Fire Code of the Philippines

Fire Code of the Philippines
P.D. 1185

Part 1 Provisions on Fire Safety Construction

SECTION 8. Inspections, Safety Measures, Fire Safety Construction and Protective and/or Warning Systems.

a) Safety Measure for hazardous operation - Fire Safety Measures shall be required for the following hazardous operations/ processes:

1) Welding or soldering
2) Industrial baking and drying
3) Waste Disposal
4) Pressurized/forced-draft burning equipment
5) Smelting and Forging
6) Motion picture projection using electrical are lamps
7) Refining, distillation and solvent extraction.

PROVISION ON FIRE SAFETY CONTRUCTION PROTECTIVE AND WARNING SYSTEM -Owners, occupants or administrator of buildings, structures and their premises or facilities, except such other buildings or structures as may be exempted in the rules and regulations under Section 6 hereof, shall incorporate and provide therein fire safety construction, protective and warning system, and shall develop and implement fire safety programs, to wit:

1) Fire Protection Features such as sprinkler systems, hose boxes, hose reels or standpipe systems and other fire fighting equipment;

2) Fire alarm systems;

3) Fire walls to separate adjoining buildings, or warehouses and storage areas from other occupancies in the same building;

4) Provisions for confining the fire at its source such as fire resistive floors and walls extending up to the next floor slab or roof, certain boards and other fire containing or stopping components;

5) Termination of all exits in an area affording safe passage to a public way or safe dispersal area;

6) Stairways, vertical shafts, horizontal exits and other means of egress sealed from smoke and heat;

7) A fire exit plan for each floor of the building showing the routes from each room to appropriate exits, displayed prominently on the door of each room;

8) Self-enclosing fire resistive doors loading to corridors;

9) Fire dampers in centralized airconditioning ducts;

10) Roof vents for use by fire fighters;

11) Properly marked and lighted exits with provision for emergency lights to adequately illuminate exit ways in case of power failure.

SEC. 9. PROHIBITED ACTS - The following are declared as prohibited acts and omissions:

a) Obstructing or blocking the exit ways or access to building clearly marked for fire safety purpose, such as but not limited to aisles in interior rooms, any part of stairways, hallway, corridors, vestibules, balconies or bridges leading to a stairway or exit of any kind, or tolerating or allowing sand violations;

b) Constructing gates, entrances and walkways to building components and yards which obstruct orderly and easy passage of fire fighting vehicles and equipment;

c) Prevention, interference or obstruction of any operation of the Fire Service, or of duly organized and authorized fire brigades;

d) Obstructing designated fire lanes or access to fire hydrants;

e) Overcrowding or admission of persons beyond the authorized capacity in movie houses, theaters, coliseums, auditoriums or other public assembly buildings, except in other assembly areas on the ground floor with open sides or open doors sufficient to provide safe exits;

f) Locking fire exits during periods when people are inside the building;

g) Prevention or obstruction of the automotive closure of Fire Service other than for fire doors or smoke partitions or dampers;

h) Use of Fire protective or fire fighting except in other emergencies where their use are justified;

i) Giving false or malicious fire alarms;

j) Smoking in prohibited areas as may be determined by Fire Service or throwing of cigars, cigarettes, burning objects in places which may start or cause fire;

k) Removing, destroying, tampering or obliterating any authorized mark, seal, sign or tag posted or required by the Fire Service for Fire safety in any building, structure or processing equipment;

l) Use of jumpers or tampering with electrical wiring or overloading the electrical system beyond its designed capacity or such other practices that would tend to undermine the fire safety features of the electrical system.

Part 2 RULES AND REGULATIONS IMPLEMENTING THE FIRE CODE

RULE 1 GENERAL PROVISIONS:

DIVISION 1 - GENERAL

SEC. 1 SCOPE - The provisions of the Fire Code shall apply to and govern the following;

a. All persons

b. All private or public buildings, facilities, structures and their premises, constructed before or after the effectively hereof;

c. Storage, handling or use of explosives and/or combustible, flammable, toxic and other hazardous materials;

d. Design and installation of electrical system;

e. Fire Safety construction and

f. Fire protective and Warning equipment or systems.

SEC. 5 DEFINITIONS

AUTOMATIC FIRE SUPPRESSION SYSTEM - an integrated System of Underground or overhead piping or both connected to a source of extinguishing agent or medium and designed in accordance with fire protection

engineering standards which when actuated by its automatic detecting device suppresses fire within the area protected.

COMBINATION STANDPIPE - pipe line system filled with water and connected to a constant water supply for the use of the service and the occupants of the building solely for the use of the service and the occupants of the building solely for fire suppression purposes.

DRY STANDPIPE - a type of standpipe system in which the pipes are normally not filled with water. Water is introduced into the system thru Fire Service connections when needed.

FIRE ALERTING SYSTEM - a fire alarm system activated by the presence of a fire, where the signal is transmitted to designated locations instead of sounding a general alarm, in order to prevent panic.

FIRE RESISTANCE RATING - the time duration that a material or construction can withstand the effect of standard fire Test.

FIRE WALL - a wall designed to prevent the spread of fire, having a fire resistance rating of not less that four (4) hours with sufficient structural stability to remain standing even if construction on either side collapse under fire conditions.

FLAME SPREAD RATING - The time in which flame will spread over the surface of a burning material.

FLAME (FIRE) RETARDANT - any compound, or mixture which when applied properly improves the fire resistant quality of fabrics and other materials like wood.

FUMIGANT - a gas, fume, or vapor used for the destruction or control of insects, fungi, vermin, germs, rodents or other pests.

MEANS OF EGRESS - a continuos and unobstructed route or exit from any point in a building, structure, or facility to a public way.

OCCUPANT LOAD - The maximum number of persons that may be allowed to occupy a particular building, structure or facility or portions thereof.

PANIC HARDWARE - a mechanical device consisting of linkages and a horizontal bar across a door, which cause the door to open and facilitates exit from a building, structure or facility.

PLENUM - an air compartment or chamber to which one or more ducts are connected and which form part of an air distribution system.

DIVISION 2 - ENFORCEMENT AND ADMINISTRATION

SEC. 1. Fire Safety Inspection - Inspection of all buildings structure and facilities and the determination of compliance of provisions of this Fire Safety Inspector of the Fire Service of the Integrated National Police.

SEC. 2. Inspection Requirements - Fire Safety Inspection shall be conducted as a prerequisite to grants of permits and /or licenses by local governments or other government agencies.

RULE II GENERAL PRECAUITONS AGAINST FIRE

DIVISION 1 - INCINERATORS AND OPEN BURNING

SEC. 1. Bonfires and Outdoor Rubbish Fires - No person shall kindle or maintain any bonfire or rubbish fire or authorize any such fire to be kindled unless:

1) The location is not less than fifteen (15) meters from any structure and adequate provision is made to prevent fire from spreading t within fifteen (15) meters of any structure;
2) The Fire is contained in an approved waste burner or incinerator located safely not less than five (5) meters from any structure.

SEC. 2. Types and Construction of Incinerators

a) Fixed commercial, industrial and apartment type incinerators shall be constructed in accordance with the provisions of the Building Code.
b) Residential fixed incinerators shall be constructed of brick, concrete hollow blocks, or other five-resistive material other than metal, with a completely enclosed combustion chamber and shall be equipped with a permanently attached spark arrester constructed of iron, heavy wire mesh, or other noncombustible material; with openings not larger than thirteen (13) millimeters.

SEC. 3. Location - Any residential incinerator used in connection with a single family dwelling shall be located not less than one and one-half (1 ½) meters from any wood frame building or structure, or other combustible material, or not less than one (1) meter from a masonry, stucco, or similar fire resistive building or structure and not less than one and one half (1 ½) meters from any opening of said building or structures. Any residential incinerator used in connection with any occupancy other than a single family dwelling shall be location not less than one and one half (1 ½) meters from any combustible roof, overhang on eave construction.

RULE III FIRE SAFETY IN BUILDING, STRUCTURES AND FACILITIES

DIVISION 1 - ADMINISTRATION

SEC. 1.01. Scope

a) This rule deals with life safety from fire and like emergencies, it covers construction, protection and occupancy features to minimize danger to life from fire, smoke, fumes, or panic before buildings are vacated. It specifies the number, size and arrangement of means of egress sufficient to permit prompt escape of occupants from buildings, or structures or facilities in case of fire.

b) Nothing in this rule shall be construed to prohibit a better type of building construction, more exits or otherwise safer conditions than the requirements specified in this Rule.

c) This rule recognizes that panic in a burning building may be uncontrollable. It deals with the potential panic hazard through measures designed to prevent the development of panic. Experience indicates that Panic seldom develops even in the presence of potential danger, so long as occupants of buildings are moving toward exits which they can see within a reasonable distance with no obstruction or undue congestion in the part of Travel. However, any uncertainty as to the location or adequacy of means of egress, the presence of smoke, or stopping of travel, such as may occur when one person stumbles and falls on stairs may be conducive to panic. Panic danger is greatest when the number of people in a confined area, exceeds the capacity of the exits.

DIVISION 2. GENERAL

SEC. 2.01. Fundamental Requirements

a. Building or structure, new or old, designed for human occupancy shall be provided with exits sufficient to permit the fast escape of occupants in case of fire or other emergency. The design of exits and other fire safety construction shall be such that reliance for safety to life in case of fire or other emergency will not depend solely on any single fire safety construction. Additional safeguards shall be provided for life safely in case any single safeguard is ineffective due to some human or mechanical failure.

b. Every building or structure shall be so designed, constructed, equipped, maintained and operated as to avoid danger to the lives and safety of its occupants from fire, smoke, “fumes, or resulting panic during the period for escape from the building or structure.

c. Every building or structure shall be provided with Exits of kinds, numbers, location and capacity appropriate to the individual building or structure, with

due regard to the character of the occupancy, the number of persons exposed. The fire protection available and the height and type of construction of the building or structure, to afford all occupants convenient facilities for escape.

d. Every exit of buildings or structures shall be so arranged and maintained as to provide free and unobstructed egress from all parts thereof, at all times. NO LOCK or fastening that would prevent escape, from the inside of any building shall be installed except in mental, penal, or correctional institutions where personnel are continually on duty on duty and effective provisions are made to evacuate occupants in case of fire or other emergency.

e. Every exit shall be clearly visible. The route to the exit shall be conspicuously marked in such a manner that every occupant of a building or structure will readily know the direction of escape. Each route of escape, in its entirely, shall be so arranged or marked that the way to a place of safety outside is unmistakable. Any doorway or passage not constituting out exit or way to reach an exit, which may be mistaken for an exit, shall be MARKED as to minimize its possible confusion with an exit.

f. All means of egress shall be provided with adequate and reliable ILLUMINATION.

g. In every building or structure of such size, arrangement, or occupancy that a fire may not itself provide adequate warning to occupants, FIRE ALARM FACILITIES shall be provided.

h. Every building or structure, section, or area thereof of such size, occupancy, and arrangement such that the reasonable safety of a number of occupants may be endangered by the blocking of any single means of egress due to fire or smoke, shall have at least two means of egress REMOTE from each other, so arranged as to minimize any possibility that both may be blocked by any one fire or other emergency conditions.

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

DIVISION 3 - CLASSIFICATION OF OCCUPANCY

a. ASSEMBLY - Places of Assembly include buildings used for gathering together of fifty (50) or more persons in commercial places of assembly and one hundred (100) or more persons in non-commercial places of assembly. This include theaters; exhibition

halls, restaurant, churches, dance halls, restaurants, churches, dance hall, restaurants, gymnasium, terminals, court rooms, etc.

b. EDUCATIONAL - include all buildings used for the gathering of groups of six (6) or more persons for purposes of instrument. This include schools, colleges, universities, academics, etc.

c. INSTITUTIONAL - those used for purposes such as treatment or care of persons suffering from physical or mental illness, disease or infirmity; care of infants, convalescent or aged persons; and for penal or correctional purposes. These building are provided with sleeping facilities for the occupied by persons who are mostly incapable of self preservation because of age, physical or mental disability, or because of security measures not under the occupant control.

d. RESIDENTIAL - One in which sleeping and/or sleeping accommodation are provided for residential purposes, except those classified under Institutional occupancies. The following groups are hotels; motels, pension houses, inns, apartments, dormitories, orphanages; lodging or rooming houses; and one and two family dwellings.

e. MERCANTILE - Occupancies include stores, markets, and other rooms, buildings, or structures for the display and / or sale of merchandise. Included in this occupancy group are: Supermarkets; department stores; shopping centers; drugstores; and auction rooms.

f. BUSINESS - Buildings used for the transaction of business other than that covered under mercantile, for the keeping of accounts and records and similar purposes. Included in this occupancy group are office for lawyer; doctors; dentists; and other professionals, general offices; City/town hall; court houses and libraries.

g. INDUSTRIAL - Occupancies include factories making products of all kinds and properties devoted to operations such as processing, assembling, mixing, packaging, finishing or decorating, and repairing, including among others, the following: Factories of all kinds; laboratories; dry cleaning plants; power plants; pumping stations, smokehouses; laundries; creameries; gas plants; refineries, and sawmills.

h. STORAGE - Includes all buildings, or structures utilized primarily for the storage or sheltering of goods, merchandise, products, vehicles or animals. Included in this occupancy group are: Waterhouses, Cold storages; freight terminals; truck and marine terminals, bulk oil storage; parking garage; hangars; grain elevators; barns and stable.

SEC. 3.302. Hazardous Contents - For purposes of this rule hazard of contents shall be the relative danger of the start and spread of fire, the generation of smoke or gases, the danger of explosion or other occurrence potentially endangering the lives and safety of the occupants of the building or structure due to the nature of the contents or processes/operations therein.

Classification of Hazard of Contents:

a) LOW Hazard Contents - are those of such low combustibility that no self propagating fire therein can occur and that consequently the only probable danger requiring the use of emergency exits will be from panic, fumes or smoke or fire from some external source.

b) Ordinary hazard contents - are those which are liable to burn with moderate rapidity or to give off a considerable volume of smoke, but from which neither poisonous fumes nor explosions are likely to occur in case of fire.

c) High Hazard Contents - are those which are liable to burn with extreme rapidity or from which gases or explosions are to be expected in the event of fire.

Special Provisions for High Hazard Contents

1. Exit shall be provided for such types and numbers and so arranged as to permit all occupants to escape from the building or structure or from the hazardous area thereof the outside or to a place of safety with a travel distance of not over twenty three (23) meters.

2. Capacity of Exits - not less than one (1) unit of exit width for each thirty (30) persons if the exit is by inside or outside stairs; or one (1) unit of exit width for each fifty (50) persons if the exit is by doors at ground level, by horizontal exits or by class A ramps.

DIVISION 4 - MEANS OF EGRESS

Protective Enclosure of Exits

1) When an exit is required to be protected by separation from other parts of the building by some requirements of this rule, the separating construction shall meet the following requirements.

a) The separation shall have at least one-hour fire resistance rating when the exit connects three (3) stories or less, regardless of whether the

stories connected are above or below the storey at which the exit discharge begins.

b) The separation shall have at least two-hour resistance rating when the exit connects four (4) stories or more whether above or below the floor of discharge.
c) Any opening in the separation wall construction shall be protected by an approved self-closing fire resistive door.
d) Openings in exit enclosure shall be confine to those necessary for access to the enclosure form normally occupied spaces and for egress from the enclosure.

D. Width and Capacity of Means of Edgress

1) The capacity in number of persons per unit of exit width for approved components of means of egress shall be as follows:
Level egress components (including Class A ramps)
Inclined egress components (including Class B ramps) - 60 persons

2) Means of egress shall be measured in units of exits width of fifty five (55) centimeters, Fractions of a unit shall be counted, except that thirty (30) centimeters added to one or more full units shall be counted as one-half (0.5) of a unit of exit width.

3) Units of exit width shall be measured at the narrowest unobstructed point of the means of egress except that a handrail may project inside the measured width on each side not more than eighty nine (89) millimeters and a stringer may project inside the measured width not more than thirty eight (38) millimeters. An exit or exit access door swinging into an aisle or passageway shall not restrict the effective width thereof at any point during its swing to less than minimum width hereafter specified.

E. Egress Capacity and Occupant Load

1) The capacity of means of egress for any floor, balcony, tier, or other occupied space shall be sufficient for the occupant load thereof. The occupant load shall be the maximum number of persons that may be in the space at any time, but shall not be less than the number computed in accordance with the individual occupancies.

For Places of Assembly

Occupant load: The occupant load permitted by dividing the net floor area or space assigned to that use by the square meter per occupant as follows:

An assembly area of concentrated use without fixed seats such as auditoriums, church, dance floor, (0.65 sq.m, per person)

An Assembly area of less concentrated use such as conference room, dining room, drinking establishment, exhibit room, gymnasium, (1.4 sq. m/person)

Standing room or waiting space (0.28) sq.m. per person)

For Educational Occupancies

The occupant load shall be the maximum load but not less than one person for each 1.8 square meteries of net classroom area or 4.6 sq.m. of net area of shops, laboratories, etc.]

For Institutional Occupancies

The occupant load shall be the maximum number of persons intended to occupy that floor but not less than one (1) person for each 11 sq. m. gross floor area in institutional sleeping departments and not less than one (1) person for each 22 square meters of gross floor area of inpatient institutional Treatment departments.

For Residential

The occupant load in numbers of persons except for single and two family dwellings shall be determined on the basis of one (1) person per 18. 6 square meters gross floor area.

For Mercantile Occupancies

One street floor, the occupant load is one (1) person for each 5.6 sq.m. gross floor area floors used for offices, storage, shipping not open to general public; one (1) person for each 4.3 sq.m. gross floor area.

For Business Occupancies

The occupant load of business purposes shall be no less than one (1) person per nine and three tenth (9.3) square meters of gross floor area.

For Industrial Occupancies

The occupant load shall be one (1) person per 9.3 square meters gross floor area.

2) Where exits serve more than one floor, only the occupant load of each floor considered individually need be used in computing the capacity of the exits at that floor: Provided, that exit capacity shall not be decreased in the direction

of exit travel. When means of egress from floor above and below coverage at an intermediate floor, the capacity of the means of egress from the points of convergence, shall not be less than the sum of the two.

F. **Arrangement of Exit:**

When more than one exit is required from a story, at least two of the exits shall be remote from each other and so arranged and constructed as to minimize any possibility that both may be blocked by any one fire or other emergency condition.

G. Exit Distance and Dead-End Limits:

The maximum travel distance in any occupied space to at least one exit, measured in accordance with the following requirements shall not exceed the limits for individual occupancies means of egress shall be so arranged that there are no dead-end pockets, hallways, corridors, passage ways or courts whose depth exceeds the limits specified for individual occupancies.

For Places of Assembly

a) No individual unit of exit width shall serve more than 100 person.

b) Every Class A (1,000 or more) capacity shall have at least four (4) separate exits as remote from each other.

c) Class (B) 300-600 capacity shall at least two (2) separate exits 600 above shall have three (3) exits.

d) Class (C) 50-300 capacity shall have at least 2 means of exit, consisting of separate exits leading to a corridor giving access to 2 separate independent exits in different directors.

e) Every assembly occupancy shall be provided with a man exit to accommodate ½ of the total occupant load.

f) Travel distance - 46 meters minimum if not protected by automatic the suppression and 61 meters if protected.

H. Measurement of Travel Distance to Exits

1) The travel distance to an exit shall be measured on the floor or other walling surface along the center line of the natural path of travel, starting 30 centimeters from the most remote point, curving around any corner or construction with a 30 centimeters

clearance therefrom, and ending at the center of the doorway or other point at which the exit begins. Where measurement included stairs, it shall be taken in the plane of the tread nosing.

2) In the case of open areas, distance to exits shall be measured from the most remote point subject to occupancy. IN case of individual rooms subject to occupancy by not more than six (6) persons, distance to exits shall be measured from the doors of such rooms provided the path of travel from any point in the room to the room door does not exceed 15 meters.

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

4) Where any part of an exterior way of exit access is within four and a half (4.5) meters horizontal distance of any unprotected building opening, for outside stairs, the distance to the exit shall include the length of travel to ground level.

I. **Access to Exits:**

1) Exit shall be so located and exit access shall be so arranged that exits are readily accessible at all times. Where exits are not immediately accessible from an open floor area, safe and continuous passageways, aisles, or corridors leading directly to every exit shall be maintained and shall be so arrange as to provide convenient access for each occupant to at least 2 exits be separate ways of travel, except where single exit or limited dead-ends are permitted by other provisions of this rule.

2) A door form a room to an exit or to a way of exit access shall be of the side-hinged, swinging type. It shall swing with exit travel when the room is occupied by more than 50 persons or used for a high hazard occupancy such access doors shall conform to the appropriate requirements of Sec. 3.402 on doors.

3) In no case shall access to exit be, through a bathroom, bedroom or other room subject to locking, or adjoining rooms constituting part of the same dwelling or apartment used for single family occupancy.

4) Way of exit access and the doors to exits to which they lead shall be so designed and arranged as to be clearly recognizable as such. Decorations or draperies shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.

5) Exit access shall be so arranged that it will not be necessary to travel toward any area of high hazard occupancy in order to reach the nearest exit, unless the path is protected by suitable partitions.

6) The minimum width of any way of exit access shall be as specified for individual occupancies, but in no case shall such width be less than 71 centimeters. Where a single way of exit shall be at least equal to the required capacity of the exit to which it leads. Where more than one way of exit access leads to an exit. Each shall have a width adequate for the number of persons it must-accommodate.

J. Exterior Ways of Exit Access

1) Access to an exit may be by means of any exterior balcony, porch, gallery, or roof that conforms to the requirements of this division.

2) Exterior ways of exit access shall have smooth, solid floors, substantially level, and shall have guards on the unclosed sides at least equivalent to those specified in paragraph "F" of Sec. 3.403.

3) A permanent, reasonably straight path of travel shall be maintained over the required exterior way of exit access. There shall be no obstruction by railing barriers or gates that divide the open space into sections appurtenances to individual rooms, apartments, or other uses. However, if , the width of the exterior way of exit access is greater than the required path of travel, it may be permitted to relocate furniture on one side out of the path's way.

4) an exterior way of exit access shall be so arranged that there are no dead-ends in excess of six (6) meters in length.

5) Any gallery, balcony, bridge, porch or other exterior exit access that projects beyond the outside wall of a building shall comply with the requirements of this Division as to width and arrangement. The material of construction may be as permitted for the building served.

K. **Discharge from Exits**

1) All exits shall terminate directly at a public way or at an exit discharge. Yards, courts, open space, or other portions of the exit discharge shall be of

required width and size to provide all occupants with a safe access to a public way.

2) Where permitted for individual occupants, a minimum of 50 percent of the exits may discharge through areas on the floor of discharge provided all of the following are met:

    a) Exits shall discharge to a free and unobstructed way to the exterior of the building which way is ready visible and identifiable from the point of discharge from the exit.

    b) The floor of discharge into which the exit discharges and any other portion of the level of discharge with access to the discharges areas are protected with automatic fire suppression system or separated from it in accordance with the requirements for the enclosure of exits (Section 3.401 paragraph “o”).

        Exception: The above requirements may waived if the discharge area is a vestibule or foyer complying with all the following: The depth from the exterior of the building is not greater than 3.00 meters and the length is not greater than 6 meters. The foyer is a separated from the remainder of the level of discharge by construction providing protection at least the equivalent of wired glass in steel frames, and the foyer serves only for means of egress including exits directly to the outside.

    c) The entire area on the floor of discharge is separated from areas below by construction having a minimum of two-hour fire-resistance rating.

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

4) Stairs, ramps, bridges, balconies, escalators, moving walls and other components of an exit discharge shall comply with the detailed requirements of this division for such components.

5) Subject to approval, exits may be accepted where discharging to roofs or other sections of the building or adjoining buildings, where the roof has a fire resistance rating at least the equivalent of that required for the exit enclosure, where there is a continuous and safe means of egress from the room, and all other reasonable requirements for fire safety are maintained.

L. **Headroom:**

Means of egress shall be so designed and maintained as to provide adequate headroom as provided in other sections of this rule but in no case shall the ceiling height (headroom) be less than 2.3 meters nor any projection from the ceiling be less than 2.00 meters from the floor.

M. **Changes in Elevation:**

Where a means of egress is not level such difference n elevation shall be negotiated by stairs or ramps conforming to the requirements of this division for stairs and ramps.

N**. Interior Finish in Exits:**

The flame spread of interior finish shall not exceed Class B in exit enclosures.

O. **Maintenance and Workmanship**

1) Doors, stairs, ramps, passage, signs, and all other components of means of egress shall be of substantial, reliable construction and shall be built or installed in accordance with good engineering practice.

2) Means of egress shall be continually maintained free of all destruction's or impediments to insure instant use in case of fire or other emergency.

3) Any device or alarm installed to restrict the improper use of a means of egress shall be so designed and installed that it cannot, even in case of failure, impede or prevent emergency use of such means of egress.

SEC. 3.402 Doors

A. Application

1) A door assembly, including the doorway, frame, door, and necessary hardware, may be used as a component in a means of egress when it conforms to the general requirements of Sec. 3.401 and to the special requirements of this Section. At such the assembly is designated as a door.

2) Every door and every principal entrance which are required to serve as an exit shall be so designed and constructed that the way of exit travel is obvious and direct. Windows, which because of their physical configuration or design and the materials used in their construction could be mistaken for doors, shall be made inaccessible to the occupants by barriers or railings conforming to the requirements of paragraph "F" of Section 3.403.

B. Swing and Force to Open

1) Any door used in an exit shall be so designed and installed that when a force is applied to the door on the side from which egress is to be made, it shall swing in the direction of exit travel from any position to the full instant use of the opening in which it is installed. During its opening process or when fully opened, door shall not obstruct the exit width as determined by paragraph 'D" of Section 3.402.

2) A door providing access to a stairway shall swing in the direction of exit travel. A door during its swing shall not block stairs or landings and in no case, in new buildings, shall any door at any point in its swing reduce the effective width of stair or landing to less than one unit of exit width, nor when opened interface with the full use of the stairs.

3) The force required to fully open door shall not exceed twenty three (23) kilos applied to the latch stile.

C. Lock, Latches, Alarm Devices:

1) A door shall be so arranged as to be readily opened from the side from which egress is to be made at all times when the building served thereby is occupied. Locks, if provided, shall not required the use o a key for operation from the inside of the building.

2) A latch or other fastening device on a door shall be provided with a knob, handle, panic bar, of other simple type releasing device, the method of operation of which is obvious, even in darkness.

3) The floor on both sides of a door shall be substantially level and shall have the same elevation on both sides of the door, for a distance on each side at least equal to the width of the widest single door. When the door discharges to the outside or to an exterior balcony, exterior exit, or exterior exit, access, the floor level outside the door may be one step lower than the inside but not more than twenty and half (20.5) centimeters lower.

E. **Panic Hardware**

1) When a door is required to be equipped with panic hardware, the panic hardware shall cause the door latch to release when a force of not more than seven (7) kilos is applied to the releasing device in the direction of exit travel.

2) Such releasing devices shall be bars or panels extending not less than two trirds (2/3) of the width of the door and placed at heights suitable for the

service required, and shall not be less than seventy six (76) nor more than one hundred twelve (112) centimeters above the floor.

3) Only approved panic hardware shall be used.
4) Required panic hardware shall not be equipped with any locking or dogging device, set screw, or other arrangement which can be used to prevent the release of the latch when pressure is applied to other bar.

G. **Maintenance**

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

H. **Power Operated Doors**

1) Where required doors are operated by power, such as those photo-electric activated mechanism which open upon the approach of a person or doors with power-assisted manual operation, the design shall be such that in event of power failure the door may be opened manually to permit exit travel or closed where necessary to safeguard means of egress.

2) No power-operated door shall be counted as a required exit unless it also swings with the exit travel by manual means.

I. **Screen and Storm Doors**

No screen door or storm door in connection with any required exit shall swing against the direction of exit travel in any case doors are required to swing with the exit travel.

J. **Revolving Doors:**

1) A revolving door shall not be used in a means of egress for an exit from the floor of discharge directly to the outside except where specifically permitted. It shall not be used at the foot or top of stairs at the floor of discharge. Where permitted, the revolving door shall be given a credit of only fifty (50) percent of the required units of exit width.

2) The number of revolving doors used as exit doors shall not exceed the number of swinging doors used as exit doors within six (6) meters.

Exception: Revolving doors may serve as exit doors shall not exceed the number of swinging doors for street floor elevator lobbies, if no stairways or doors from, other parts of the building discharge through the lobby, and the lobby has no occupancy other than as means of travel between elevators and street.

3) Revolving doors shall be equipped with means to prevent their rotation at too rapid a rate to permit orderly egress.

K. **Turnstiles**

1) No turnstiles or similar device to restrict travel, to one direction, or to collect fares or admission charges, shall be so placed as to obstruct any required means of egress, except that approved turnstiles not over ninety one (91) centimeters, which turn freely in the direction of exit travel, may be used in any direction of exit travel, may be used in any occupancy where revolving doors are permitted.

2) Turnstile in or furnishing access to required exits shall be of such design as to provide fifty six (56) centimeters clear width as the turnstiles rotates.

SEC. 3.403. Interior Stairs and Smoke proof Towers

A. **General**

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

B. Classes of stairs - Stairs shall be of Class A or class B types. In class A the maximum height between landings is 2.75 m and the Class B is 3.70 M.

C. **Treads and Risers**

1) The height of every riser and the width of every tread shall be so proportioned that the sum of two (2) risers and a tread, exclusive of its nosing of projections is not less than sixty (60) centimeters nor more than sixty three and a half (63.5) centimeters.

2) The minimum number of risers in any one flight of stairs shall be three (3)

D. **Enclosure:**

All interior stairways shall be enclosed in accordance with the provisions of Section 3.501 of this Rule:

E. Stair Details

1) Each new stair and platform, landing, balcony and stair hallway floor used in building of four (4) stories or more and in all new buildings, required by this rule to be of fire-resistive construction, shall be non-combustible material throughout except that handrails are exempted from this requirement. Treads of stairs and landing floors shall be solid.
2) Each stair, platform, landing, balcony, and stair hallway floor shall be designed to carry a load of four hundred eighty-eight (488) kilos per square meter, or a concentrated load of one hundred thirty six (136) kilo, so located as to produce maximum stress conditions.
3) Where material of stair treads and landings is such as to involve danger of slipping, nonslip material shall be provided on tread surface.

4) Stairways and intermediate landings shall continue with no decrease in width along the direction of exit travel.

F. **Guards and Handrails**

1) Means of egress such as stairs, stair landings, balconies, ramps and aisles, located along the edge of open-sided floors and mezzanines, shall have guards to prevent falls over the open side. Each new stair landing, and Class B ramp shall have handrails on both sides.
2) Required guards and handrails shall continue for the full length of each flight of stairs.
3) The design of guards and handrails and the hardware for attaching handrails to guard balusters or masonry walls shall be such that there are no projecting lugs on attachment devices or non projecting corners or members of grills or panels which may engage loose clothing. Opening in guard shall be designed to prevent loose clothing from becoming wedged in such openings.
4) Handrails Details:

    a) Handrails on stair shall be not less than seventy six (76) centimeters nor more than eighty six and one-half (86.5) centimeters above the upper surface of the tread, measured vertically to the top of the rail from a point on the tread twenty five (25) millimeters back from the leading edge.

    b) Handrails shall provide a clearance of a least thirty eight (38) millimeters between handrail and wall to which it is fastened.

    c) Handrails shall be so designed as to permit continuous sliding of hands on them.

d) Every stairway required to be more than two hundred twenty three (223) centimeters in width shall have intermediate handrails dividing the stairway into portions not more than two hundred twenty three (223) centimeters in width.

5) **Guard and Details**

a) The height of guard shall be measured vertically to the top of the guard from a point on the tread twenty five (25) millimeters back from the leading edge or from the floor of landings or balconies.

b) No guards shall be required for inside stairs which reverse direction at intermediate landings where the horizontal distance between successive flights is not more than thirty and a half (30.5) centimeters.

c) Guards shall both be less than one hundred six (106) centimeters high. Guards protecting changes in level one story or less on interior balconies and mezzanines shall be not less than ninety one (91) centimeters.

d) Guards shall be so constructed that the area in the plane of the guard from the top of the floor, riser, or curb to the minimum required height of guard shall be subdivided or filled in one of the following manners:

- A sufficient number of intermediate longitudinal rails so that the clear distance between rails measured at right angles to the run of rail does not exceed twenty five and half centimeters (25.5). The bottom rails shall not be more than twenty five and a half (25.5) centimeters from the top of the floor measured vertically.

- Vertical balusters spaced not more than fifteen and one fourth (15.25) centimeters apart.

- Areas filled wholly or partially by panels of solid wire mesh or expanded metal construction or by ornamental grills which provide protection against falling through the guard equivalent to the provided by the intermediate rails or vertical balusters.

- The lower part of the area may consist of a continuous substantial curb, the top of which is not less than seventy six (76) millimeters on stairs (measured at right angle to the curb from its top to the nosing of the tread) and not less than fifteen and one-fourth (15.25) centimeter for level areas.

G. Smokeproof Tower:

1) A smokeproof tower shall be a stairway endurance so designed that the movement into the smokeproof tower of products of combustion, produced by a fire occuring in any part of the building, shall be limited.

2) A smokeproof tower, as herein specified, shall be a continuous fire-resistive enclosure protecting a stairway from fire or smoke in the building served, with communication between the building and the tower by means of balconies directly open to the outer air.

3) Stairs, enclosure walls, vestibules, balconies and other components of smokeproof towers shall be of noncombutisble materials, and all other requirements hereinbefore specified for inside stairs shall apply to stairs in smokeproof towers.

4) Stairways shall be completely enclosed by walls having a two hour fire resistance rating and comprised on noncombustible material. There shall be no openings in walls separating the enclosure from the interior of the building. Fixed or automatic fire windows are permitted in an exterior wall not subject to serve fire exposure hazard from the same or nearby buildings.

5) Access to the smokeproof tower shall be provided from every story through vestibules open to the outside. On an exterior wall or from balconies overhanging an exterior wall, but not subject to severe fire exposure hazard. Every such vestibule or balcony shall have an obstructed length and width no less than the required width of exit doors serving the same and shall be directly open to a street or alley or yard or to an enclosed court open at the top not less than six (6) meters in width- and ninety two (92) square meters in area. Balconies or vestibules shall have guards not less than hundred six (106) centimeters high and shall conform with paragraph “F” (5) of this Section. Wall openings exposing balconies or vestibules shall be protected in accordance with paragraph “B” of Section 3.404.

6) Access from a building to vestibules or balconies shall be through doorways not less than one (1) meter wide for new and niety one (91) centimeters wide for existing towers. These openings and the entrance to the towers shall be provided with approved, self-closing fire doors swinging with the exit travel. Clear wire glass not exceeding one half (0.5) square meter shall be provided in all doors giving access to the enclosure.

H. **Monumental Stairs**

Monumental stairs, either inside or outside, army be accepted as required exits' if al requirements for exit stairs are complied with, including required enclosures and minimum width of treads, except that curved stairs may be accepted with a radius of seven and one-half (7.5) meters or more at the inner edges.

SEC. 3.404. Outside Stairs

A. **General**

1) Any permanently installed stair outside of the building served is acceptable in a means of egress under the same condition.

B. Enclosures

1) Under all conditions where enclosure of inside stairways is required, outside stairs shall be separated from the interior of the buildings with walls having the same fire-resistance rating as that required for the wall enclosing inside stairs. Any opening in such wall shall be protected by fire doors or fixed wired glass windows. Protection of opening maybe waived of the building is three (3) stories or less and it is provided with a remote second unit.

2) If the building is four (4) stories or more, openings within the distances set below shall be protected.

    a) Within four and a half (4.5) meters from any balcony, platform or stairway constituting a part of the exterior or outside stairs.
    b) Within three (3) stories or ten and two thirds (10.67) meters directly below any balcony, platform or stair-way consisting a part of the outside stairs.
    c) Within two (2) stories or six and one-tenth (6.1) meters directly below a platform or walkway leading from any story to the exits.

B) Egress from Area of Refuge:

1) Every fire section for which credit is allowed in connection with a horizontal exit shall have in addition to the horizontal exit shall have in addition to the horizontal exit or exits at least one stairway, doorway leading outside, or other standard exit. Any fire section not having a stairway or doorway leading outside shall be considered as part of an adjoining section with stairway.
2) Every horizontal exit for which credit is given shall be so arranged that there are continuously available paths of travel leading from each side of the exit to stairways or other standard means of egress leading to outside the building.

This requirement is complied with where the entire areas from each side of the horizontal exit to the stairways or other standard means of egress are occupied by the same tenant; or where there are public corridors or other continuously available passageways leading from each side of the exit to stairways or other standard means of egress leading to outside the building.

3) Whenever either side of the horizontal exit shall be sufficient to hold the occupant of both floor areas, allowing not less than three-tenths (0.3) square meter clear floor area per person.

C. Bridges and balconies

1) Each bridge or balcony utilized in conjunction with horizontal exits shall comply with the structural requirements for outside stairs and shall have guard and handrails in general conformity with the requirements of Section 3.403 for stairs and smokeproof towers.

2) Every bridge or balcony shall be at least as wide as the door leading to it and not less than one hundred twelve (112) centimeters from new construction.

3) Every door leading to a bridge or balcony serving as a horizontal exit from a fire area, shall swing with the exit travel out of the fire area.

4) Where the bridge or balcony serves as a horizontal exit in one direction, only the door from the bridge or balcony into the area of refuge shall swing in.

5) Where the bridge or balcony serves as a horizontal exit in both directions, doors shall be provided in pairs swinging in opposite direction, only the door swinging with the exit travel to be counted in determination of exit width, unless the bridge or balcony has sufficient floor area to accommodate the occupant load of either connected building or fire area on the basis of three tenths (0.3) square meter per person or in existing buildings by specific permission of the direction general or his duly authorized representative, in which case doors on both ends of the bridge or balcony may swing out from the building may swing out from the building.

6) The bridge or balcony floor shall be level with the floor of the building.

7) Ramps shall be employed where there is a difference in level between connected buildings or floor areas. Steps may be used where the difference in elevation is greater than fifty three and one-third (53.34) centimeters. Ramps and stairs shall be in accordance with the sections of this rule pertaining to ramps, stairs and outside.

8) All wall openings, in both of the connected buildings of fire areas any part of which is within three (3) meters of any bridge or balcony as measured horizontally or below, shall be protected with fire doors or fixed metal-frame wired-glass windows.

D. **Openings Through Walls for Horizontal Exits:**

1) Walls connected by a horizontal exit between buildings shall be of noncombustible material having a two (2) hour fire resistance rating. They shall provide a separation continuous to the ground.

2) Any opening in such walls, whether or not such openings serves as an exit, shall be adequately protected against the passage of fire as smoke therefrom.

3) Swinging fire doors a horizontal exits shall swing with the exit travel. Where a horizontal exit serves areas on both sides of a wall there shall be adjacent openings with swinging doors at each wall, opening in opposite directions, with signs on each side of the wall of partitions indicating as the exit the door which swings with the travel for that side, or other approved arrangements providing doors always swinging with any possible exit travel.

4) Sliding fire doors shall not be used on a horizontal exit except where the doorway is protected by a fire door on each side of the wall in which such sliding fire doors are located. In this case, on fire door shall be of the swinging type as provided in paragraph "C" (3) above and the other may be an automatic sliding fire door that shall be kept open whenever the building is occupied.

E. **Omission of Fire Partition on Certain Floors:**

1) Where a fire partition is used to provide a horizontal exit in any story of a building, such partition may be omitted in any lower story nder the following conditions:

   a) The open fire area story from which the fire partition is omitted shall be separated from the stories above the construction having a least a 2-hour fire resistance rating.
   b) Required exits from the stories above the open fire area story shall be separated therefrom by construction having a 2-hour fire resistance rating and shall discharge outside without travel through the open fire area story.
   c) Vertical openings between the open fire area story and the stories above shall be enclosed with construction having a 2-hour fire resistance rating. Other details shall be in accordance with the applicable provisions of Section 3.501.

2) Where a fire partition is used to provide a horizontal exit for any story below the discharge under the following conditions:

a) The open fire area story shall be separated from the stories below by construction having at least a 2-hour fire resistance rating.
b) Required exits from stories below the open fire area story shall be separated from the open fire area story by construction having a 2-hour fire resistance rating and shall discharge directly outside without travel through the open fire area story.
c) Vertical openings between the open fire story and the floors below shall be enclosed with the construction having 2-hour fire resistance rating. Other details shall be in accordance with the applicable provision of Section 3.501.

SEC. 3.406. Ramps

A. Inside Ramps:

1) Application: A ramps shall be permitted as component in a means of egress when it conforms to the general requirements of Section 3.401 and to the special requirements of this Section.

2) Classfication:

a) A ramp shall be designated as Class A or Class B in accordance with the following table:

	Class A	Class B
Width ……	112 cm and greater	76 to 112 cm
Slope ……	8 to 10%	10 to 17%
Maximum height between Landings……	No limit	3.66 m
Capacity in person per unit as modified by Divisions 7 through 5		
Down ……	60	45
Up ……	45	45

3). Protective Enclosure:

a) When a ramp inside a building is used as an exit or exit component, it shall be protected by separation from other parts of the building as specified in Section 3.401 “C”.

b) Fixed wired glass panels in steel sash may be installed in such a separation in a building fully provided with automatic fire suppression system.

c) There shall be no enclosed usable space under ramps in an exit enclosure nor shall the open space under such ramps be used for any purpose.

4) Other Details:

a) A ramp and the platforms and landings associated therewith shall be designed for not less than four hundred eighty-eight (488) kilos per square meter live load and shall have a nonslip surface.

b) The slope of a ramp shall not vary between landings. Landings shall be level and changes in direction of travel if any shall be made only at landings.

c) A ramp used as an exit component in a building more than three (3) stories, or in a building of any height of noncombustible or fire resistive construction, shall be on noncombustible material. The ramp floor and landings shall be solid and without perforations.

d) Guards and handrails complying with Section 3.403 "F" shall be provided in comparable situations for ramps except that handrails are not required on Class A ramps.

B. Outside Ramps:

1) General

a) Any ramp permanently installed on the outside of the building may be accepted as component in a means of egress under the same conditions as an inside ramp: Provided, That it complies with all requirements for inside ramps except as modified by the following provisions of this subsection "E".

b) Outside ramps shall be so arranged as to avoid any handicap to their use by persons having a fear of high places. For ramps more than three (3) stories, any arrangement intended to meet this requirement shall be at least one hundred twenty (120) centimeters.

2) Enclosures:

a) Under all conditions where enclosures of inside ramps is required outside ramps serving as exits shall be separated from the interior of

the building by a wall construction that has a fire resistance rating equal to that required for such enclosure. In buildings three (3) stories or less, such protection need not be remote second exit. If the building is four (4) stories or more in heights, the openings in the wall be protected in the same manner as provided for outside the stair.

b) Balconies, to which access doors, shall be approximately level with the floor of the building, or no more than twenty and three-tenths (20.3) centimeters below of the inside floor.

3) Ramp Details

a) Except where embedded in masonry or concrete or where a suitable fire resistive and waterproof covering is provided, no structural metal member shall be employed the entire surface of which is not capable of being inspected and painted.

b) All supporting members for balconies and ramps, which are in tension and fastened directly to the building, shall pass through the wall and be securely fastened on the opposite side of shall be securely fastened to the framework of the building. Metal members shall protected effectively against corrosion, where they pass through walls. Holes I the walls through which metal members pass shall be effectively fire-stopped to preserve the fire resistive quality of the wall.

c) Balcony and ramp enclosures and railing shall be designed to resist a horizontal force of seventy five (75) kilos per lineal meter of railing or enclosure applied at the top of the railing or to the enclosure on e hundred seven (107) centimeters above the floor.

SEC. 3.407. Exit Passageway

A. Application

Any hallway, corridor, passage or tunnel, may be designed as an exit passageway and used as an exit component when conforming to all other requirements of Section 3.401 as modified by the provisions of this Section.

B. Protective Enclosure and Arrangement:

1) An exit passageway shall be protected by separation from other parts of the building as specified in paragraph “C” on Section 3.401.
2) Fixed wired glass panels is steel sash may be installed in such a separation in a building fully provided with automatic fire suppression system.

C. Width:

The width of an exit passageway shall be adequate to accommodate the aggregate of all exits discharge through it.

D. Floor:

The floor shall be solid and without perforations.

SEC. 3.408. Escalators and Moving Walks

A. **Application:**

1) An escalator or moving walk may be accepted as a component in a means of egress when it conforms to the general requirements of Section 3.401 and to the special requirements of this Section.

2) A sign indicating the direction of the nearest approved exit shall be placed at the point of entrance to any escalator or moving walk that is not a means of egress.

3) An escalator shall be of horizontal tread type and shall be of non-combustible construction throughout, except for the step tread surfaces, handrails and step wheels.

4) A single escalator eighty one (81) centimeters wide shall be credited as one (1) unit of exit width. An escalator one hundred twenty one (121) centimeters wide, shall be given credit for two (two) units of exit width.

5) There shall be an unobstructed space of a least ten (10) centimeters outside the handrails and above the handrail for the full length of the escalator.

6) No single escalator shall an uninterrupted vertical travel of more than one story.

7) As escalator shall be designed and operated according to generally accepted standards of safe engineering practice.

C. Moving Walks

1) An inclined moving walk shall comply with the applicable requirement of **Section 3.406** for ramps, and a level moving walk shall comply with

the applicable requirements of **Section 3.407** for exit passageways, except as modified by this section.

2) No moving walk capable of being operated in the direction against the normal exit travel shall be used in a means of egress.

3) A moving walk shall be designed and operated according to generally accepted standards of safe engineering practice.

SEC. 3.409. Fire Escape, Stairs, Ladders, and Slide Escapes.

A. Fire Escape Stairs

1) General

Fire escape stairs (not those under Section 3.403 and 3.404) may be used in required means of egress only in existing buildings, subject to the applicable provisions of Divisions 7 through 15. Fire escape stairs shall not constitute more than fifty (50%) percent of the required exit capacity in any case. Fire escape stairs shall not be accepted as constituting any part of the required means of egress for new buildings.

B. Fire Escape Shall provide a continuous unobstructed safe path of travel to the ground or other safe or refuge to which they lead. Where the fire escape is not continuous, as in cases where stairs lead to an adjoining roof, which must be crossed before continuing downward travel, the direction of travel shall be clearly indicated, and suitable walkways with handrails shall be provided where necessary. Where a single means of egress consists of a combination of inside stairs and fire escape stairs, each shall comply with the applicable provisions of this Rule, and the two shall be so arranged and connected as to provide a continuous safe path of travel.

2) Types

The following types of fire escape stairs are recognized by this Rule: Return platform types with superimposed runs or straight run type, with platforms continuing in the same direction. Either or these may be parallel to or at right angle to the building. They may be attached to buildings or erected independently of them and connected bridges.

3) Stair Details:

Fire escape stairs, depending upon the requirements of Division 7 through 15 of this Rule, shall be in accordance with the following table and subsequent paragraphs.

	Existing Stairs	Existing Stairs for Very Small Buildings
Minimum Widths ……..	55.9 cm clear	45.7 cm clear
Minimum horizontal dimension any landing of platform ……	55.9 cm	45.7 cm
Maximum rise ……..	22.9 cm	30.5 cm
Minimum tread, exclusive of nosing …….	22.9 cm	15.25 cm
Minimum nosing or projection …….	2.5 cm	No requirements
Tread Construction ……..	Solid, 13 mm diameter perforation permitted	Flat metal bars on edge, or square against turning spaced 38.1 mm maximum on centers.
Winbars (spiral) ……..	None	Permitted subject to capacity penalty
Risers ……..	None	No requirement
Maximum height between landings ……	3.66 m	No requirement
Headroom, minimum …….	2.13 m	1.98 m
Access to Escape ……	Door or case-ment windows 61 cm by 1.98 m or double hung windows 76.2 cm by 91.44 cm clear opening	
Level of access opening ……	Not over 30.5 cm above floor; steps if higher	Same
Discharge to ground …….	Swinging stair section permit-ted	Swinging stair or ladder if approved
Capacity number of persons …….	45 per unit, access by door; 20 if access by Climbing over window rail	38 if winders or ladder from bottom balcony 5; if both.

4) **Arrangement and Protection of Openings:**

a) Fire escape stairs shall be so arranged that they will be exposed by the smallest possible number of window and door openings. There shall be no transom over doors. Every opening, any portion of which is in the limit specified below, shall be completely protected by approved fire doors or metalframe wire glass windows in the same manner as provided for outside stairs and outside ramps.

5) **Access:**

a) Access to fire escape stairs shall be provided in accordance with the table in paragraph (3) (a) of Section 3.409 and the general provisions of paragraph "G" Section 3.401.

b) Where access is by way of double windows, such windows shall be so counterbalanced and maintained that they can be readily opened with a minimum of physical effort. Insert screens, if any, on any type of opening giving access to fire a escape stair shall be of types that may be readily opened or pushed out . NO storm sash shall be used on any window providing to fire escape stairs.

c) Fire escape stairs shall extend to the roof in all cases where the roof if subject to occupancy or is constructed and stranged to provide an area of refuse from fire. In all cases where stairs do not extend to the roof, access thereto shall be provided by a ladder, except that such ladders are not required in the case of roofs with pitch or slope steeper than sixteen and two thirds (16.76%) percent.

d) Balconies, to which access is secured through windows with sills above the inside floor level, shall be not more than forty six (46) centimeters below the sill. In no case shall be balcony level be above the sill.

6) Material and Strength:

a) Iron, steel or concrete or other approved no-combustible material shall be used for the construction of fire escape, balconies, railings, and other features appurtenant thereto.

b) Balconies and stairs shall be designed to carry a load of four hundred thirty six (436) kilos so located as to produce maximum stress conditions.

c) Except where embedded in masonry or concrete or where a suitable fire resistive and waterproof covering is provided no structural metal member shall be employed the entire surface of which is not capable of being inspected and painted.

d) All supporting members for balconies and stairs, which are in tension and are fastened directly to the building. Where metal members pass through walls, they shall be protected effectively fire stopped to preserve the fire resistive quality of the wall.

e) Balcony and stair enclosure and railings shall be designed to withstand a horizontal force of seventy five (75) kilos per meter of railing or enclosure without serious deflection, and support at walls for such railings or enclosures shall be in the manner specified in (6) (b) for tension members except as provided in (6) (f).

(7) **Guards and Handrails:**

a) All fire escapes shall have walls or guards on both sides, in accordance with "E" (1) and "F" (5) of Section 3.403, except for height, which shall be one hundred seven (107) centimeters and ninety one (91) centimeters for fire escape for every small buildings, the height being measured vertically from a point on the stair tread twenty five (25) millimeters back from the leading edge, or vertically above any landings or balcony floor level.

b) All fire escape shall have handrails on both sides, not less than seventy six (76) centimeters not more than one hundred seven (107) centimeters high, measured vertically from a point on the stair tread twenty fire (25) millimeters back from the leading edge, all in general conformity to the requirements for stair handrails. "F" (1) through "F" (4) of Section 3.403.

c) Handrails and guards shall be so constructed as to withstand a force of ninety one (91) kilos applied downward or horizontally at any point.

8) Swinging Section of Fire Escape Stairs:

a) Swinging stair sections shall not be used for fire escape stairs except where termination over sidewalks, alleys or driveways makes it impracticable to build stairs permanently to the ground. Where used, swinging stairs shall comply with all provisions of this subsection.

b) Swinging section of stairs shall not be located over doors, over the path of travel from any other exit, or in any location where there are or are likely to be obstructions.

c) Width of swinging section of stairs shall be at least equal to that of the stairs above,

d) Pitch/slope shall not be steeper than that of the stairs above.

e) Railings shall be provided similar in height and construction to those required for the stairs above. Railings shall be designed to prevent any possibility of injury to persons at head or stairs or on balconies when stairs swing downward. Minimum clearance between moving section where hands might be caught shall be ten (10) centimeters.

f) If distance from lowest platform to ground exceed three and two thirds (3.67) meters, an intermediate balcony not more than three an two-thirds (3.67) meters from the ground or less than two (2) meters in the clear underneath shall be provided with not less than that of the stairs and length not less than one and two tenths (1.2) meters.

g) Counterweight shall be provided for swinging stairs and this shall be of type balancing about a pivot, no cables being used. Counterweight shall be securely bolted in place, but sliding ball weight or their equivalent may be used to hold stairs up and help lower them. Counterbalancing shall be such that a person weighing sixty eight (68) kilos, who makes one step for the pivot, will not start swinging the section downward, but when he is one quarter of the length of the swinging stairs from the pivot, the section will swing down.

h) Pivot for swinging stairs shall have a bronze bushing or have sufficient clearance to prevent sticking on account of corrosion.

i) No latch to lock swinging stair section in up position shall be installed.

B. Fire Escape Ladders

1) USE - No form of ladder shall be used as a fire escape under the provisions of this Rule, except that ladders conforming to the following specifications may be used to provide a means of escape from boiler rooms, grain elevators and towers as permitted by Division 14 and 15, elevated platforms around machinery or similar spaces subject to occupancy by not more than three able-bodied adults.
2) Installation

a) All leaders shall be permanently installed in fixed position, supported by rigid connection to the building or structure at intervals not exceeding three (3) meters.

b) Where ladders provide access to roofs or elevated platforms, rails shall extend not less than one hundred fourteen (114) centimeters above roof line or platform floor or above coping or parapet to afford hand hold.
c) Ladders shall be arranged parallel to buildings or structures with travel either between ladder and building, in which case minimum clearance center of rungs and building shall be sixty eight (68) centimeters, or outside of ladder, in which case minimum clearance between center of rungs and building shall be sixteen (16) centimeters.
d) Ladders shall be vertical or positively inclined (i.e. ladder sloping out over the head of a person using it) shall be permitted.

3. Constructions:

a) Ladders shall be constructed of iron, of steel or of other metal in design having equivalent strength and resistance to corrosion.
b) Rails of iron or steel ladders shall be not less than one and one-fourth (1.25) centimeters by five (5) centimeters in section, not less than forty (40) centimeters apart.
c) Rungs shall be not less than twenty two (22) centimeters nor more than thirty and one-half (30.5) centimeters on center.
d) The lowest rung of any ladder shall be not more than thirty and one-half (30.5) centimeters above the level of the ground or balcony floor beneath it.

C. Slide Escape:

1) **Use and Capacity Rating**

a) A slide escape may be used at component in means of egress where specifically authorized by Divisions 7 through 15.

b) Slide escapes, where permitted as required exits, shall be rated at one unit per slide, with rated travel capacity of 60 persons per minute.

c) Slide escapes, except as permitted for high hazard manufacturing buildings or structures, shall not constitute more than twenty five (25%) percent of the required number of units of exit width from any building or structure or any individual story or floor thereof.

d) Slide escape, used as exits shall comply with the applicable requirements of this Division for other types of exits subject to the discretion of the Director General of is authorized representative.

SEC. 3.410. Illumination of Means of Egress

A. General

1) Illumination of means of egress shall be continuous during the time that the condition of occupancy require that the means of egress be available for use. Artificial lighting shall be employed at such places and for such periods of time as required to maintain the illumination to the minimum lumen values herein specified.

2) Illumination of means of egress shall be provided for every building and structures, as required by Division 7 through 15.

3) The floors of means of egress shall be illuminated at all points including angles and intersection of corridors and passageways, landings of stairs, and exit doors to values of not less than one thousandth (0.001) lumens per herein specified.

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

B. Source of Illumination:

1) Illumination of means of egress shall be from a source of reasonably assured reliability, such as public utility electric service.

2) Where electricity is used as a source of illumination of means of egress, the installation shall be properly made in accordance with the appropriate made in accordance with the appropriate made in accordance with the appropriate and internationally accepted standards.

3) No battery operated electric light nor any type of portable lam or lantern shall be used for primary illumination of means of egress, but may be used as an emergency source to the extent permitted under Emergency Lighting paragraph “C” of the Section.

4) No luminescent, fluorescent, or reflective material shall be permitted as substitutes for any of the required illumination herein specified.

C. Emergency Lighting:

1) In occupancies specified in Division 7 through 15, emergency lighting facilities shall be provided for means of egress. Where maintenance of

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

2) Emergency lighting facilities shall be arranged to maintain the specified degree of illumination in the event of failure of the normal lighting for a period of at least one half (1/2) hour in building more than thirty six and a half (36.5) meters in height.

3) A emergency lighting system shall be provided as specified in Division 7 through 15, subject to the ground of Director General or his duly authorized representative as to the suitability of the equipment for its intended use and the conditions in the individual premises.

4) Electric battery-operated emergency lights shall use only reliable types of storage batteries, provided with suitability of the equipment for its intended use and the conditions in the individual premises.

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

6) An emergency lighting system shall either be continuously in operation or shall be capable of repeated automatic operation without intervention.

SEC. 3.411. Exit Masking

A. Signs:

1) Where required by the provisions of division 15, exits shall be marked by a readily visible sign. Access to exits shall be marked by readily visible sign in all cases where the exit or way to reach it's not immediately visible to the occupants and in any case where required by the applicable provisions of Divisions 7 through 15 for individual occupancies.

2) Any door, passage, or stairway which is neither an exit nor a way of exit access and which is so located or arranged as likely to be mistaken for an exit, shall be identified by a sign reading "NOT AN EXIT" and shall be identified by a sign indicating its actual character, such as "TO BASEMENT" "STOREROOM", "LINEN CLOSET" or the like.

3) Every required sign designating an exit or way of exit access shall be so located and such size, color, and design as to readily visible. No decorations, furnishing, or equipment which impair visibility of an exit sigh shall be permitted nor shall be permitted, nor shall there be any brightly illuminated sign (for other than exit purposes), display, or display, or object in or near the line of vision to the required exit sign of such a character as to so detract attention from the exit sign.

4) A sign reading "EXIT", with an arrow indicating the direction, shall be placed in every location where the direction of travel to reach the nearest exit is not immediately apparent.

5) Every sigh shall be distinctive in color and shall provide contrast with decorations, interior finish or other signs.

B. Illumination of Signs:

1) Every sign shall be suitably illuminated by a reliable light source giving a value of not less than thousandth (0.005) lumens per square centimeters on the illuminated surface. Such illumination shall be continuous as required under the provisions of Section 3.510. (Illumination of Means of Egress) and where emergency lighting facilities are required, exit sign shall be illuminated from the same source.
2) Internally illuminated sign shall be provided in all occupancies where reduction of normal illumination is permitted such as to motion picture theaters.

C. Size of Signs:

Every exit shall have the word "EXIT" in plainly legible letters not less than fifteen (15) centimeters high with the principal strokes of letters not less than nineteen (19) millimeters wide, except that in exiting buildings externally illuminated exit signs therein having the word "EXIT" in plainly visible letters not less than eleven and one-half (11.5) centimeters high, other than in places of assembly, may continued in-use.

DIVISIONS 5 - FEATURES OF FIRE PROTECTION

SEC. 3.501 Protection of Vertical Opening and Combustible Concealed Spaces

A. General:

1) Every stairway, elevator shaft, light and ventilation shaft, chute and other opening between stories shall be enclosed or protected to prevent the spread of fire of smoke, except openings of building protected by

automatic fire suppression system as permitted by other Section of this Rule.

2) In any building with low or ordinary hazard occupancy protected with automatic fire suppression system, up to three (3) communicating floor levels are permitted without enclosure protection between floors, provided all the following conditions are met.

   a) The arrangement is permitted by the applicable occupancy section of this Rule and by the Director General of his duly authorized representative;

   b) The lowest or next to the lowest level is a street floor;

   c) The entire area including all communicating floor levels is sufficiently open and unobstructed so that it may be assured that fire or other dangerous condition in any part will be immediately obvious to the occupants of all communicating levels and areas;

   d) Exit capacity is sufficient to provide simultaneously for all occupants of all communicating levels and areas, all communicating levels in the same fire area being considered as a single floor area for purposes of determination of required exit capacity.

   e) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that area without traversing another communicating floor level or being exposed to the spread of fire or smoke therefrom; and

   f) All requirement of this Rule with respect to interior finish, protection of hazards, construction and other features are fully observed, without waivers, expect openings in floors of educational and educational and institutional occupancies shall be enclosed as required in Divisions 8 and 9, respectively.

3) Each floor opening, as specified in paragraph “A” (1) of this Section shall be enclosed by substantial walls having fire resistance not less than that required for stairways, paragraph “A” (4) hereof, with approved fire doors or windows provided in opening therein, all so designed and installed as to proved a complete barrier to the spread of fire or smoke through such openings.
4) The enclosing walls of floor openings serving stairways or ramps shall be so arranged as to provide a continuous path of escape including landings and passageway, in accordance with Section 3.403, providing protection for using the stairways or ramp against fire or smoke therefrom in other persons using the stairways or ramp against

fire or smoke therefrom in other parts of the building. Such wall shall have fire resistance as follows:

a) New buildings four stores or more n height two hours five resistance.
b) Other new buildings - One (1) hour
c) Existing buildings - ½ hour, except where greater resistance is required by the Director General or his duly authorized representative in consideration of the hazard present.