, B, or C
Mercantile — Class C[6]	A, B, or C		A, B, or C A, B, or C
GROUP B-1			
Office	A or B		A, B, or C
GROUP C			
Educational	A	A	A, B, or C
GROUP D			
Institutional, existing — hospitals and nursing homes, penal institutions, nurseries	A or B	A or B	A or B
Institutional, existing, completely sprinklered — nurseries, hospitals and nursing homes, penal institutions	A, B, or C		A, B, or C
Institutional, new — hospitals and nursing homes, penal institutions, nurseries	A	A	A B in individual room with capacity not more than 4 persons

*For interior finish and decoration for Group E, Assembly Occupancy, see Section 512.3.

Ceilings and Interior Wall Finish

Occupancy	*Exits*	*Access to Exits*	*Other Spaces*
GROUP E			
Places of assembly—Class A[1]	A	A	A or B
Places of assembly—Class B[2]	A	A	A or B
Places of assembly—Class C[3]	A	A	A, B, or C
GROUP G			
Industrial	A, B, or C	A, B, or C	A, B, or C
Towers	A or B		A or B

NOTES:

Class A Interior Finish—Flame Spread 0-25
Class B Interior Finish—Flame Spread 25-75
Class C Interior Finish—Flame Spread 75-200
Class D Interior Finish—Flame Spread 200-500

Automatic Sprinklers—where a complete standard system of automatic sprinklers is installed, interior finish with flame spread rating not over Class C may be used in any location where Class B is normally specified, and with rating of Class B in any location where Class A is normally specified, unless specifically prohibited elsewhere in this Code.

[1]Class A Places of Assembly—1,000 persons or more.

[2]Class B Places of Assembly—200 to 1,000 persons.

[3]Class C Places of Assembly—under 200 persons.

[4]Class A Mercantile Occupancies—stores having aggregate gross area of 30,000 square feet or more, or utilizing more than 3 floor levels for sales purposes.

[5]Class B Mercantile Occupancies—stores of less than 30,000 square feet aggregate gross area, but over 3,000 square feet, or utilizing any floors above or below street level for sales purposes, except that if more than 3 floors are utilized, store shall be Class A.

[6]Class C Mercantile Occupancies—stores of 3,000 square feet or less gross area, used for sales purposes on street level only—(balcony permitted).

704.4—TRIM AND OTHER INCIDENTAL FINISH

Interior finish not in excess of 10 percent of the aggregate wall and ceiling areas of any room or space may be Class C materials in occupancies where interior finish of lower flame spread rating is required. The area of doors, trim, etc. shall be counted in the 10 percent.

SECTION 705—FIRESTOPPING

(a) Firestopping shall be provided in all walls and partitions to cut off all concealed draft openings both horizontal and vertical, and to form an effectual fire barrier between stories and between the upper story and the roof space.

(b) Walls, including masonry walls furred with combustible material, and stud partitions shall be effectively firestopped with non-combustible material at floors, ceilings, and roofs, except in those parts of a building which are framed with wood, the firestopping may be of wood not less than two (2) inches in nominal thickness. See Section 1703.

(c) All openings around exposed pipes or power shafting shall be filled with approved non-combustible material, or shall be closed off by close-fitting metal caps at the ceiling and floor line, and on each side of a wall or partition.

(d) All openings for belts and conveyors shall be provided with approved slotted doors, or be otherwise closed off. Belts shall not pass through fire-walls.

(e) No firestopping shall be covered or concealed until inspected by the Building Official.

(f) In combustible roof construction, where ceilings or concealed spaces occur, such spaces shall be divided into horizontal areas of not more than three thousand (3,000) square feet (except one and two family dwellings) with tight partitions of non-combustible material or of approved wood construction consisting of one-half inch exterior plywood or of not less than two thicknesses of one (1) inch nominal lumber with joints broken.

(g) All openings through these partitions shall be protected by self-closing doors of approved construction meeting the partition requirements.

(h) Except in 1- and 2-family dwellings, when stairs are of wood or of combustible construction, the space between stair stringers shall be fire-stopped at top and bottom and at least once in the middle of each run, and firestopping shall also be provided between studs, along and in line with run of stair adjoining such partition.

(i) Floors and roof constructed of combustible materials shall be fire-stopped at walls and partitions where openings occur. When wood joists run parallel to a wall, the space between the wall and the nearest joist shall be not less than two and one-half (2½) inches and shall be solidly filled with non-combustible material.

(j) Joists in all types of construction shall be firestopped at the ends and over supports for the full depth of the joists.

(k) Spaces between chimneys and wood framing shall be solidly fire-stopped with mortar, concrete, or other non-combustible material, except as provided for in Section 802.1(d)—suspended or Metal Chimneys. (See Section 1703.)

(l) In firestopping, any of the following materials may be used: brick, concrete, gypsum, steel, iron, asbestos, metal lath and cement or gypsum plaster, mineral wool, rock wool, or other approved non-combustible materials, securely fastened in place to cut off drafts and provide an effective fire stop.

SECTION 706—ROOF COVERINGS

706.1—GENERAL

Roof coverings shall be divided into the classes defined below, whose use within the Fire District shall be governed by the requirements of Section 301.3(d).

706.2—CLASS I ROOF COVERINGS (CLASS A)

Class I Roof Coverings shall include the following: Brick-Concrete-Slate-Tile-Corrugated Asbestos Cement-built-up 4- and 5-ply Felt, with Pitch, and Gravel or Pitch and Slag, and Built-up Asbestos Felt.

706.3—CLASS 2 ROOF COVERINGS (CLASS B)

Class 2 Roof Coverings shall include the following: corrugated iron sheets; galvanized iron sheets; galvanized iron shingles; sheet copper; galvanized iron, asphalt asbestos felt shingles; asphalt asbestos roll roofing; and asphalt asbestos cement shingles.

706.4—CLASS 3 ROOF COVERINGS (CLASS C)

Class 3 roof coverings shall include the following: asphalt rag-felt mineral surfaced individual or strip shingles conforming to the standards of the Underwriter's Laboratories, Inc. for Class "C" roofing as outlined in Underwriters' booklet UL55B dated April, 1962, asphalt roll roofing, surfaced with mineral granules, conforming to the above standards and laid in single or double (19 inch selvage) thickness with 2 inch or more side and end laps; aluminum .019 inch thickness.

706.5—REQUIREMENTS FOR ROOF COVERINGS

(a) Every roof hereafter placed on a building inside any fire district shall be covered with an approved roofing (Class 1 or 2) of brick, concrete, tile, slate, metal, asbestos, prepared asphalt asbestos-felt shingles, or of built-up roofing finished with asphalt, slag or gravel, or other approved material.

(b) Except where roofing is of a character permitting attachment direct to frame work, it shall be applied to a solid or closely fitted deck.

(c) Roofings which are listed as Class A or B roof covering materials by Underwriters' Laboratories, Inc., shall be accepted as meeting the requirements of this section.

(d) Roofing which are listed as Class A, B, or C roof covering materials by Underwriters' Laboratories, Inc., shall be accepted as meeting the requirements of this section on buildings outside any fire district.

(e) The use of cork, fiber board or other approved insulation is permitted on top of the roof deck provided such insulation is covered with an approved type of fire resistive roof covering applied directly thereto.

706.6—ROOF INSULATION

The use of cork, fiberboard or other approved insulation shall be permitted in all types of construction provided it is covered with approved roof coverings applied directly thereto.

SECTION 707—SKYLIGHTS

(a) Except in Type VI, Wood Frame Buildings, the sashes and frames of all skylights hereafter placed on a building shall be constructed of steel, wrought iron, or other approved metal; except that in foundries or buildings where acid fumes which attack those metals, are present as an incident to the occupancy of such buildings, such sashes and frames may be constructed of wood if approved specifically by the Building Official.

(b) Skylights shall be glazed with wire glass; except that skylights placed over shaftways, vent shafts, and stair enclosures shall be glazed with plain glass not over one-eighth (⅛) inch in thickness. No single pane of wire glass shall exceed seven hundred twenty (720) Sq. In. in area, or forty-eight (48) inches in any dimension. Skylights of approved plastics may be used where glass of ⅛" thickness is required.

(c) Every skylight in which plain glass is used shall be protected by a substantial wire screen, having a mesh not less than three-quarter by three-quarter (¾ x ¾) inch nor coarser than one by one (1 x 1) inch and made of wire not smaller than No. 12 B. and S. gauge, located at a distance not less than four (4) inches nor more than ten (10) inches above

the glazed portion of such portion of such skylight at all points, and extending beyond such glazed portion on all sides, a distance not less than the height of the screen above the glass. A similar screen shall be placed below such skylight in such position as to serve as a protection from falling glass.

(d) Skylights of approved plastics may be used in accordance with provisions of Chapter XXII.

(e) The above provisions shall not apply to skylights used in or as the roofs of greenhouses.

SECTION 708—MANSARD OR SLANTING ROOFS

Every mansard or other slanting roof having a pitch of more than sixty degrees (60 degrees) hereafter placed on any building over fifty (50) feet in height, shall be of non-combustible construction providing not less than 1-hour fire resistance, except that when such building exceeds eighty (80) feet in height, such roofs shall be of construction providing not less than 1½ hour fire resistance.

SECTION 709—DORMER WINDOWS

Dormer windows hereafter erected shall be of the same type of construction as the roof on which they are placed, or of the side walls of the building.

SECTION 710—CORNICES, BALCONIES, BAY WINDOWS

(a) All cornices, including those on show windows, hereafter placed on the exterior of buildings within the Fire Districts or on buildings over forty (40) feet in height located outside the Fire Districts shall be of non-combustible materials. The exterior of cornices on buildings forty (40) feet or less in height located outside of Fire Districts, except 1- and 2-family dwellings, and buildings of Type VI, Wood Frame construction, shall be of non-combustible material.

(b) Continuous exterior cornices of wood, or on wood frames, shall be firestopped at intervals not exceeding twenty (20) feet.

(c) Balconies, and bay windows, shall conform to the type of construction required for the building to which they are attached, except that all exterior balconies attached to, or supported by, walls of material other than wood, shall have brackets or beams of steel, concrete, or other non-combustible material.

SECTION 711—GUTTERS AND LEADERS

Gutters and leaders hereafter placed on buildings other than 1- or 2-family dwellings, private garages, or buildings of Type VI Wood Frame construction, shall be of non-combustible material.

(See Section 1406 for Parapet Wall relief opening requirements.)

SECTION 712—TOWERS, SPIRES, CUPOLAS, AERIAL SUPPORTS, POLES, ETC.

(a) Any tower, spire, dome or cupola shall be of a type of construction not less in fire-resistance rating than required for the building to which it is attached except that any such tower, spire, dome or cupola which exceeds sixty (60) feet in height above grade, and all construction upon which it is supported, shall be of Type I, Fireproof; or Type II, Fire Resistive construction when the area at any horizontal section of such tower, spire, dome, or cupola exceeds two hundred (200) Sq. Ft. or when it is used for any purpose other than a belfry or an architectural embellishment.

(b) Any tower, spire, dome or cupola which exceeds twenty-five (25) feet in height above the highest point at which it comes in contact with the roof or which exceeds two hundred (200) Sq. Ft. in area at any horizontal section or which is intended to be used for any purpose other than a belfry or architectural embellishment, shall be entirely constructed of and supported by non-combustible materials. Such structures shall be separated from the building below by construction having a fire-resistance rating of not less than 1½ hours and, if access doors are provided, they shall be of approved fire-resistive type.

(c) All structures except aerial supports not over twelve (12) feet high, flag poles, water tanks and cooling towers, hereafter placed above the roof of any building within the Fire Districts, or above the roof of any building more than fifty (50) feet in height, wherever located, shall be of non-combustible material, and shall be supported by construction of non-combustible material.

SECTION 713—TANKS

(a) Tanks of more than five hundred (500) gallons capacity hereafter placed in or on a building shall be supported on masonry, reinforced concrete or steel construction, except that portion of the supporting structure which is above the roof of the building may be of heavy timbers; provided that when such construction is within the building it shall be as required for Type I—Fireproof Construction.

(b) Such tanks shall have in the bottom or on the side near the bottom, a pipe or outlet, fitted with a suitable quick opening valve for discharging the contents in an emergency through an adequate drain.

(c) Such tanks shall not be placed over nor near a line of stairs or an elevator shaft, unless there is a solid roof or floor underneath the tank.

(d) All unenclosed roof tanks shall have covers sloping toward the outer edges.

(e) When hoops are used in the construction of tanks, they shall be of metal, and provision shall be made to guard against corrosion.

SECTION 714—COOLING TOWERS

Cooling towers in excess of 250 Sq. Ft. in base area or in excess of 15 Sq. Ft. in height, when located on buildings more than 50 Ft. in height in or out of the Fire Districts, shall be of non-combustible construction; except that drip boards may be of wood not less than one (1) inch

nominal thickness and the enclosing frame work may be of wood, if covered on the exterior of the tower with non-combustible material. Cooling towers shall not exceed one-third of the supporting roof area.

SECTION 715—DRYING ROOMS

(a) Drying rooms or dry kilns located within a building shall be constructed entirely of non-combustible materials where used or intended to be used at temperatures exceeding one hundred twenty-five degrees (125 degrees) fahrenheit; if enclosure is of metal, it shall be insulated from all combustible material by not less than a twelve (12) inch air space, one-quarter (¼) inch asbestos or other approved insulation.

(b) All drying rooms shall have approved ventilation.

(c) Heating pipes, not located overhead, shall be shielded to maintain not less than two (2) inch clearance between them and the contents.

SECTION 716—FIRE WALLS

716.1—CONSTRUCTION

(a) Fire walls shall be of non-combustible material having a fire resistance rating of not less than 4 hours, and have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

(b) Walls constructed of solid masonry or of hollow masonry units or of reinforced concrete shall be considered as meeting the above requirements for structural stability under fire conditions, except as otherwise specifically provided in this section.

(c) Fire walls shall start at the foundation and extend continuously through all stories to and above the roof, except where the roof is of fire-resistive construction and the wall is carried up tightly against the under side of the roof slab. (See Section 718)

(d) Where structural members project into hollow masonry units, the hollow space shall be filled with non-combustible material the full thickness of the wall and 6 inches or more above, between and below such members.

716.2—THICKNESS OF 75% SOLID MASONRY WALLS EXCEPT PANEL WALLS

(a) Fire walls of 75% solid masonry shall be not less than 12 inches thick for the uppermost 35 feet of their height and shall be increased 4 inches in thickness for each successive 35 feet or fraction thereof measured downward from the top of the wall.

(b) Where solid 75% masonry fire walls are stiffened at distances not greater than 12 feet apart by masonry cross walls or by reinforced concrete floors or roof, they may be 12 inches thick for the uppermost 70 feet, measured downward from the top of the wall, and shall be increased 4 inches in thickness for each successive 70 feet or fraction thereof.

(c) Fire walls of 75% solid masonry may be not less than 8 inches thick for one story buildings of Group A, B-1, C, D, and E occupancy when building on both sides of wall is Type I, Type II or Type IV construction.

716.3—THICKNESS OF HOLLOW MASONRY (LESS THAN 75% SOLID) WALLS EXCEPT PANEL WALLS

Fire walls of hollow masonry units including brick-faced hollow masonry walls shall have a total thickness of not less than 4 inches greater than required in section 716.2 for solid masonry walls.

716.4—THICKNESS OF REINFORCED CONCRETE AND REINFORCED BRICK MASONRY WALLS EXCEPT PANEL WALLS

Fire walls of reinforced concrete and reinforced brick masonry shall have a thickness of not less than 1/25 of the unsupported height or width, whichever is the shorter, but in no case shall it be less than 9 inches thick for the uppermost 35 feet and increase 2 inches in thickness for each successive 35 feet or fraction thereof measured downward from the top of the wall.

716.5—EXCEPTION TO THICKNESS REQUIREMENTS FOR PANEL WALLS

Where fire walls are constructed as panel walls in a framework of individually protected columns and girders having fire resistance ratings of not less than 4 hours and no panel exceeds 40 feet in length nor 12 feet in height between supports, they may be 12 inches thick if constructed of hollow masonry units or 8 inches thick if constructed of solid masonry, reinforced brick masonry or reinforced concrete.

716.6—PARAPET REQUIREMENTS

Parapets shall be provided on fire walls in accordance with Section 718.

716.7—SIZE AND PROTECTION OF OPENINGS

(a) When a building on either side of a fire wall is unsprinklered, no opening in the fire wall shall exceed 120 square feet in area with no dimension greater than 12 feet, and the aggregate width of all openings at any level shall not exceed 25 percent of the length of the wall.

(b) When the buildings on both sides of a fire wall are equipped with an approved automatic sprinkler system, the aggregate width of openings in the fire wall are not limited.

(c) Every opening in a fire wall shall be protected on each side of the wall with an approved automatic or self-closing fire door; except that when a fire wall serves also as a horizontal exit way it shall have no openings other than door openings not exceeding 48 square feet in area, and one of the fire doors at each opening shall be a self-closing fire door.

SECTION 717—ACCESSIBILITY REQUIREMENTS FOR EXTERIOR WALLS

717.1—GENERAL

All buildings shall have access openings on each floor of each side fronting on a street, public place or publicway when the first floor area exceeds 7,500 square feet or the floor area of any floor above the first floor exceeds 5,000 square feet unless the building is sprinklered. Sprinklered buildings shall have access openings on at least one side on each floor.

712.2—ACCESSIBILITY REQUIREMENTS

(a) The access openings in each accessible side of a building not over 65 feet in height shall be not less than;

(1) Windows or windows and doors spaced not less than 50 feet apart and equivalent to 10 percent or more of the wall area of each floor of each such side; or

(2) Access openings not less than 32 inches wide and 48 inches high with sill not over 32 inches above the floor spaced not less than 50 feet apart on each floor of each such side.

(b) The access openings in each accessible side of a building over 65 feet in height shall be not less than;

(1) Windows spaced not less than 50 feet apart on each floor of each such side; or

(2) Smoke towers spaced not over 100 feet apart on each such accessible side. The smoke towers may serve as a required means of exit.

717.3—UNDERGROUND STRUCTURES

(a) Underground structures exceeding 2500 square feet in area shall be provided with at least two means of access so located and of such size as to permit its use by firemen.

(b) Where 10 or more occupants use the underground structure and the required exits involve upward travel, such exits shall be provided with smoke traps.

SECTION 718—PARAPETS

718.1—REQUIREMENTS—EXCEPTIONS

Except as listed below, parapets shall be provided on all fire walls and exterior walls required to have a fire resistance rating of 2 hours or more. Parapets are not required on;

(a) Exterior walls and fire walls connecting with roofs of fire-resistive construction;

(b) An exterior wall of a building the roof of which is at least 3 feet lower than the roof of, or any opening in, an adjacent building wall;

(c) Exterior walls facing on a street having a width of 30 feet or more;

(d) Exterior walls of a building which is 30 feet or more distant in all directions from the nearest line to which other buildings are or may be legally built and from other buildings on the same lot;

(e) Exterior walls of a building which is 30 feet or more distant in all directions from the nearest line to which other buildings are or may be legally built but less than 30 feet distant to one or more buildings on the same lot, where the total area of the buildings within 30 feet of each other does not exceed 1½ times the allowable area for any one of the buildings considered;

(f) Exterior walls of a detached dwelling, or of a building not exceeding 1,000 square feet in area;

(g) Exterior walls of a building where the roof has an angle of more than 20 degrees with horizontal;

(h) Exterior walls and fire walls connecting with roofs of protected non-combustible construction, or of unprotected non-combustible construction with no combustible material above the roof deck, and the wall is

carried up through ceilings and tightly against the underside of the roof deck. Concealed spaces in roof decks shall be firestopped over fire walls.

718.2—FIRE RATING

Required parapets shall have fire resistance ratings not less than required for the exterior wall or fire wall on which they are provided.

718.3—EXTENSION ABOVE ROOF

Required parapets on exterior walls required to have a fire resistance rating of 2 hours shall extend not less than 2 feet above the roof; parapets on exterior walls required to have a fire resistance rating of 3 or 4 hours shall extend not less than 3 feet above the roof; parapets on fire walls shall extend at least to the same height as any part of the roof through which the fire wall passes within 15 feet of the parapet and in no case shall it extend less than 3 feet above the point where the parapet and roof intersect.

718.4—THICKNESS

Masonry and reinforced concrete parapets shall be at least as thick as the required thickness of the wall on which it is provided but need not be more than 12 inches thick on exterior walls.

718.5—COPING

Parapets shall be properly coped and flashed with non-combustible, weatherproof material. All corners of masonry parapet walls shall be reinforced with at least ¼-inch bar in every third joint, continuous around the corner and extending into the masonry at least 3 feet from the corner.

CHAPTER VIII—LIGHT AND VENTILATION

SECTION 800—GENERAL

800.1—NEW BUILDINGS

For the purpose of providing adequate light and ventilation, every building shall be constructed, arranged and equipped to conform to the provisions of this chapter.

800.2—ADDITIONS AND ALTERATIONS

(a) No building, including existing buildings, shall be altered, added to nor rearranged so as to reduce the size of a room or the amount of window space to less than that required by this chapter, or so as to create an additional room, unless such additional room is made to conform to the requirements for rooms in this chapter, except that such rooms may be of the same height as existing rooms in the same story.

(b) No addition shall be made to a building, nor shall the lot on which it is located be diminished so that the dimensions of a required court shall be less than prescribed in this code.

800.3—STREETS

For purposes of this chapter, the term "street" shall include railroad rights-of-way, parks, and waterways.

SECTION 801—ROOMS AND EXIT WAYS

801.1—GENERAL

Wherever the following terms are used in this section, they shall be construed as if followed by the words indicated below:

windows—"conforming to Section 802."
vent shaft—"conforming to Section 803."
ventilating skylights—"conforming to Section 804."
mechanical ventilation—"conforming to Section 805."
court—"conforming to Section 806."

801.2—HABITABLE ROOMS

(a) Every habitable room shall be provided with natural light and ventilation by one or more windows, opening on a street, alley or court. Kitchens not completely enclosed and conforming to the requirements in Section 801.7 for alcoves need not be separately lighted and ventilated.

(b) Such rooms shall be not less than 7 feet wide in any part and shall contain not less than 70 square feet of gross floor area. Such rooms shall have a clear height of not less than 7 feet 6 inches for at least 60 square feet of floor area.

(c) When kitchens serving dwelling units are completely enclosed, the gross floor area shall be not less than 60 square feet and not less than 90 square feet when dining space is included, except that in dwelling units having no bedrooms the gross area of the kitchen shall be not less than 50 square feet.

801.3—ROOMS FOR ASSEMBLY OCCUPANCY

(a) Every room or space used for an assembly occupancy shall be provided with light and ventilation by means of windows or such room or

space shall be provided with natural or artificial light and ventilated by an approved means of ventilation.

(b) Where a room or space is used for an assembly occupancy for more than 50 occupants and there is less than 100 cubic feet per occupant, approved mechanical ventilation shall be provided.

(c) Where a room or space is used for an assembly occupancy for 50 or less occupants and there is less than 100 cubic feet per occupant, windows shall be provided on 2 or more sides of the room or space or approved mechanical ventilation shall be provided.

(d) In rooms or spaces used for an assembly occupancy the lighting shall be such during occupancy that the light intensity at the floor is not less than 1.0 foot-candle except during a performance requiring dimming or darkness; provided that during the showing of motion pictures where it is the practice for patrons to proceed to and from seats at any time, such light intensity shall be not less than 1/5 of a foot-candle. (See Section 1124.2)

801.4—ROOMS FOR INSTITUTIONAL OCCUPANCY

(a) Every room used for sleeping purposes in an institutional occupancy shall be provided with natural light by one or more windows opening on a street, alley or court, and with ventilation by windows as required for habitable rooms or by an approved system of direct mechanical ventilation; provided that in jails and other detention buildings the opening on such street, alley or court of the windows of cells or similar rooms may be indirect.

(b) Rooms in an institutional occupancy used for purposes involving the storage, handling or dispensing of hazardous materials such as laboratories, film developing, or operating rooms shall be ventilated by an approved direct mechanical ventilation system.

801.5—BATHROOMS AND WATER-CLOSET COMPARTMENTS

Every bathroom and every room containing one or more water closets or urinals shall be provided with natural or artificial light, and be ventilated by: one or more windows opening on a street, alley or court; or by a vent shaft which extends to and through the roof or into a court; or by a separate duct of non-combustible and corrosion resistant material, not less than 72 square inches in cross section, extending independently of any duct used for other purposes to and above the roof; or by a ventilating skylight; or by an approved means of direct mechanical ventilation.

801.6—SERVICE PANTRIES

Service pantries, except in dwelling units, shall be ventilated as prescribed in Section 801.5 for bathrooms.

801.7—ALCOVES

Any alcove opening off a habitable room, unless separately lighted and ventilated, shall be included as part of that room in computing the amount of window area required. The alcove shall have an unobstructed opening between it and the main room of at least 80 per cent of the wall area of the common wall, measured on the alcove side, unless it is separately lighted and ventilated as prescribed for habitable rooms.

801.8—MEZZANINE SPACES

In mezzanine spaces, which are open to and form a part of another room, the area of such mezzanine space shall be added to the floor area of the room in which it is located in computing the window area required for both spaces.

801.9—ROOMS HAVING SPECIAL HAZARDS

Rooms in which, by reason of use or occupancy, dust, fumes, gases, vapors or other noxious or deleterious impurities tending to injure the health of occupants or to create a fire hazard, exist or develop, shall be provided with an approved system of ventilation to remove effectually such impurities during occupancy.

801.10—OTHER ROOMS

Every room or space, other than those specifically provided for in this section, used or occupied by persons, except rooms or spaces used for storage or other purposes with infrequent occupancy, shall be provided with light and ventilation by windows opening on a street, alley or court or shall be provided with one or more ventilating skylight; or such rooms or spaces shall be provided with an approved means of direct mechanical ventilation.

801.11—ACCESS TO ROOMS AND WATER CLOSETS

(a) In dwellings and multifamily houses access shall be had to every dwelling unit without passing through any other dwelling unit.

(b) In each dwelling unit access without passing through a bedroom shall be provided to at least one water closet, unless every bedroom has direct connection with a water closet or a bathroom having water closet accommodation.

801.12—EXIT WAYS

(a) Stairways, public hall, corridors and other means of egress, except exterior stairways on apartment houses, shall be illuminated at all points to intensities of not less than 1.0 foot-candle at all times that the building served thereby is occupied.

(b) Every stairway, public hall or corridor in multifamily houses and in buildings of institutional occupancy shall be ventilated either by one or more windows openings on a street, alley or court or ventilated by mechanical means approved by the building official or provided with natural ventilation to the outer air by means of a system of vent flues not less than 12 by 12 inches in size approved by the building official.

(c) If windows are used to provide light and ventilation required by this section, there shall be at least one window or ventilating skylight having a glazed area of not less than 10 square feet for every 20 feet of length or fraction thereof, unless a window is placed at the end of a hall or corridor so that it will adequately light the public hall or corridor for its entire length.

(d) Every recess or return, the depth or length of which exceeds twice the width of the hall or corridor, that is shut off from any other part by a door or doors, shall be deemed a separate hall or corridor within the meaning of this section.

(e) Lights installed to comply with the provisions of this section that are likely to be or to become dangerous in any way to occupants, shall be protected by suitable wire netting or other means against breakage or other hazards.

801.13—ARTIFICIAL LIGHTING FOR EXIT WAYS

Artificial lighting shall be provided whenever natural lighting is inadequate. (See Section 1124)

SECTION 802—WINDOWS

802.1—GLAZED AREA

The aggregate area of approved glazing material in windows required by Section 801 shall be not less than 1/10 of the floor area of the room served by them; in habitable rooms such glazed area shall be not less than 10 square feet, and in bathrooms it shall be not less than 3 square feet.

802.2—GLAZING

Only approved wired glass not less than ¼ inch thick shall be used for the glazing of fire windows. Other windows shall be glazed with glass or other translucent or transparent material. Glazing of material other than glass shall have a flame spread rating not greater than permitted for interior finish materials in Section 704.3. Glazing of other than non-combustible material shall not have an aggregate area exceeding 20 percent of the wall area in which it is installed when such wall is required to be of non-combustible material, nor shall it be located more than 35 feet above grade.

802.3—OPENINGS

Windows or other openings required for ventilation shall have an aggregate openable area of at least 50 percent of the glazed area required for lighting.

SECTION 803—VENT SHAFTS

803.1—SIZE

Vent shafts installed to meet requirements of Section 801.5 or 801.6 shall have a cross-sectional area of not less than one-half square foot for every bathroom or water closet vented by the shaft. Except for dwellings, such shaft shall be not less than 9 square feet in any case and shall not be less than 2 feet in its least dimension.

803.2—SKYLIGHTS

Unless open to the outer air at the top for its full area, such shaft shall be covered by a skylight glazed and protected as specified in Section 701.1 and having a net area of permanent openings equal to the maximum required shaft area.

803.3—AIR INTAKES

(a) Vent shafts shall be connected with a street, alley or court by a horizontal intake at a point below the lowest window opening on such shaft.

(b) Such intake shall have a minimum unobstructed cross-sectional area of not less than 3 square feet with a minimum dimension of 12 inches.

(c) The openings to the intake shall be not less than one foot above the bottom of the shaft and the street surface or bottom of court, at the respective ends of the duct or intake and shall be protected by substantial screens of corrosion resistant material having a mesh not larger than ¾ inch.

(d) Such intake shall be constructed of non-combustible, corrosion resistant material.

SECTION 804—VENTILATING SKYLIGHTS

Skylights installed to meet the requirements of this chapter shall be glazed and protected as specified in Section 701.1 and shall have glazed areas not less than required for the windows they replace. They shall be equipped with movable sashes or permanent openings of an aggregate net area not less than required for openable parts in the windows they replace, or approved ventilation of equal effectiveness shall be provided.

SECTION 805—MECHANICAL VENTILATION

805.1—GENERAL

Mechanical ventilation required by this code or permitted as an alternative to natural ventilation shall be designed and installed so as to be reasonably safe to persons and property. Mechanical ventilation systems designed and installed in conformance with the applicable provisions of this code shall be deemed to be reasonably safe to persons and property; on matters not covered in this code, conformity of mechanical ventilation systems to the applicable standards specified in Chapter XXIX and Volume III of this Code shall be evidence that such installations are reasonably safe to persons and property. For ventilation requirements of fallout shelters, see Section 518.5.

805.2—DESIGN AND EQUIPMENT

(a) Except for residence type warm air heating, ventilating and air conditioning systems, mechanical ventilation systems shall have an approved means of fresh air intake from the outside. Recirculated air must be supplemented by at least 20 percent of fresh air.

(b) Exhaust openings shall be located so that exhausted heat, gases, vapors or fumes are not a hazard or nuisance.

(c) Intake openings shall provide air from an uncontaminated source.

(d) Filters shall be provided when necessary to keep interior of ducts free from dust or grease deposits.

(e) Ventilating ducts shall be constructed entirely of non-combustible, non-porous materials with permanently air-tight joints. Their construction shall comply with the standards of air conditioning and ventilating systems specified in Section 805.1.

SECTION 806—COURTS

806.1—WIDTH

(a) Outer courts required to serve habitable rooms shall have a width, at any level, of not less than 4 inches for each foot or fraction thereof of the height of such court, but not less than 5 feet.

(b) Inner courts required to serve habitable rooms shall have a width, at any level, of not less than one foot for each foot or fraction thereof of the height of such court, but not less than 10 feet.

(c) Courts required to serve other than habitable rooms shall have a width, at any level, of not less than 3 inches for each foot or fraction thereof of the height of such court, but not less than 5 feet.

806.2—AREA

(a) The cross-sectional area of a required inner court shall be not less than 1½ times the square of its required width.

(b) The area of a required outer court shall be not greater than 4 times the square of its width.

806.3—STREETS AND ALLEYS

In case a street or alley is of less width than required for a court, the building or that part dependent thereon shall be set back from such street or alley sufficiently to provide the required width, considering the street or alley as part of the court.

806.4—INTAKES

Every court serving one or more habitable rooms, that does not open for its full height on one or more sides on a street, alley or yard shall be connected at or near the bottom with a street, alley or yard by a horizontal intake or passage. Such intake or passage shall be constructed with walls, floors and ceilings having a fire resistance rating of not less than one hour, and shall have a cross-sectional area of not less than 21 square feet.

806.5—UNOBSTRUCTED

Every court shall remain unobstructed for its required width and full height, except that for outer courts, cornices and eaves projecting not more than 12 inches from a wall and for inner and outer courts ordinary window sills or belt courses, projecting not more than 4 inches from a wall, and drop awnings shall not be deemed obstructions. But this shall not prohibit in the open spaces at the ground level, in the case of buildings used for residential or institutional occupancies, clothes poles, arbors, garden trellises and other such accessories, and, in the case of dwellings only, permissible garages.

806.6—DRAINAGE

The bottom of every court shall be properly graded and drained.

806.7—ACCESSIBILITY

Every court that is not otherwise accessible at the bottom, shall be made accessible by a door or other means to enable it to be properly cleaned.

SECTION 807—CRAWL SPACE VENTILATION

(See Section 1702.8)

SECTION 808—ATTIC SPACE VENTILATION

(See Section 1707.8)

CHAPTER IX—SPRINKLERS AND STANDPIPES

SECTION 901—SPRINKLERS

901.1—APPROVED EQUIPMENT AND LAYOUT

Only approved sprinklers and devices shall be used in automatic sprinkler systems and the complete layout of the system shall be submitted to the Building Official for approval before installation.

901.2—REQUIREMENTS

Every automatic sprinkler system required by this Code shall conform with the requirements of the "Standard of the National Fire Protection Association For The Installation of Sprinkler Systems (NFPA Pamphlet No. 13 1966 Edition"), except that a single water supply of adequate pressure, capacity and reliability, equal to the primary supply required by those standards, may be permitted by the Building Official.

901.3—OCCUPANCY CLASSIFICATIONS

For the purpose and application of, and comparison with, the "National Fire Protection Standard For Sprinkler Systems" (NFPA Pamphlet No. 13) occupancies shall be classified as follows:

LIGHT HAZARD
GROUP A, B-1, C and D

ORDINARY HAZARD
GROUP B-2, E, F and G

EXTRA HAZARD
GROUP H

901.4—MATERIAL

Piping shall be as specified in "Standard of the National Fire Protection Association For The Installation of Sprinkler Systems—1966" (NFPA Pamphlet No. 13).

901.5—HOSE THREADS

All hose threads in connections shall be uniform with that used by the Fire Department of the City or authority having jurisdiction.

901.6—GENERAL

(a) The areas referred to in this section shall be the area enclosed by exterior walls or firewalls or a combination thereof, except that in buildings of fire resistive construction the area shall be that enclosed by exterior walls, fire walls or walls of non-combustible material having a fire resistance rating of not less than 2 hours, or a combination thereof.

(b) Combustible goods or merchandise referred to in this section shall include those made of wood, paper or rubber; those containing flammable liquids; those packed with excelsior, moss, paper or foamed plastic; and other goods or merchandise of equivalent or greater combustibility.

901.7—SPRINKLERS REQUIRED

(a) Approved automatic sprinkler systems shall be installed in buildings that are;

(1) Occupied as Group B-2, Mercantile, or for the manufacture, sale or storage of combustible goods or merchandise (not including garages) and exceeding the areas in Table 901.7(1).

TABLE 901.7(1)

SPRINKLERS REQUIRED FOR GROUP B-2, F AND G OCCUPANCIES

Type of Construction	Area of any floor in square feet			
	1 story buildings	2 story buildings	Building height over 35 feet	Building height over 50 feet
Fire Resistive Type I	100,000	60,000	20,000	10,000
Fire Resistive Type II	100,000	60,000	20,000	All areas
Protected non-combustible Type IV	60,000	30,000	15,000	All areas
Unprotected non-combustible Type IV	20,000	12,000	8,000	
Heavy Timber Type III	20,000	20,000	15,000	
Ordinary Type V	20,000	12,000	8,000	
Wood Frame Type VI	12,000	8,000	All areas	

NOTE (a)—Basements or underground structures shall have approved automatic sprinkler system installed when the basement or underground structure area exceeds 2,500 square feet. In buildings used for assembly, educational, institutional or residential occupancies the automatic sprinkler systems shall be required only in such portions of the basement as are used for storage purposes or as work shops, except where such storage or work areas exceed 5,000 square feet.

(2) Occupied as Group C, educational, Group D, institutional or Group A, residential occupancies and do not have the access openings in each wall facing a street, public place or publicway required by Section 717 and exceeding the areas in Table 901.7(2).

TABLE 901.7(2)

SPRINKLERS REQUIRED FOR BUILDINGS WITHOUT ACCESS OPENINGS

Type of Construction	Area of any floor in square feet	
	1 story buildings	Multistory buildings
Fire resistive Type I	35,000	18,000
Fire resistive Type II	35,000	18,000
Protected non-combustible Type IV	25,000	12,000
Unprotected non-combustible Type IV	10,000	8,000
Heavy Timber Type III	10,000	6,000
Ordinary Type V	10,000	6,000
Wood Frame Type VI	7,500	5,000

NOTES—See Note (a) Table 901.7(1).

(3) In places of assembly having a stage complying with Section 512.10, approved sprinkler systems shall be installed at all locations on the stage side of the proscenium opening such as under roof of stage; under stage; under the gridiron rigging loft and fly and tie galleries, in dressing rooms, scene docks, work shops and storage rooms.

(4) Occupied as parking or repair garages and exceeding the areas in Table 901.7(3).

901.8—INSTALLATION

(a) Automatic sprinkler systems required in this code shall be installed in accordance with detailed drawings of the complete sprinkler layout which shall have been submitted to and approved by the building official and shall be reasonably safe to persons and property. Sprinkler systems installed in conformance with the applicable provisions of this code shall be deemed to be reasonably safe to persons and property; on matters not covered in this code, conformity with NFPA Standard No. 13 shall be evidence that such installations are reasonably safe to persons and property.

(b) Where approval of sprinklers, fittings, valves of fire department connections is required approval shall be based on tests and listing of such items by a nationally recognized testing laboratory.

(c) Sprinkler systems shall be designed to withstand, when ready for service, a water pressure of not less than 200 pounds per square inch for two hours or at 50 pounds per square inch in excess of the maximum static pressure when the maximum static pressure is in excess of 150 pounds, without leakage at joints, valves, fittings or any part of the piping.

(d) When ready for service, the entire system shall be inspected and tested in the presence of the building official. Defects developed by such inspection and test shall be corrected before final approval.

(e) Only approved sprinklers, fittings and valves shall be used in the installation of sprinkler systems.

(f) Every sprinkler system shall be provided with an approved outside screw and yoke valve or indicator gate valve, located to be readily accessible, to control all sources of water supply except that from the fire department connection.

(g) Branches from underground water mains and new underground water mains for sprinkler systems shall be flushed out thoroughly before connecting them to the sprinkler riser.

901.9—WATER SUPPLY

Each automatic sprinkler system shall have at least one automatic water supply of adequate pressure, capacity and reliability.

901.10—FIRE DEPARTMENT CONNECTIONS

(a) Every sprinkler system shall be equipped with at least one approved fire department connection. The pipe from the sprinkler system to the hose connection shall be not less than 4 inches in size, except that 3-inch pipe may be used to connect a single hose connection to a 3-inch or smaller riser.

(b) Hose connections shall be so located as to permit prompt and easy attachment of hose.

(c) The thread of such connection shall be uniform with that used by the local fire department.

TABLE 901.7(3)

SPRINKLERS REQUIRED FOR GARAGES

Type of Garage	Type of Construction	Area of any floor in square feet: Garage in Basement or Underground Building	One Story Garage Building	Garage in building with other occupancies above grade	Garage building over 65 feet height
Parking	Fire Resistive Type I	5000 sq. ft.		40,000	10,000
Parking	Fire Resistive Type II	5000 sq. ft.		40,000	10,000
Parking	Protected Non-combustible Type IV	5000 sq. ft.		20,000	8,000
Parking	Unprotected Non-combustible Type IV	5000 sq. ft.		not permitted	not permitted
Parking	Heavy Timber Type III	5000 sq. ft.		not permitted	not permitted
Parking	Ordinary Type V	5000 sq. ft.		not permitted	not permitted
Parking	Wood Frame Type VI	5000 sq. ft.		not permitted	not permitted
Repair	Fire Resistive Type I	not permitted	50,000	45,000	
Repair	Fire Resistive Type II	not permitted	50,000	45,000	
Repair	Protected Non-combustible Type IV	not permitted	40,000	30,000	
Repair	Unprotected Non-combustible Type IV	not permitted	30,000	20,000	not permitted
Repair	Heavy Timber Type III	not permitted	30,000	20,000	not permitted
Repair	Ordinary Type V	not permitted	20,000	not permitted	not permitted
Repair	Wood Frame Type VI	not permitted	15,000	not permitted	not permitted

(d) Each such connection shall be suitably marked with raised letters reading, "AUTO. SPRINKLERS," or, when only stories below grade are equipped, "BASEMENT SPRINKLERS" (or "CELLAR SPRINKLERS").

(e) An approved straightway check valve shall be installed in each fire department connection, located as near as practicable to the point where it joins the system. The pipe between the outside hose connection and the check valve shall be arranged to drain in an approved manner.

901.11—SUPERVISORY FACILITIES

(a) The automatic sprinkler system shall wherever possible be provided with approved facilities to assure that it is in proper operative condition, such as by electrical connections to a continuously manned central station or fire department headquarters to give automatic notice of any closed water supply valve or other condition that might interfere with the operation of the system; also notice of any flow of water in the system due to fire or other cause. Such facilities shall include provision for immediate alarm to the fire department in case of fire or suspected fire, and appropriate immediate action to restore the sprinkler system to operative condition in case of any impairment.

(b) Subject to the approval of the authorities concerned, sprinkler supervision may also be provided by direct connection to fire departments, or in the case of very large establishments, to a private headquarters providing similar functions.

SEE NFPA Standard No. 71 "Central Station Signaling Systems".

NFPA Standard No. 72 "Proprietary Signaling Systems".

NFPA Standard No. 73 "Municipal Fire Alarm Systems".

SECTION 902—STANDPIPES

902.1—REQUIREMENTS

Unless otherwise provided herein, standpipes, standpipe systems, hose, water supply, pumps, connections, etc., shall be constructed and installed to meet the requirements of the "Standard of the National Fire Protection Association For The Installation of Standpipe and Hose Systems" (NFPA Pamphlet No. 14—1963-64 Edition), except that the single source of water supply, if reliable and capable of automatically supplying the required service, may be approved by the Building Official.

902.2—APPROVAL

The complete layout of the standpipe and hose system shall be submitted to the Building Official before installation.

902.3—STANDPIPES REQUIRED

Buildings shall be equipped with standpipes as follows:

(a) Buildings exceeding 50 feet but not more than 75 feet in height shall have standpipes not less than 4 inches in diameter.

(b) Buildings exceeding 75 feet in height shall have standpipes not less than 6 inches in diameter.

(c) Stages arranged or intended for theatrical, operatic or similar performances shall have one 2½-inch standpipe on each side of the stage.

(d) Underground parking garages, shelters and storage occupancies exceeding 5000 square feet in area shall have standpipes not less than 4 inches in diameter.

902.4—NUMBER

The number of standpipes shall be such that all parts of every floor area can be reached within 30 feet by a nozzle assumed to be attached to 100 feet of hose connected to a standpipe.

902.5—LOCATION

Standpipes shall be so located that they are protected against mechanical and fire damage. Outlets shall be located:

(1) Within stairway enclosures; or

(2) Outside or immediately inside of the exterior walls, within one foot of an exterior stairway or fire escape, or a vestibule or balcony constructed and arranged as required by Section 1106 and directly connected to a stairway enclosure; or

(3) As near the stairway as possible.

902.6—INSTALLATION

(a) All installations of standpipes shall be reasonably safe to persons and property. Standpipe installations which conform to the applicable provisions of this code shall be deemed to be reasonably safe to persons and property: on matters not covered in this code, conformity of standpipe installations to the applicable provision of NFPA No. 14 shall be evidence that such installations are reasonably safe to persons and property.

(b) Where approval of appliances, fittings, valves, fire department connections and other devices is required in this section, approval shall be based on tests and listing of such items by a nationally recognized testing laboratory.

(c) Only approved fittings and valves shall be used in the construction of standpipes.

(d) Standpipes shall be of wrought iron, wrought steel or a type listed for this service by a nationally recognized testing laboratory and shall be designed to withstand the pressures to which they may be subjected, but in no case shall they be designed to withstand a working pressure of less than 100 pounds per square inch in excess of the static head of water due to the height of the standpipe or a minimum working pressure of 175 pounds per square inch.

(e) Standpipes shall extend from the lowest story of the building to the topmost story; provided that standpipes serving parts of buildings that are not of the full height of the building, need extend only to the top story of that part.

(f) Connections to each water supply, except fire department hose connections, shall be provided with a check valve and a gate valve located close to the supply.

(g) Standpipes shall be equipped in every story with 2½-inch hose connections and valves located not more than 6 feet above the floor level. Easily removable 2½-inch by 1½-inch adapters may be placed in standpipe outlets.

902.7—FIRE DEPARTMENT CONNECTION

(a) Standpipes shall be equipped with approved outside Siamese connections. The pipe from the standpipe to the Siamese connection shall be at least 4 inches in diameter.

(b) There shall be at least one Siamese connection to each standpipe system.

(c) Siamese connections shall be placed not less than 18 inches nor more than 36 inches above the level of the adjoining ground or sidewalk.

(d) The thread of such connections shall be uniform with that used by the local fire department. Substantial caps to protect the threads shall be provided on each connection.

(e) Each such connection shall be suitably marked with raised letters reading "Standpipe."

(f) Just inside of the building in a horizontal section of the standpipe connection, an approved straightway check valve shall be placed, with an automatic drip connection valve between the check valve and the exterior Siamese connection to prevent freezing.

902.8—HOSE

(a) Standpipes located inside of buildings shall have approved 1½-inch or 2½-inch hose, sufficient to reach all parts of the floor area, attached to each outlet.

(b) Each line of hose shall be provided with an approved nozzle. For 2½-inch hose the nozzle shall have a discharge outlet of 1 to 1⅛ inches.

(c) Hose shall be kept on approved hose racks or in approved hose cabinets.

902.9—WATER SUPPLY

(a) Standpipes shall be supplied under full pressure from an adequate water supply or the water supply shall be furnished automatically by the opening of a hose outlet except where dry standpipes are permitted in 902.10.

(b) The water supply shall be sufficient to provide not less than 250 gallons per minute for one standpipe and not less than 400 gallons per minute in buildings where 2 or more standpipes are required, for a period of at least 12½ minutes. The flowing pressure at outlets in the top story of a building shall be not less than 20 pounds per square inch.

(c) Where the hydrostatic pressure at any standpipe outlet for 1½-inch hose exceeds 100 pounds per square inch, an approved device shall be installed at the outlet to reduce the pressure to such a value that the nozzle pressure will be approximately 80 pounds per square inch.

(d) When a tank which supplies a standpipe is also used for domestic supply, the inlet to the domestic supply pipe shall be placed at a sufficient height above the bottom of the tank to reserve for fire purposes not less than the quantity of water specified for such purposes.

902.10—DRY STANDPIPES

In buildings requiring wet standpipes in accordance with Section 902.1 where in the opinion of the Building Official and the Chief of the Fire

Department such constant and automatic water supply is not necessary because of the occupancy and type of construction, with their approval dry standpipes may be substituted for one or more of the required wet standpipes.

902.11—TESTS

Upon the completion of a standpipe installation the standpipe shall be tested hydrostatically at not less than 200 pounds per square inch pressure for 2 hours, or at 50 pounds per square inch in excess of the normal pressure when the normal pressure is in excess of 150 pounds per square inch.

902.12—STANDPIPES DURING CONSTRUCTION

See Section 2401.9(c).

SECTION 903—REFERENCES

903.1—OTHER CODE REFERENCES

Hereunder are listed the Section numbers and subjects of references in other portions of this Code pertaining to Sprinklers and Standpipes, and as follows:

402.6	—	Height Increase for Sprinklers.
403.2	—	Area Increase Not Permitted (With Exception).
403.6	—	Area Increase for Sprinklers.
406.5	—	Group "C" School Occupancy.
408.6	—	Group "E" Assembly Occupancy.
409.4	—	Group "F" Storage Occupancy.
410.4	—	Group "G" Industrial Occupancy.
501.1(b)	—	Group "H" Hazardous Occupancies.
501.2(d)	—	Dry Cleaning or Similar Occupancy.
501.3	—	Handling or Storage of Combustible Film.
501.4	—	Grain Elevators.
502	—	Airplane Hangars.
508	—	Public Garages.
512.13	—	Group E-1, Large Assembly—Sprinklers.
512.14	—	Group E, Assembly Occupancy—Standpipes.
604.5	—	Table 604.5 (See Note 4).
605.5	—	Table 605.5 (In Note: *).
606.5	—	Table 606.5 (In Note: *).
702.2	—	Partition Requirements.
703.1(b)	—	Exterior Walls Without Window Openings.
1103.1	—	Distance of Travel Increase for Sprinklers.
1104.4	—	Sprinklers Required for Windowless Schools.
1126	—	Fire Alarm.

CHAPTER X—SAFETY TO LIFE REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 1001—CERTIFICATE OF OCCUPANCY

Upon written request from the owner, the building official shall issue a certificate of occupancy for an existing building, after verification by inspection, provided that at the time of issuing such certificate there are no violations of law or orders pending.

SECTION 1002—DETERMINING AND POSTING OF FLOOR LOADS

In every existing building used for business, industrial, mercantile or storage occupancy, in which heavy loads or concentrations occur or machinery is introduced, the owner or occupant shall cause the weight that each floor will safely sustain to be estimated by a competent person and filed with the building official, and when accepted by him posted as required for new buildings by Chapter XII.

SECTION 1003—INTERIOR FINISH

Within a reasonable time, as fixed by a written order of the building official, the interior finish of every existing building shall comply with Section 704.3 in the areas and spaces where that section requires the interior finish to have a flame spread rating of not over 75; and when, in the opinion of the building official, the flame spread rating of interior finish in existing areas and spaces used for assembly or educational occupancies is of such magnitude as to present a hazard to life safety, he may order such interior finish to comply with Section 704.3.

SECTION 1004—ROOF COVERING REPAIRS

(a) No roof covering on an existing roof shall be renewed or repaired to a greater extent than 1/10 of the roof surface, except in conformity with the requirements of Section 706.

(b) The placing of new roof covering conforming to Section 706 over existing combustible roof covering shall not be prohibited; provided the existing roof covering is removed for a distance of 4 inches along all edges of the roof and replaced by strips of weatherproof material over which the new roof coverings shall extend.

SECTION 1005—CHIMNEYS AND VENTS

(a) All existing masonry chimneys which upon inspection by the building official are found to be without flue liner and with open mortar joints which will permit smoke or flame to be discharged into the building or which are cracked as to be dangerous shall be made safe by means of a standard flue liner or with a corrosion resistant metal pipe one inch less in diameter than the interior of the chimney with the entire annular space between the metal pipe and the walls of the chimney filled with a cement mortar and otherwise repaired if necessary or they shall be removed.

(b) Existing chimneys and vents of metal which are corroded or improperly supported shall be replaced, unless suitable repairs are made.

SECTION 1006—HEAT PRODUCING APPLIANCES

In case the installation of an existing heat producing appliance, heating, ventilating, air conditioning, blower or exhaust system does not conform to the code requirements for new installations, the building official may order such changes in the installation as may be necessary to remove existing fire hazards.

SECTION 1007—MEANS OF EGRESS

1007.1—GENERAL

Within a reasonable time, as fixed by a written order of the building official, every existing building shall be provided with exit facilities adequate for the safety of the occupants. Such exit facilities shall be as approved by the building official, but shall not provide less safety to the occupants than that obtained by compliance with the provisions of this section. This section shall not apply to dwellings or farm buildings.

1007.2—NUMBER AND LOCATION OF EXITWAYS

(a) Every story for 75 or more occupants as determined by Section 1105 shall have at least 2 separate exit-ways (as defined in Section 1103.2). A single exitway may be permitted under the conditions outlined in 1007.2(b).

(b) When the stairway and other floor openings have enclosures with a fire resistance rating of not less than one hour and all openings therein are protected as required in Section 1007.8, a single exitway may be used for stories having less than 100 occupants in:

(1) A building not over 4 stories in height of Type I or Type II fire-resistive construction except educational and institutional occupancies.

(2) A building of other than Type I or Type II fire-resistive construction not over 2 stories and not having educational or institutional occupancies.

(3) Any sprinklered building not over 4 stories in height, other than educational and institutional occupancies.

(c) Exit doorways shall be so located that the maximum distance from any point in a floor area, room or space to an exit doorway, measured along the line of travel, does not exceed:

100 feet for high hazard occupancies;

125 feet for educational, industrial, institutional, mercantile, residential and storage occupancies;

150 feet for assembly and business occupancies.

except that:

(1) Where a floor area is subdivided into smaller areas such as rooms in hotels, multifamily houses and office buildings, the distance to an exit doorway shall be measured from the corridor entrance of such rooms.

(2) Where the building is protected by an approved automatic sprinkler system; or where the building is either of fire resistive or non-combustible construction occupied exclusively by stocks of non-combustible material, not packed or crated in combustible material; the above distances to an exit doorway may be increased 50 percent.

(d) In *multifamily houses* having one or more dwelling units above the second story, every dwelling unit shall have access to at least two exit ways. Such exit ways may use common or communicating corridors or hallways, but the two required exit ways from any one dwelling unit shall not use a common interior stairway.

(e) Every room used as a *place of assembly* shall have at least two doorways complying with Section 1117 and which open onto an exit way, except that for such rooms located on the first or grade floor a single such doorway may be used for an occupancy not in excess of 200 occupants provided the doorway has a clear width of not less than 44 inches.

(f) Every *place of assembly* having a capacity greater than 200 occupants shall have exit ways conforming as to number and width with Sections 1103.2 and 1105.3. In applying Section 1105.3 a stairway 40 inches wide may be accepted as two units.

(g) *Institutional occupancies* shall be provided with at least two exit ways in accordance with Section 1104.1.

1007.3—MINIMUM REQUIREMENTS FOR EXISTING EXIT STAIRWAYS

(a) The stairways in one of the required exit ways from any story or stories occupied by a total of 6 or more persons shall have treads not less than 7 inches in width and risers not higher than 9½ inches nor more than 1.2 times the width of tread. Winder treads shall have a width of not less than 6 inches measured one foot from the narrow end. This paragraph shall not be construed as modifying the pitch and tread requirements for any new stairways construction.

(b) All exit stairs shall be guarded at the sides by well secured balustrades or other acceptable guards wherever such are needed for the safety of users, and shall have a handrail on at least one side.

1007.4—FIRE ESCAPES

Exterior fire escapes on existing buildings used for educational, institutional or assembly occupancies shall conform to the requirements for exterior stairways in Section 1108. Exterior fire escapes on other buildings shall conform to the following minimum requirements:

(a) They shall be constructed of non-combustible materials.

(b) They shall be constructed with stairs not less than 22 inches wide between rails, having risers not higher than 9 inches and having treads not narrower than 7 inches. Ladders may be used for the upper landing of a fire escape to the roof.

(c) Unless the stair leading to the ground at the foot of the fire escape is permanently fixed, it shall be constructed with counter-balancing devices that permit it to be easily and quickly released and placed in rigid position for use.

(d) They shall be of sufficient strength to sustain a live load of 100 pounds per square foot or concentrated loads of 300 pounds, so located as to produce maximum stress conditions.

(e) They shall be so placed that they can be readily and safely reached by the occupants of the building.

(f) They shall be so located that safe egress will be provided at the foot either directly or through an enclosed exit way to a street or to an open space that communicates with a street.

(g) They shall be spacious enough that the movements of those using the fire escape will not be retarded.

(h) All balconies and stairs shall be provided with substantial guard railings at least 4 feet high, without any openings greater than 8 inches in width, except that for buildings not over 5 stories high, triple guard rails equally spaced, with top rail not less than 42 inches high may be used. (Height for stairs is to be measured at center of tread.)

(i) Except on buildings not exceeding 3 stories in height and on buildings of wood frame construction, all doors opening on or within 10 feet of the fire escape shall be approved self-closing fire doors, and any windows opening on or within 10 feet of the fire escape shall be approved fire windows; provided that where the occupancy inside these windows or doors is such as to present a light fire hazard or is sprinklered, or the overall exit arrangements are such that this protection is of minor importance, the building official may waive this requirement.

1007.5—VERTICAL OPENINGS WHICH SHALL BE PROTECTED

All vertical openings including interior stairways, escalators and elevators, shall be enclosed or their floor openings otherwise protected, in accordance with Sections 1007.6 and 1007.7, except:

(1) Vertical openings which are not required to be enclosed in new construction. See Section 1106.

(2) Vertical openings, including stairways and elevators in buildings of other than educational or institutional occupancies, not over 2 stories in height.

(3) Vertical openings, including stairways and elevators in buildings of other than educational or institutional occupancy, not over 4 stories in height, where the stories above the second are used for storage only.

1007.6—REQUIRED PROTECTION FOR VERTICAL OPENINGS

(a) Except as provided in paragraphs (b) and (c) below, required enclosures for vertical openings shall have a fire resistance rating of not less than one hour. In buildings of fire-resistive construction such enclosures shall consist of non-combustible materials.

(b) In any building of fire-resistive construction, or of other types of construction not over 4 stories high, and in any sprinklered building, required enclosures may be constructed of ¾-inch gypsum plaster on metal lath on each side of studs, or equivalent, or of wired glass in metal framework.

(c) In any building not over 4 stories high and in any sprinklered building, existing enclosures or parts thereof constructed of plaster on wood lath or equivalent, and in good repair, may be continued in use provided they are effectively firestopped at the basement ceiling.

(d) An enclosure required by this section may include both elevators and stairs but two or more separate stairways shall not be in a single enclosure.

(e) In lieu of a full enclosure, stairways, including escalators not required as exitways, may be protected with an enclosure at the head or at the foot of each stairway from one floor to another. The construction of such enclosures shall be in accord with the requirements of paragraphs (a), (b) and (c) above.

(f) In lieu of an enclosure, floor openings for elevators in industrial occupancies may be protected by substantial guards or gates with approved trap doors at each floor opening. Such trap doors shall be constructed to form a substantial floor surface when closed, and arranged to open and close by action of the elevator in ascending or descending. The guards or gates and trap doors shall be kept closed when the shaftway is not in use.

1007.7—DOOR AND WINDOW OPENINGS IN REQUIRED ENCLOSURES FOR VERTICAL OPENINGS

(a) All openings in required enclosures for vertical openings except window openings to the exterior of the building, shall be protected with doors in accordance with the following paragraphs. Movable transoms in such enclosures are prohibited.

(b) Doors in such enclosures shall be metal doors or metal covered doors or approved solid wooden doors except that existing doors in acceptable existing enclosures or parts thereof in any building not over 4 stories high and in any sprinklered building, may be any substantial wood doors having any wood panels less than ½-inch thick covered on the side opposite the stair side with sheet steel of not less than 28 gauge, securely attached with bolts or screws. Any glass in doors or fixed transoms shall be wired glass.

(c) Doors in such enclosures, except doors opening into apartments, shall be automatic or self-closing.

1007.8—PATH OF EXIT TRAVEL FROM STAIRWAY TO STREET

(a) All interior stairways required to be enclosed shall lead directly or through an enclosed passageway to a street or to an open space that communicates with a street.

(b) The enclosure of such passageway shall conform to the requirements applying to the stair enclosure. The enclosure shall separate from the exit way all basement occupancies, and all unsprinklered business and mercantile occupancies except those of a size and character which do not constitute a serious life hazard from fire, such as news stands, cigar stands, lunch counters and small offices.

1007.10—EXIT DOORS

(a) Doorways opening on to an exit stairway, street or to a court or open space communicating with a street, and serving as a required exit way for 50 or more occupants shall have the doors, including the doors of vestibules, so hung as to swing open in the direction of exit travel.

(b) All doors serving in a required exit way or leading to a required exit way from rooms occupied by 50 or more occupants and all doors serving in a required exit way or leading to a required exit way from

places of assembly shall be hung to swing open in the direction of exit travel. Panic hardware shall be installed in accordance with Section 1117.2.

(c) Revolving doors shall be used in exit ways only under the conditions specified in Section 1117.4.

1007.11—EXIT SIGNS, LIGHTING, AND MAINTENANCE

Exit ways shall be equipped with signs and be lighted and maintained in accordance with Sections 1125 and 1124.