

PART 3

GENERAL

BUILDING

REQUIREMENTS,

CONTROL AND

REGULATION

PART 3

		Pages
Chapter 1	GENERAL BUILDING REQUIREMENTS	3-1
Chapter 2	CLASSIFICATION OF BUILDINGS BASED ON OCCUPANCY	3-29
Chapter 3	CLASSIFICATION OF BUILDING CONSTRUCTION TYPE BASED ON FIRE RESISTANCE	3-83
Chapter 4	ENERGY EFFICIENCY AND SUSTAINABILITY	3-95
Appendices		3-105

TABLE OF CONTENTS

PART 3 GENERAL BUILDING REQUIREMENTS, CONTROL AND REGULATION

Chapter 1 GENERAL BUILDING REQUIREMENTS

1.1	SCOPE	3-1
1.2	TERMINOLOGY	3-1
1.3	LAND USE CLASSIFICATION	3-5
1.4	OCCUPANCY AND CONSTRUCTION CLASSIFICATION OF BUILDINGS	3-5
1.5	REQUIREMENTS OF PLOTS	3-7
1.5.1	General Requirements	3-7
1.5.2	Clearance from Overhead Electric Lines	3-7
1.5.3	Road, Formation level and Plinth Levels	3-7
1.5.4	Boundary Wall	3-8
1.6	PLOT SIZES	3-8
1.7	MEANS OF ACCESS	3-8
1.7.1	Internal Access Road	3-8
1.7.2	Pedestrian Path or Walkway or Footpath	3-9
1.8	OPEN SPACES WITHIN A PLOT	3-9
1.9	GENERAL HEIGHT AND AREA LIMITATIONS	3-15
1.10	OFF STREET PARKING SPACES	3-17
1.11	STREET ENCROACHMENT	3-18
1.12	COMMUNITY OPEN SPACE AND AMENITIES	3-18
1.13	MINIMUM STANDARD OF A DWELLING	3-18
1.14	REQUIREMENTS OF PARTS OF BUILDINGS	3-18
1.14.1	Plinth and Formation Levels	3-18
1.14.2	Room Dimensions	3-18
1.14.3	Kitchen	3-19
1.14.4	Bathroom and Toilets	3-19
1.14.5	Stairways	3-20
1.14.6	Mezzanine Floor	3-21
1.14.7	Lofts	3-21
1.14.8	Cabins or Chambers	3-21
1.14.9	Store Room	3-21
1.14.10	Private Garage	3-21
1.14.11	Basement	3-21
1.14.12	Entrance to the Building	3-22
1.14.13	Roof Drainage	3-22

1.14.14 Parapet	3-22
1.14.15 Septic Tank	3-22
1.15 LANDSCAPING	3-22
1.16 DAMP-PROOFING AND WATERPROOFING OF FLOORS AND WALLS	3-22
1.17 EXISTING BUILDINGS	3-23
1.18 BUILDINGS AND PLACES OF HISTORICAL OR ARCHITECTURAL VALUE	3-23
1.19 VENTILATION, LIGHTING AND SANITATION	3-23
1.20 AIR-CONDITIONING AND HEATING	3-24
1.21 PROVISION OF LIFTS AND ESCALATORS	3-24
1.22 SOUND INSULATION	3-25
1.23 THERMAL INSULATION	3-25
1.24 LIGHTNING PROTECTION OF BUILDINGS	3-25
1.25 RAT PROOFING AND TERMITE PROOFING OF BUILDINGS	3-25
1.26 REQUIREMENTS FOR BUILDINGS IN FLOOD PRONE AND COASTAL REGIONS OF BANGLADESH	3-25
1.26.1 Flood Prone Areas	3-25
1.26.2 Surge Prone Areas	3-26
1.27 REQUIREMENTS FOR BUILDINGS IN OTHER DISASTER PRONE AREAS	3-27
1.28 SPECIAL PROVISION FOR STORAGE OF DANGEROUS GOODS AND THEIR CLASSIFICATION	3-27
1.29 LIST OF RELATED APPENDICES	3-28
Chapter 2 CLASSIFICATION OF BUILDINGS BASED ON OCCUPANCY	
2.1 OCCUPANCY CLASSIFICATION	3-29
2.2 CHANGE OF USE	3-35
2.3 MIXED OCCUPANCY	3-35
2.4 GENERAL REQUIREMENTS OF ALL OCCUPANCIES	3-36
2.4.1 Location on Property	3-36
2.4.2 Allowable Floor Areas	3-37
2.4.3 Permitted Types of Construction	3-37
2.4.4 General provision for High-Rise Buildings	3-38
2.4.5 Helipads	3-38
2.4.6 Universal Accessibility	3-39
2.5 REQUIREMENTS FOR OCCUPANCY A - RESIDENTIAL BUILDINGS	3-39
2.5.1 Construction, Height and Allowable Area	3-39
2.5.2 Location on Property	3-39
2.5.3 Access and Exit Facilities and Egress System	3-39
2.5.4 Lighting and Ventilation	3-39
2.5.5 Sanitation	3-39
2.5.6 Minimum Dimension of Habitable and Non-habitable Rooms	3-39

2.5.7	Fire Detection, Alarm, Evacuation and Extinguishment	3-39
2.5.8	Shaft and Exit Enclosure	3-40
2.6	REQUIREMENTS FOR OCCUPANCY B - EDUCATIONAL BUILDINGS	3-40
2.6.1	Construction, Height and Allowable area	3-40
2.6.2	Location on Property	3-40
2.6.3	Access and Exit facilities and Egress System	3-40
2.6.4	Lighting, Ventilation and Sanitation	3-40
2.6.5	Minimum Dimensions of Class Rooms, Common Toilets and Staircases	3-40
2.6.6	Shaft and Exit Enclosure	3-40
2.6.7	Fire Detection, Alarm, Evacuation and Extinguishment System	3-40
2.7	REQUIREMENTS FOR OCCUPANCY C - INSTITUTIONAL BUILDINGS	3-41
2.7.1	Construction, Height and Allowable Area	3-41
2.7.2	Location on Property	3-41
2.7.3	Access and Exit Facilities and Egress System	3-41
2.7.4	Lighting, Ventilation and Sanitation	3-41
2.7.5	Shaft and Enclosure	3-41
2.7.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-41
2.8	REQUIREMENTS FOR OCCUPANCY D—HEALTH CARE FACILITIES	3-41
2.8.1	Construction, Height and Allowable Area	3-41
2.8.2	Location on Property	3-41
2.8.3	Access and Exit Facilities and Egress System	3-41
2.8.4	Lighting, Ventilation and Sanitation	3-41
2.8.5	Shaft and Enclosure	3-41
2.8.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-42
2.9	REQUIREMENTS FOR OCCUPANCY E—BUSINESS	3-42
2.9.1	Construction, Height and Allowable Area	3-42
2.9.2	Location on Property	3-42
2.9.3	Access and Exit Facilities and Egress System	3-42
2.9.4	Lighting, Ventilation and Sanitation	3-42
2.9.5	Shaft and Enclosure	3-42
2.9.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-42
2.10	REQUIREMENTS FOR OCCUPANCY F—MERCANTILE BUILDINGS	3-42
2.10.1	Construction, Height and Allowable Area	3-42
2.10.2	Location on Property	3-42
2.10.3	Access and Exit Facilities and Emergency Escapes	3-42
2.10.4	Lighting, Ventilation and Sanitation	3-42
2.10.5	Shaft and Enclosure	3-43

2.10.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-43
2.10.7	Special Hazards	3-43
2.11	REQUIREMENTS FOR OCCUPANCY G—INDUSTRIAL BUILDINGS	3-43
2.11.1	Construction, Height and Allowable Area	3-43
2.11.2	Location on Property	3-43
2.11.3	Access and Exit Facilities and Egress System	3-43
2.11.4	Lighting, Ventilation and Sanitation	3-43
2.11.5	Shaft and Enclosure	3-43
2.11.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-44
2.11.7	Special Hazards	3-44
2.12	REQUIREMENTS FOR OCCUPANCY H—STORAGE BUILDINGS	3-44
2.12.1	Construction, Height and Allowable Area	3-44
2.12.2	Location on Property	3-44
2.12.3	Access and Exit Facilities and Egress System	3-44
2.12.4	Lighting, Ventilation and Sanitation	3-44
2.12.5	Shaft and Enclosure	3-44
2.12.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-44
2.12.7	Special Hazards	3-44
2.13	REQUIREMENTS FOR OCCUPANCY I—ASSEMBLY BUILDINGS	3-45
2.13.1	Construction, Height and Allowable Area	3-45
2.13.2	Location on Property	3-45
2.13.3	Access and Exit Facilities and Egress System	3-45
2.13.4	Lighting, Ventilation and Sanitation	3-45
2.13.5	Shaft and Enclosure	3-45
2.13.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-45
2.13.7	Motion Picture Projection Rooms	3-46
2.13.8	Sports Facilities	3-46
2.13.9	Amusement Building Fire protection System	3-47
2.14	REQUIREMENTS FOR OCCUPANCY J—HAZARDOUS BUILDINGS	3-47
2.14.1	General	3-47
2.14.2	Special Provisions	3-49
2.14.3	Construction, Height and Allowable Area	3-50
2.14.4	Location on Property	3-52
2.14.5	Access and Exit Facilities and Emergency Escapes	3-53
2.14.6	Lighting and Ventilation	3-53
2.14.7	Sanitation	3-53
2.14.8	Shaft and Exit Enclosures	3-53

2.14.9	Fire detection, Alarm, Evacuation and Extinguishment system	3-53
2.14.10	Explosion Control	3-53
2.14.11	Special Hazard	3-54
2.15	REQUIREMENTS FOR OCCUPANCY K–GARAGE BUILDINGS	3-54
2.15.1	Construction, Height and Allowable Area	3-54
2.15.2	Location on Property	3-55
2.15.3	Access and Exit Facilities and Emergency Escapes	3-55
2.15.4	Lighting, Ventilation and Sanitation	3-55
2.15.5	Shaft and Enclosure	3-55
2.15.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-55
2.16	REQUIREMENTS FOR OCCUPANCY L – UTILITY BUILDINGS	3-55
2.16.1	Construction, Height and Allowable Area	3-55
2.16.2	Location on Property	3-55
2.16.3	Access and Exit Facilities and Egress System	3-55
2.16.4	Lighting, Ventilation and Sanitation	3-55
2.16.5	Shaft and Enclosure	3-55
2.16.6	Fire Detector, Alarm, Evacuation and Extinguishment System	3-56
2.16.7	Special Hazard	3-56
2.17	REQUIREMENTS FOR OCCUPANCY M – MISCELLANEOUS BUILDINGS	3-56
2.17.1	General	3-56
2.17.2	Location on Property	3-56
2.17.3	Access and Exit Facilities and Emergency Escapes	3-56
2.17.4	Lighting, Ventilation and Sanitation	3-56
2.17.5	Shaft and Exit Enclosures	3-56
2.17.6	Fire Detection, Alarm, Evacuation and Extinguishment System	3-56
Chapter 3	CLASSIFICATION OF BUILDING CONSTRUCTION TYPES BASED ON FIRE RESISTANCE	
3.1	General	3-83
3.1.1	Classification by Type of Construction	3-83
3.1.2	Group I. Non-combustible Construction	3-84
3.1.3	Group II. Combustible Construction	3-84
3.1.4	Separated Occupancy and Construction	3-88
3.1.5	Fire Zones	3-88
3.1.6	Permissible Types of Construction for Various Occupancies	3-89
3.1.7	Exterior Walls	3-89
3.1.8	Basement Floor	3-89
3.1.9	Restricting Horizontal and Vertical Spread of Fire	3-89

3.1.10	Exceptions to Fire Resistance Requirements	3-89
3.1.11	Shaft Enclosures	3-91
3.1.12	Expansion and Contraction Joints	3-91
3.1.13	Weather Protection	3-92
3.1.14	Members Carrying Walls	3-92
3.1.15	Parapets	3-92
3.1.16	Projections	3-92
3.1.17	Guards and Stoppers	3-92
3.1.18	Insulation	3-93
3.1.19	Atrium	3-93
3.1.20	Mezzanine Floors	3-94
Chapter 4	ENERGY EFFICIENCY AND SUSTAINABILITY	
4.1	SCOPE	3-95
4.1.1	Rationale for Sustainable/Green Buildings	3-95
4.2	DEFINITION	3-95
4.3	SITE SUSTAINABILITY	3-96
4.3.1	Mandatory Unpaved Area	3-96
4.3.2	Site Drainage and Run-Off Coefficient	3-96
4.3.3	Vegetation Plan	3-96
4.3.4	Irrigation Plan	3-96
4.3.5	Rain Water Harvesting System	3-97
4.4	BUILDING ENVELOPE	3-97
4.4.1	Window to Wall Ratio	3-97
4.4.2	Window Openings	3-99
4.4.3	Shading	3-99
4.4.4	Roof insulation and Green Roofing System	3-101
4.5	ENERGY EFFICIENT BUILDING SYSTEMS	3-101
4.5.1	Day lighting and Supplementary Lighting System	3-101
4.5.2	Lighting Power Density	3-101
4.5.3	Occupancy Sensors	3-101
4.5.4	Ceiling/ Wall Mounted Fans	3-102
4.5.5	Lift and Escalator Efficiencies	3-102
4.5.6	Renewable Energy Options	3-103
4.5.7	Heating Ventilation and Air-conditioning (HVAC) system	3-103
4.6	INTERNAL WATER MANAGEMENT	3-103
4.6.1	Reuse of Grey Water	3-103
4.6.2	Efficient Fittings in Toilets	3-103

4.6.3	Service Hot Water and Pumping	3-103
-------	-------------------------------	-------

APPENDICES

Appendix A	Planning and Development Control	3-105
Appendix B	Guidelines for Minimum Standard Housing Development	3-111
Appendix C	Special Requirements of Cluster Planning for Housing	3-121
Appendix D	Universal Accessibility	3-125
Appendix E	Building types, Development Rights and Buildings abutting property lines	3-155
Appendix F	Road hierarchy, On-street and Off-street Parking	3-159

This page is intentionally left blank.

GENERAL BUILDING REQUIREMENTS

1.1 SCOPE

This Part of the Code puts forward classification of buildings based on occupancy or nature of use and deals with the general and specific requirements of each of the occupancy groups. Fire resistance requirements are expressed in terms of type of construction which shall conform to the specified fire-resistive properties.

1.2 TERMINOLOGY

This Section provides an alphabetical list of the terms used in and applicable to this Part of this Code. In case of any conflict or contradiction between a definition given in this Section and that in any other Part of this Code, the meaning provided in this Part shall govern for interpretation of the provisions of this Part.

ACCESSIBILITY	The provision in a plot or a building or a facility or any part thereof that can be approached, entered and used without assistance by persons with temporary or permanent physical limitations.
ACCESSIBILITY ROUTE	A continuous unobstructed path that starts from the entry and shall continue through all accessible elements and spaces within a plot and buildings or facilities thereof up to the exit termination.
ACCESSIBLE	The term accessible or adaptable shall be used as a prefix for spaces or features which are designed for persons having physical limitation; such as accessible toilet, accessible kitchen, accessible lift and so on.
ADAPTABLE	See ACCESSIBLE
AREA PLANNING AUTHORITY	A government or semi-government agency or a local body which has been legally designated to formulate land use or plans of the area under their jurisdiction.
ASSEMBLY	In a building or a portion thereof used for gathering of 50 or more persons for deliberation, worship, reading, entertainment, eating, drinking, awaiting transportation, or similar uses not limited to these; or used as a special amusement building, regardless of occupant load.
ATRIUM	A large volume space within a multistoried building having series of floor openings or corridors or similar elements in and around and floors are connected from there and series of openings or a glazing on roof or a portion thereof constructed with glazing and having a minimum two stories high. The word Atria or Atriums are the plural form of Atrium.
BALCONY	A covered and hanging platform at a height of minimum 2.286 m from the plinth level of a building and having access from any floor level and which is laterally open to outer air by three sides up to 2.06 m in height and edges are protected with guards. Within an interior space, a balcony is a portion which are positioned sidewise as similar as Mezzanine.
BALUSTER	Single vertical member of a guardrail or a Handrail or a member of both which shall be complied with the provisions of this Code.
BALUSTRADE	Plural form of BALUSTER.

BARRIER	A wall or a partition or a floor slab or a ceiling within a building which confines and protects flow of smoke and fire from the exposed side of the barrier. The fire rating of barriers shall be complied with the provisions of this Code.
BASEMENT	A floor of a building or a portion thereof which is situated as a whole or partially at depth of minimum 50 percent of ceiling height below formation level shall be called as a basement.
BUILDING LINE	The peripheral lines of a building mass or volume up to which the plinth area or any floor area may be lawfully extended within a plot.
CARRIAGEWAY	A path including over bridge or bridge which is open to the outer air and may or may not be covered or roofed or an underpass, design and designated for vehicles only
CEILING HEIGHT	Height measured from the top of finished surface of floor level up to the bottom of roof or ceiling or suspended or false ceiling level or Beam drops. In case of multistoried building, Vertical distance in between two slabs from which deduction shall be made for any suspended or false ceiling or Beam drops. For slope or pitch ceiling or roof, the minimum value shall be the ceiling height.
COMMON SPACE CONDITION	See NON-SEPARATED SPACE CONDITION
CONTROL AREA	A space or a room within a building enclosed by barriers with the fire rated walls, floor and ceiling, where the quantity of hazardous material shall not be exceeded the maximum allowable quantity per control area for storing, displaying, handling, dispensing or using as per provisions of this Code.
DETACHED OCCUPANCY	A building separated by distance in a same plot to accommodate different type of occupancies shall be termed as Detached Occupancy.
DEVELOPMENT AUTHORITY	A government or semi-government agency or a local body which has been legally designated to carry out and/or control any works of land development of an area having jurisdiction.
FAR (FLOOR AREA RATIO)	FAR is a ratio between the area of a plot and the sum of floor areas of building or buildings are erected or intended to be erected thereof. In the buildings, there may have some specific and calculated floor areas which shall be treated as bonus or exempted from the total floor area calculation and such areas shall be specified by the authorities having jurisdiction.
FIRE	An uncontrolled fire which poses threat to safety of life or property or both.
FIRE SEPARATION DISTANCE	A minimum distance which to be maintained between potential sources and/or between structures for fire safety. In case of differences between building setback and the required minimum fire separation distance measurement; the higher value shall be implied.
FLOOD	A Land or a plot normally dry but submerges or drowns as whole or partially by over flown water from any source.
FLOOD LEVEL	A measurement of height from an existing ground level or from top level of river water of an area or a locality recorded in a Flood Hazard Map by the authorities having jurisdiction.
FLOOD PRONE AREA	At least once in a year a dry ground of an area or a plot or a portion thereof flooded at a height of 1m or more shall be designated as a Floor Prone Area.
FLOOR HEIGHT	In a multistoried building, floor height shall be measured from the top of finished surface of the two successive floor slabs and the measurement of the top most floor shall be from the top of finished surface of the floor slab and the top of the finished roof, in case of the slope roof, measurement shall be taken up to pick of that slope.
FRONTAGE	Irrespective of the entry provision to a plot, full or partial length of any sides of a plot which are abutted to roads or streets shall be designated as frontage.

FORMATION LEVEL	Finished ground level of a plot. For hilly areas formation levels shall be the gradient of the plot surface.
GALLERY	A special type of seating arrangement where each and every row or tier of seats are successively elevated to provide a clear view to audiences or spectators within and around a playground or outdoor or indoor stadium or within an auditorium or in a hall.
GUARD	A vertical protective barrier erected up to a height along exposed edges of stairways, balconies and similar areas.
HEAD ROOM CLEARANCE	A vertical distance measured from the top of finished floor level up to the bottom of ceiling or lowest roof level or bottom of beam drop or bottom of any hanging element within a space. In case of a stairway, a vertical distance measured from the bottom surface of flight or ceiling or beam drop to any outer edge point of a tread below and for the landings ceiling height measurement system shall be adopted to determine head room clearance.
HELISTOP	A designated area on ground or on water or on a portion of a building for helicopter landing or takeoff without servicing, repairing and refueling facilities.
HIGH RISE BUILDING	Any building which is more than 10-storey or 33 m high from reference datum. Building appurtenances like overhead water tank, machine room, communication tower etc. will not be considered in determining the height.
LIGHTING SHAFT	A space within a building which is fully enclosed by all sides and shall be open to the sky to provide daylight to adjacent interiors and less than the dimensions that stipulated for minimum closed or internal courts of corresponding to the building heights.
LOFT	An intermediate space in-between a floor or a ceiling and under a pitch or a slope roof of a building.
MANDATORY OPEN SPACE	The spaces within a plot which shall remain unpaved with or without vegetation to allow water penetration and uncovered up to the sky from formation level of the building. No underground or above ground construction is allowed in such spaces.
MEZZANINE FLOOR	Within one space where more than one floor exists, the floor at the lowest level shall be designated as main floor and each Intermediate floor is limited to an area which is not more than one third of the main floor under one roof or one ceiling, thus gives two or more useable floor levels. These types of intermediate floors shall be designated as mezzanine floors. Mezzanine floor may be as gallery or flat floor type and which also includes interior balcony.
MIXED OCCUPANCY	When two or more occupancies are amalgamated in a building shall be termed as Mixed Occupancy.
NON SEPARATED SPACE CONDITION	Walls or partitions between compartments, rooms, spaces or areas within a building or part of a building which are not separated by an approved fire rated barrier walls or partitions shall be designated as non-separated space condition or effective undivided single space.
OPENINGS	Apertures or holes in any wall of a building that allow air to flow through and which are designed as open.
OPENING, VERTICAL	An opening through a floor or roof of a building.
OPEN SPACE	Open space within a plot includes all spaces other than spaces covered by the Maximum Ground Coverage (MGC)
PLINTH	Bases of the building and the elements that negotiate with the ground.
PLINTH LEVEL	Height of a covered finished floor which is just above the formation level and measured from the formation level up to the top of that finished floor.
PLINTH AREA	The elements from the building bases which are exposed above the formation level to form a covered floor area by joining the peripheral points of the elements which are

	intersected finished floor plane at the height of plinth level shall be designated as Plinth Area.
PLOT	A scheduled piece or parcel of land which is classified and restricted to its intended use.
RAMP	A sloping walkway which is steeper than 1 in 20 but not steeper than 1 in 8 and shall have guard and handrail.
RAMP, ACCESSIBILITY	A sloping walkway not steeper than 1 in 12.
RAMPED DRIVEWAY	Ramped Driveways are inclined floors that provide access to vehicles between two levels. Ramped walkway when provided side by side of a ramped driveway shall be separated by safety guard rails and curbs. A sloping driveway or Ramped Driveway steeper than 1 in 8 shall not be credited as a component of means of exit.
RAMP GRADIENT	Ramp gradient refers to the ratio of the inclination of a ramp (height by length ratio) measured along the center line of the ramp.
ROAD LEVEL	The road level means top surface at the center point of the road width which is used for site entry and shall be considered as the reference point for measuring height or depth of any development.
ROOF	Weather exposed and uncovered surface of the topmost or the terminal ceiling of a building which may be horizontal or pitched or may have slopes shall be treated as the roof of a building.
SEPARATED OCCUPANCY	A building or a portion thereof separated by barriers with wall or ceiling slab that into two or more parts to accommodate different type of occupancies in different parts.
SEPARATE SPACE CONDITION	Rooms, spaces or areas within a building when separated by approved barrier wall.
SEPARATION WALL	This is a peripheral wall of a building or a building which shall be divided into two or more or a common wall between two buildings to control spreading of fire as per provisions of this Code.
SITE	See PLOT
SMOKE DRAFT BARRIER	A vertical panel dropped from the ceiling of a building or portion thereof to protect and control the movement of smoke draft during fire. The construction of such smoke draft barriers shall be complied with the provisions of this Code.
STAGE	An elevated platform which is designed or used for presentation of plays or lectures or other entertainments in front an assembly of spectators or audiences.
STAGE, INTERIOR	An elevated platform within a building which is designed or used for presentation of plays or lectures or other entertainment in front an assembly of spectators or audiences.
STAGE, LEGITIMATE	Ceiling Height of a stage from the top surface of the platform is 15.24 m or more shall be designated as a legitimate stage.
STORAGE DENSITY	A storage or display of solid or liquid merchandises shall not be exceeded 976 kg/m ² or 814 L/m ² respectively and shall be limited to the exempted quantity of an actually occupied net floor area. Maximum height of display or storing of merchandises shall not be exceeded 1829 mm or 2438 mm respectively. Allowable Height and Quantity may be less depending on the total area and the ceiling height of a store or a display.
STREET OR ROAD	An open to outer air and unobstructed space having required width and used by the public as pedestrian or walkway or animal or vehicular movement or any combination of these for the purpose of access to a plot or plots and is connected with the national public transportation system other than railway track shall be designated as street or road which may or may not be paved.

STREET OR ROAD WIDTH	The width of any street or road shall be measured from any plot to its opposite or face to face plot distance. For the determination of a road width, measurements shall be taken up to the connection of the national public transportation system other than railway track from any plot and the least width shall be the road width.
STREET FLOOR LEVEL	A story or floor level of a building which is accessible at the main entrance of a building from the street or from the outside at ground level and the floor shall not be more than three risers above or below the grade level.
STRUCTURAL FRAME	All members or elements such as columns, girders, beams, trusses and spandrels which forms a frame and have direct connections with bearing and transferring as an integral and essential elements for the stability of a building or a structure as a whole.
SURGE PRONE AREA	Expected occurrence of a surge or wave of water may flow above 1 m or higher from the formation level.
TALL STRUCTURE	A building used for human occupancy located more than 80m high from the center of the adjacent road level or from lowest level of the fire department vehicle access.
TERRACE	A paved surface not steeper than 1 in 20 and adjacent to a building which is connected by a stairway or a walking ramp or at the same level of any floor below the roof level of a building and at least one side of that area is exposed to the weather and having the guards and open to the sky.
UNIVERSAL ACCESSIBILITY	See ACCESSIBILITY
UNPROTECTED	The element that shall have no prerequisites of fire protection rating.
VENTILATION SHAFT, NATURAL	A space sidewise enclosed but open to sky used to provide ventilation as inlet and/or outlet to adjacent interiors of dimensions less than that stipulated for internal courts of corresponding to building heights.
VERANDAH	Portions of a building at any level which have ceiling or roof and at least one side open up to 2.13 m height to the outside air and have guards as per provisions of this Code.
WALKUP BUILDING	A multi storied building which does not have any mechanical means of vertical circulation other than stairway shall be designated as a walkup building and the maximum height of the walkup building shall be as per provision of this Code or as approved by the authority having jurisdiction.

1.3 LAND USE CLASSIFICATION

A city or a township or a municipality or a union or any other habitat development shall be brought under a structured planning including detailed area planning to implement the intended land use pattern, transportation and maintaining environmental conditions by the development or planning authorities and shall be approved by the government. This land use classification may divide an area into zones such as residential, commercial, industrial, storage, green park, agricultural land, reserved area etc. or any combination of these. The land use zones shall be shown on the approved master plan of the area and the planning regulation shall clearly state the permitted occupancies, restricted occupancies and conditionally permitted occupancies for each zone.

1.4 OCCUPANCY AND CONSTRUCTION CLASSIFICATION OF BUILDINGS

Every building or portion thereof shall be classified according to its use or character of occupancy. A brief description of such occupancy groups is presented in Table 3.1.1. Details of all occupancy group and subdivisions are set forth in Sec 2.1 of Chapter 2 of this Part. Types of construction based on fire resistance are specified in Table 3.1.2. Details of such types of construction are set forth in Chapter 3 of this Part. Any development permit for a site or a location shall clearly mention the permitted occupancy and construction type in accordance to Tables 3.1.1 and 3.1.2 for the existing or proposed building.

Table 3.1.1: Summary of Occupancy Classification

Occupancy Type	Subdivision	Nature of Use or Occupancy	Fire Index*
A: Residential	A1	Single family dwelling	1
	A2	Two families dwelling	1
	A3	Flats or apartments	1
	A4	Mess, boarding houses, dormitories and hostels	1
	A5	Hotels and lodging houses	1
B: Educational Facilities	B1	Educational facilities up to higher secondary levels	1
	B2	Facilities for training and above higher secondary education	1
	B3	Pre-school facilities	1
C: Institution for Care	C1	Institution for care of children	1
	C2	Custodial institution for physically capable adults	1
	C3	Custodial institution for the incapable adults	1
	C4	Penal and mental institutions for children	1
	C5	Penal and mental institutions for adults	1
D: Healthcare Facilities	D1	Normal medical facilities	2
	D2	Emergency medical facilities	2
E: Business	E1	Offices	2
	E2	Research and testing laboratories	2
	E3	Essential services	2
F: Mercantile	F1	Small shops and market	2
	F2	Large shops and market	2
	F3	Refueling station	2
G: Industrial Buildings	G1	Low hazard industries	3
	G2	Moderate hazard industries	3
H: Storage Buildings	H1	Low fire risk storage	3
	H2	Moderate fire risk storage	3
I: Assembly	I1	Large assembly with fixed seats	1
	I2	Small assembly with fixed seats	1
	I3	Large assembly without fixed seats	1
	I4	Small assembly without fixed seats	1
	I5	Sports facilities	1
J: Hazardous Building	J1	Explosion hazard building	4
	J2	Chemical hazard building	4
	J3	Biological hazard building	4
	J4	Radiation hazard building	4
K: Garage	K1	Parking garage	2
	K2	Private garage	1
	K3	Repair garage	3
L: Utility	L	Utility	2
M: Miscellaneous	M1	Special structures	2
	M2	Fences, tanks and towers	1

* Fire Index: fire index is an absolute number, Occupancy group having same fire index may be permitted as mixed occupancy and different fire index shall be separated or detached as per provisions of this Code.

Table 3.1.2: Summary of Classification of Buildings Based on Types of Construction

Construction Group	Construction Type	Description
Group I: Non-combustible	Type I-A	4 hour protected
	Type I-B	3 hour protected
	Type I-C	2 hour protected
	Type I-D	1 hour protected
	Type I-E	Unprotected
Group II: Combustible	Type II-A	Heavy timber
	Type II-B	Protected wood joist
	Type II-C	Unprotected wood joist
	Type II-D	Protected wood frame
	Type II-E	Unprotected wood frame

1.5 REQUIREMENTS OF PLOTS

1.5.1 General Requirements

1.5.1.1 No building shall be constructed on any site which is water logged, or on any part of which is deposited refuse, excreta or other objectionable material, until such site has been effectively drained and cleared to the satisfaction of the Authority.

1.5.1.2 Provision shall be kept for any space within the plot left vacant after the erection of the building to be effectively drained by means of surface or underground drainage system.

1.5.1.3 Basic minimum sanitary waste and excreta disposal facility shall be created on the premises, whether or not the plot is served by a disposal system provided by any utility service authority or agency.

1.5.1.4 Written approval of the Authority or the appropriate drainage and sanitation authority shall be obtained for connecting any soil or surface water drain to the sewer line.

1.5.2 Clearance from Overhead Electric Lines

A building or any part thereof shall not be erected within, nor any auxiliary part of the building be allowed to come closer to the distance shown in Table 3.1.3 from any overhead electric line.

Table 3.1.3: Minimum Distances from Overhead Electric Lines

Line Voltage	Vertically (m)	Horizontally (m)
Low to medium voltage lines and Service lines	2.5	1.25
High voltage lines up to 33 kv	3.5	1.75
High voltage lines beyond 33 kv	3.5 plus 0.3 for each additional 33 kV or part thereof	1.75 plus 0.3 for each additional 33 kV or part thereof.

1.5.3 Road , Formation Level and Plinth Levels

1.5.3.1 Road level shall be lower than the habitable formation level of an area, except that of a hilly region. When a road is designed and designated as a part of national disaster management system formation levels shall be determined by the authorities having jurisdiction.

1.5.3.2 The formation level of a plot shall not be lower than the adjacent road levels, except that of a hilly region. For hilly region, the elevation of the formation level shall be determined by the authority having jurisdiction. Where areas are not susceptible to flood or water logging, the formation level shall not be more than 450 mm high from the surface level of the center line of the adjacent roads.

1.5.3.3 The plinth level of a building shall be at least 450 mm above the surface level of the center line of the adjacent road. In Flood or Surge prone area plinth level shall be determined by the development authority having jurisdiction.

1.5.4 Boundary Wall

1.5.4.1 Solid boundary walls of a plot or in between plots shall not be higher than 1.5 m or a boundary made of grill, screen, balustrade etc. with a maximum height of 2.75 m shall not require the permission of the Authority. For boundary walls made of a combination of solid wall and grill or screen, the solid wall portion shall not be higher than 1.5 m. The Authority may, on specific application, permit the use of higher boundary walls.

1.5.4.2 Construction of a boundary wall shall be capable to resist collapsing as per provision of this Code.

1.6 PLOT SIZES

Plot divisions and plot sizes are part of integrated planning decision of detail area plan and shall be determined by the Area Development Authority having jurisdiction. Where no such guideline exists or yet to be undertaken, the criteria mentioned in Sec A.5 of Appendix A regarding plot size shall be applicable.

1.7 MEANS OF ACCESS

The provision of means of access is implied on an area or a plot when more than one plots are intended to be created or when more than one buildings are intended to be erected respectively, where such plots or buildings do not have frontage to or not approachable by a public or a private road or street. All buildings within such area or a plot shall have access facilities which shall be connected with national road transportation system. The components of means of access shall comply with the followings:

- (a) The access facilities shall meet the requirements of fire service vehicles and engines movement for rescue and fire extinguishment operation.
- (b) Where required for fire apparatus access roads shall have an unobstructed carriageway width of 4.8 m and the minimum vertical clearance shall be 5m. The width and vertical clearance of fire apparatus access roads may be increased as per requirement of the fire authority, if the clearances are not adequate to provide fire apparatus access.
- (c) Access roads longer than 30 m having a dead end shall be provided with appropriate provisions for turning around of the fire apparatus at the dead end.
- (d) The provision of fire apparatus stall be marked by approved sign.
- (e) For large Assembly Occupancy of I1, I3 and I5, width of the approach road shall not be less than 15 m.
- (f) The minimum width of the approach road for all plots other than residential and assembly occupancies mentioned in Sec 1.7(e) and Sec 1.7(g) shall be 10.8 m.
- (g) For area fully covered by private hydrant system with street side hydrant points and/or hydrants within the building equivalent to fire service and civil defense department's specification and the buildings have fire stairs as per provisions of this Code, the requirements of Sections 1.7(a), (b) and (c) may be exempted. This provision shall not be applicable for planning new developments. The minimum width of access roads for plot divisions in new developments shall follow guidelines of Table 1 of Appendix F.

1.7.1 Internal Access Road

Internal access road is legally restricted for thoroughfare to the citizens and/or reserved for a group of people of a plot or an area that shall have access provisions for the department of fire service and civil defense.

1.7.1.1 The width of access roads and drive ways in a plot or an area shall be decided by the number and height of the buildings served thereby.

Table 3.1.4: Maximum Permissible Length of Internal Access Roads in Non-Residential Plots

Width (m)	Maximum Permissible Length (m)
6	80
7	150
8	300
10.8 or more	Unlimited

1.7.2 Pedestrian Path or Walkway or Footpath

Any path including over bridge or bridge which is open to the outer air and may or may not be covered or roofed or an underpass design and designated for walkers only shall be designated as pedestrian path or walkway or footpath.

1.7.2.1 An uncovered paved pedestrian path that links buildings and the approach road shall not be included as a floor area of a building.

1.7.2.2 The walkways shall not be used for any other purpose than pedestrian movement and as accessibility route.

1.7.2.3 The minimum width of the pedestrian path shall not be less than the calculated width of connected corridor or passage or walking ramp of a building for entry or exit provided it is not enclosed by adjacent walls on both sides; for pedestrian paths enclosed by adjacent walls on both sides the minimum width shall be 1.25 m. For public buildings and places where high pedestrian movement is expected, Table F.3.1 of Appendix F may be followed.

1.7.2.4 Pedestrian walkways as accessibility route in public buildings shall comply with the provisions of this Code. Any changes in elevation in accessibility route shall comply with the provisions of Appendix D (Universal Accessibility).

1.8 OPEN SPACES WITHIN A PLOT

1.8.1 Minimum open space requirements for the sides, rear and frontages of a plot shall be as per the provisions of this Code or the authority having jurisdiction. In absence of such guideline, provisions of Sec 1.8.2 to Sec 1.8.11 shall decide the provisions of open space for any building or buildings within a site. All such open spaces shall ensure access of the users.

1.8.2 At least 50 percent of the minimum open space in a plot shall remain unpaved with or without vegetation to allow water penetration.

1.8.3 The total open area in a plot on which a building of educational, institutional, health care occupancy is constructed shall not be less than 50 percent of the plot area.

1.8.4 The total open area in a plot on which a building of any occupancy, except those mentioned in 1.8.3, is constructed shall not be less than 33 percent of the plot area.

1.8.5 For the purpose of Sec 1.8.2, Sec 1.8.3 and Sec 1.8.4, the total open area shall include all exterior open spaces and interior courtyards, but exclude the area of any lighting and ventilation shaft.

1.8.6 For approved row type or cluster type housing or site and service schemes, the requirement of Sec 1.8.3 shall be applicable.

1.8.7 Separation of Buildings in the Same Plot

1.8.7.1 More than one building in a plot shall comply with the requirements of means of access and setback distances in relation with the corresponding building height and the occupancy classification as per provisions of this Code and laws of the land.

1.8.7.2 To determine the separation distance between buildings of same height and same occupancy an equidistant imaginary line shall be drawn between the buildings where each building shall comply with requirement of setback and fire separation distance from that imaginary line.

1.8.7.3 Exception: Utilities under Occupancy L is incidental to operation in all type of occupancy except Occupancy J and shall not require the separation distance from the main occupancy. This exception shall not be applicable for Occupancy J.

1.8.7.4 When variation in either height or occupancy occurs, the imaginary line shall satisfy the setback distances for each individual building separately as shown in Figure 3.1.1.

1.8.7.5 Due to the common walls, row or semidetached houses shall be treated as one building. For semidetached houses separation distance in the detached sides shall comply with Sec 1.8.7.2 and Sec 1.8.7.3.

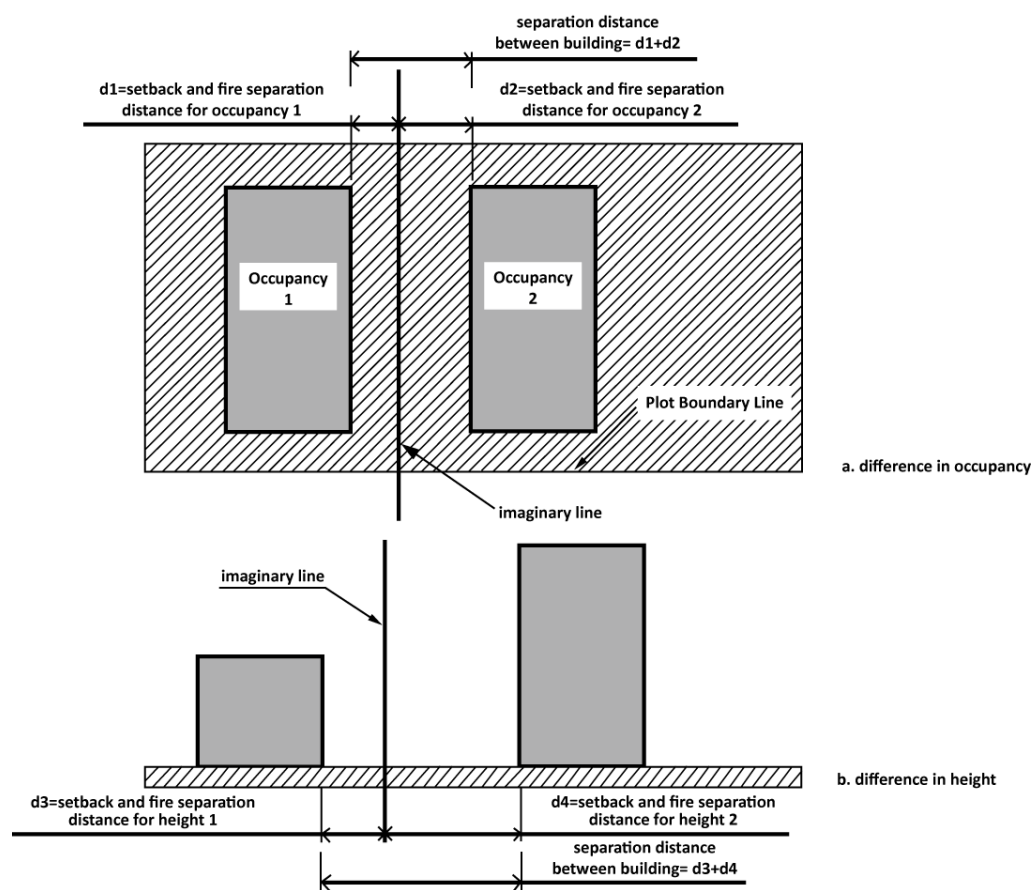


Figure 3.1.1 Separation distance for variation in occupancies and heights

1.8.8 Front Open Space for All Buildings

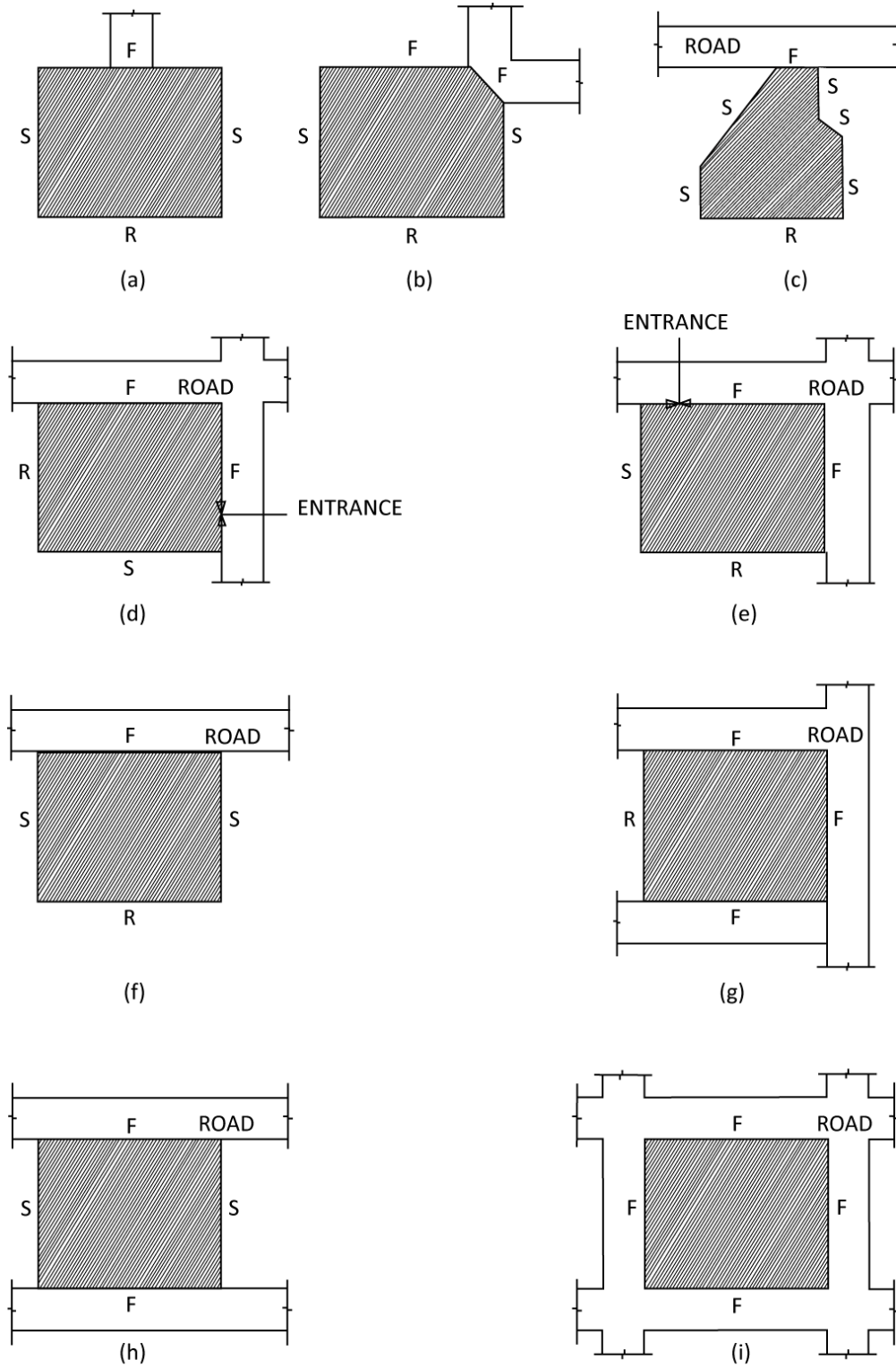
1.8.8.1 Irrespective of the height of building frontage open space shall be constructed at a distance of at least 4.5 m from the center of the street or at least 1.5 m from the street-front property line whichever is larger.

1.8.8.2 In a corner situation where two frontages of a plot intersects each other and form a sharp corner a turning clearance with a minimum radius of 2 m shall be required as per guidelines of Figure 3.1.3. No construction or visual obstruction shall be allowed within such turning clearance space.

1.8.9 Side and Rear Separation Distances

1.8.9.1 The minimum side and rear open space requirements of a plot for buildings of various occupancy classes shall be as specified in Table 3.1.5.

1.8.9.2 For approved row type residential, mercantile or office as may be permitted by the respective city or development authority and for approved affordable row type, cluster or site and service schemes, the requirement of side separation distance may be waived as per provisions of this Code.



LEGEND: F = FRONT S = SIDE R = REAR

Figure 3.1.2 Definition of front, side and rear of a plot

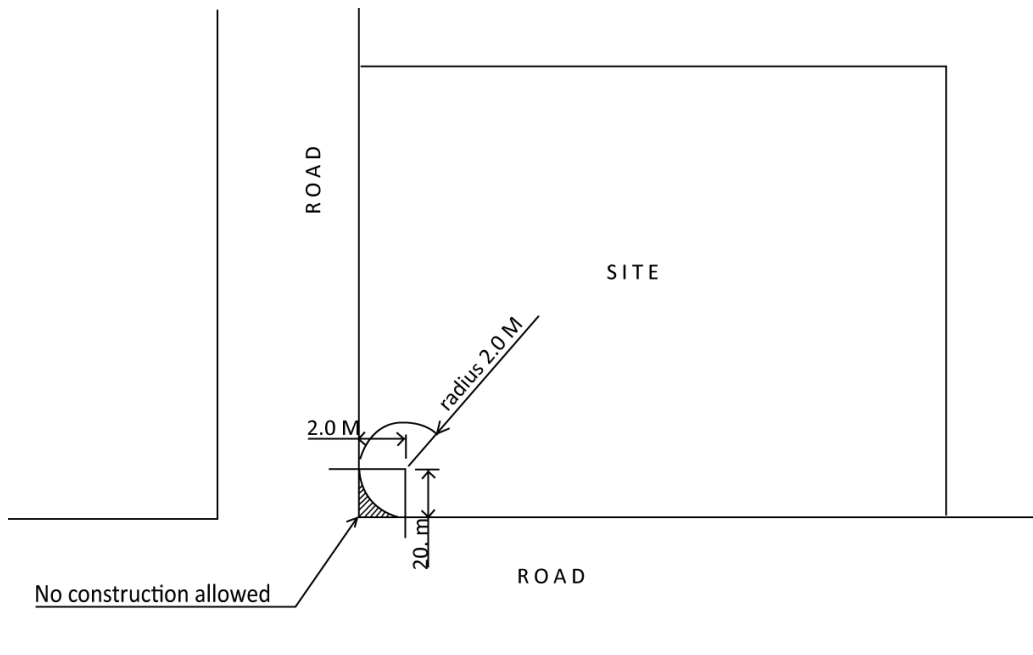


Figure 3.1.3 Restrictions for corner-plots

1.8.9.3 For semidetached buildings approved by the city or development authority, which are permitted to be constructed with one side on the property line or with pounding gap, the minimum requirements of open space, specified in Sections 1.8.9.1 and 1.8.9.2, for the side opposite to that property line shall be increased as per Table 3.1.5. The requirement of separation distance for the remaining sides shall remain unchanged.

Table 3.1.5: Minimum Rear and Side Open Space Requirements of a Plot

Occupancy	Plot Size* (m ²)	Rear Separation Distance (m)	Side Separation Distance ^a (m)
Residential (Row type, not higher than 15m or 4 stories)	Not over 67	1.25	Nil ^b
	Over 67 to below 134	1.5	Nil ^b
Residential (Semi-detached, not higher than 10 stories or 33 m)	134 to 268	2.5	PG ^c , 2.5
	Over 268	3.0	PG ^c , 2.5
Residential (Detached, Not higher than 10 stories or 33 m)	134 to 268	2.5	1.25
Residential (Detached, Not higher than 10 stories or 33 m)	Over 268	3.0	1.25
Residential (Detached, Higher than 10 stories or 33 m)	Over 268	3.0	3.0
Institution for care	As permitted for this occupancy	3.0	3.0
Educational,	As permitted for this occupancy	3.0	3.0
Assembly	Any	3.0	3.0
Business and Mercantile ^d (Not higher than 10 stories or 33 m) semi-detached	Any	1.5	PG ^c , 3.0
Business and Mercantile (Not higher than 10 stories or 33 m) Detached	Any	1.5	1.25, 2.5
Business and Mercantile ^d (Higher than 10 stories or 33 m) semi-detached	Over 536	3.0	PG ^c , 6.0
Business and Mercantile (Higher than 10 stories or 33 m) Detached	Over 536	3.0	3.0
Industrial	As permitted for this occupancy	As per provisions of this Code	As per provisions of this Code

Occupancy	Plot Size* (m ²)	Rear Separation Distance (m)	Side Separation Distance ^a (m)
Storage	As permitted for this occupancy	As per provisions of this Code	As per provisions of this Code
Hazardous	As permitted for this occupancy	As per provisions of this Code	As per provisions of this Code

Notes:

- ^a The two dimensions separated by comma stands for each of side separation distances of a semi-detached development.
- ^b No side separation distance is required between buildings up to 15 m or 4 stories even for independent plots.
- ^c PG stands for 'Pounding Gap', which is a calculated gap for safe distance to avoid pounding due to lateral loads as per provisions of Part 6 of this Code. This gap is not required if the adjoining plots are consolidated and built monolithically. Where pounding gap do not comply with the minimum separation distance, all walls within the separation distance shall be barrier walls.
- ^d Mercantile occupancies shared walls between adjacent plots shall only be allowed in accordance to the detail area plan (DAP) administered by the development authority.
- * For narrow plots (with site frontage below 12 m) of size 268 m² or above in unplanned areas, the local regulatory authority may allow semi-detached typology with a minimum side separation distance of 3m on the unattached side.

1.8.10 Courtyard and Interior Courtyard

An area having proper dimensions as per provision of this Code and open to the sky from the formation level and surrounded by a building or a group of buildings or walls or combination thereof shall be designated as Courtyard. The minimum size of such courtyard shall be derived from Table 3.1.6 depending on the height of the highest building or highest wall abutting the courtyard. The shorter side dimension of such courtyard shall not be less than one-third of the longer side dimension. All such courtyards shall remain open to sky over its entire cross section.

When the sum of exposure area of a courtyard to outer air through its adjacent walls exceed more than thirty percent area of its total peripheral enclosure it shall be designated as Open courtyard. All other courtyards shall be designated as Interior or Closed courtyard.

1.8.10.1 If any room depends entirely on an interior open space for its natural light and ventilation, such interior open space shall be in the form of an interior courtyard open to the sky over its entire cross-section. The interior courtyard shall have the minimum dimensions depending on the height of the building as specified in Table 3.1.6. The shorter side dimension of such interior courtyard shall not be less than one-third of the longer side dimension.

Table 3.1.6: Minimum Area of Interior Courtyard

No. of Stories	Maximum Height (m)	Minimum Net Area of the Interior Courtyard, m ²
Up to 3	11	9
4	14	16
5	17	25
6	20	36
7	23	49
8	26	64
9	29	81
10	32	100
11	36	121
12-13	42	144
14-15	48	196
16-17	54	256
18-20	63	361

Notes:

- For buildings above 20 storeys height, the size of the interior courtyard shall not be less than the square of one-third the height of the tallest wall abutting the courtyard.
- Enclosed open to sky spaces used to provide ventilation as inlet/outlet or daylight to adjacent interiors having dimensions less than that stipulated for internal courts of corresponding storey height given in this Table will be considered ventilation or lighting shafts and not interior courtyards and will follow minimum requirements stipulated in Table 3.1.11

1.8.10.2 The courtyard shall not be interrupted by any form of construction at the courtyard level, except landscaping, sculpture, walkways and water bodies.

1.8.10.3 If the courtyard is to serve as a component of the means of egress, it shall be accessible from all exit points at ground level.

1.8.11 Permitted Construction in the Mandatory Open Space

1.8.11.1 Landscaping, sculpture, walkways, water body shall be permitted in the open space. Any such construction shall comply with Sec 1.8.2 of this Chapter.

1.8.11.2 A maximum of 50 percent of the open space in a plot required by the provisions of Sec 1.8.8 and Sec 1.8.9 may be used for construction of garage, ramps, caretaker or guards' quarter and other services auxiliary to and required for the main occupancy of the building, provided that the requirement of community open space in Occupancy A3 is attained, and building is not higher than 10 storey or 33 m, and provided further that conditions (a) to (g) below are satisfied:

- (a) No such construction permitted in the open space shall be higher than 2.75 m from the formation level of the plot, except for the tops of inverted beams or intermittent parapets, which may rise up to 3.25 m.
- (b) No window, door or ventilator shall be placed on any wall adjacent to the abutting plot or street.
- (c) Entrance to the garage or sloping drive way shall not be directly from a public road or street. Distance between the plot line adjoining the road and the entrance to a garage or a sloping drive way shall be kept at least 1.5 m or 4.8 m respectively.
- (d) Drainage from the roof or any other part of such construction shall not be allowed to discharge into the adjacent property. Drainage from any part shall not discharge directly into the street through spouts.
- (e) No structure or room shall be constructed over the garage or any other permitted service structure within the limits of the mandatory open space.
- (f) The roof of any such construction permitted in the mandatory open space shall not be used as a balcony or a terrace or in any such manner that would interfere with the privacy of the occupants of the adjacent property.
- (g) No toilet, generator room or electrical substation shall be constructed adjoining the abutting property or street.

1.8.11.3 Edges of slope roof or cornice of the building may be projected into the mandatory open space for a maximum distance of 750 mm. Such extensions shall not be accessible from the building at any level. The construction of a roof or a cornice shall be as such that rain or other water shall not fall from there into the adjacent plot or street.

1.8.11.4 Sunshades over exterior doors or windows of the building may extend into the mandatory open space for a maximum distance of 750 mm, provided that such sunshades are at least 2.5 m above the formation level of the ground.

1.8.11.5 Cantilever canopy at a clear height of at least 2.5 m above the formation level may project into the mandatory open space provided that a horizontal clearance of at least 1.5 m is maintained between the edge of the canopy and the property line. The top surface of such canopy shall not be used as a balcony and shall not be accessible from the building.

1.8.11.6 Balconies at levels higher than 6 m may project in to the mandatory open space by not more than 0.9 m provided that a clearance complying the separation distances required in Sec. 1.8.8 and Sec. 1.8.9 are maintained between the edge of the balcony and the property line. Balcony shall be constructed as per provisions of this Code.

1.8.11.7 Water reservoirs, septic tanks, inspection pits, sewer and other underground or above ground service lines shall be permitted in the open space provided that no part of such construction is elevated more than 150 mm above the formation level and the 50 percent mandatory open space shall be unpaved green area.

1.9 GENERAL HEIGHT AND AREA LIMITATIONS

1.9.1 Authorities having jurisdiction shall permit the built area and building height for an area in accordance to the proposed density of the detail area plan (DAP). Where no such guideline is available, the height of the building shall be determined by the guidelines of Sections 1.9.2.1 to 1.9.2.9 and the built area will be a resultant of open space requirement and permitted height.

1.9.2 Height Limitations Based on Road Width

1.9.2.1 The maximum height of any building of Type I-A and Type I-B construction shall not exceed the nominal value of two times the sum of the width of the front road and the front open space (distance between the front property line and the building). For the purpose of fulfilling this requirement, the height limitations specified in Table 3.1.7 shall apply.

1.9.2.2 For plots having front road width not less than 23 m in an approved residential or business and/or mercantile area, there shall be no restriction on height for residential, business and mercantile buildings of Type I-A and I-B construction provided the minimum open space requirements specified in Table 3.1.8 are satisfied.

1.9.2.3 For Type I-C construction, the maximum permissible height of the building shall be 4 storeys or 14 m for values of two times the sum of the width of the front road and the front open space not less than 13.6 m.

Table 3.1.7: Height Limitations Based on Road Width, and Front Open Space

2 × (Front Road Width Plus Front Open Space)	Maximum Permissible Height in Terms of Construction Classification							
	Group- I*						Group II*	
	Type I-A and Type I-B		Type I-C		Type I-D		Type II-A, II-B, II-D	
	No. of storeys	Height (m)	No. of storeys	Height (m)	No. of storeys	Height (m)	No. of storeys	Height (m)
Below 10.6 m	3	11	2	8	2	8	2	8
10.6 m to below 13.6 m	4	14	3	11	2	8	2	8
13.6 m to below 16.6 m	5	17	4	14	3	11	3	11
16.6 m to below 19.6 m	6	20	4	14	3	11	3	11
19.6 m to below 22.6 m	7	23	4	14	3	11	3	11
22.6 m to below 25.6 m	8	26	4	14	3	11	3	11
25.6 m to below 28.6 m	9	29	4	14	3	11	3	11
28.6 m to below 31.6 m	10	32	4	14	3	11	3	11
31.6 m to below 34.6 m	11	36	4	14	3	11	3	11
34.6 m to below 37.6 m	12	39	4	14	3	11	3	11
37.6 m to below 40.6 m	13	42	4	14	3	11	3	11
40.6 m to below 43.6 m	14	45	4	14	3	11	3	11
43.6 m to below 46.6 m	15	48	4	14	3	11	3	11
and so on in increments of 3 m								

Notes:

1. For plots with front road width (Sec 1.9.2.5) not less than 23 m, residential and business and mercantile buildings of Type I-A and I-B construction shall have no height restriction subject to additional open space requirements (Sec 1.9.2.2).
2. The maximum permissible height for Type I-C construction is 4 storeys or 14 m (Sec 1.9.2.3)
3. The maximum permissible height for Type I-D and I-E of Group I construction and all types of Group II construction is 3 storeys or 11 m (Sec 1.9.2.4)

* For all Unprotected Construction Types I-E of Group I, Type II-C and Type II-E of Group II the maximum allowable storey and height shall be one storey and 8 m respectively.

1.9.2.4 For Type I-D and I-E of Group I construction and all types of Group II construction, the maximum permissible height of the building shall be 3 storeys or 11 m for values of two times the sum of the width of the front road and the front open space not less than 13.6 m.

1.9.2.5 For applying the provisions of Sections 1.9.2.1 to 1.9.2.4, the width of the front road for the layouts shown in Figures 3.1.2(b), (c), (d), (e) and (f) where the plot abuts more than one road, shall be taken as the average of the widths of the abutting roads.

1.9.2.6 For buildings more than six storeys or 20 m high, the following arrangements shall be provided:

- (a) Lifts of adequate size, capacity and number as per provisions of this Code.
- (b) Adequate fire protection and firefighting arrangements shall be as per provisions of this Code.
- (c) Adequate emergency fire escape stair depending upon the type of occupancy and occupancy load as per provisions of this Code.
- (d) For buildings with unlimited height (UL) provisions of Table 3.1.8 shall be mandatory.

Table 3.1.8: Minimum Separation Distance for Buildings of Unlimited Height

Occupancy	Minimum Separation Distance from Plot		
	Frontage	Rear	Side
	(m)	(m)	(m)
Residential	4.0	6.0	4.0
Business, Mercantile	6.0	6.0	6.0
Educational, Institutional for care, Medical facilities.	6.0	6.0	6.0
Others	As per provision of this Code		

1.9.2.7 For buildings in the vicinity of airports or aerodromes, the height shall be limited by the requirements of the civil aviation authority, city or area development authority or other concerned agencies of the Government.

1.9.2.8 Where more than one construction type is permitted within a building as per provision of this Code among them the lowest fire resistance rated construction type shall be applicable for FAR allotment, and lowest fire resistance rating shall be applicable for the whole structure.

1.9.2.9 For road width above 8.8 m, the building form shall be contained within the pyramid formed by the sky exposure planes on all four sides or as many sides it has, following the guidelines of Figure 3.1.4

1.9.3 Area Limitations based on FAR

1.9.3.1 Fire separation distance in terms of building setback and building occupancy type and construction type shall govern the FAR to restrict fire hazard volume. FAR shall be decided by the development authorities having jurisdiction.

1.9.3.2 For Occupancy in which unlimited FAR is permitted, the minimum open space requirements specified in Table 3.1 8 shall be applicable.

1.9.3.3 For the purpose of calculating FAR, the area of any floor including basement, of which at least two-third is used exclusively for car parking and the remaining one-third is used for purposes such as mechanical plant room, electrical substation, security cabin, reception booth, water tank, pump house, stairs, lifts and which are accessory to the main occupancy, shall be excluded from the calculation of the total floor area of the building.

1.9.3.4 For area with high public transport accessibility and high FAR the requirement for residential private parking should not be more than one car for every four dwellings or as per guidelines of the authority having jurisdiction.

1.9.3.5 In specifying FAR for a zone or an area, the city or area development authority shall follow the guidelines of Appendix-A (Development Control) and shall take into consideration the following:

- (a) Proximity to Public/Mass Transport network
- (b) Availability of Urban social infrastructure including urban open spaces
- (c) Environmental balance
- (d) Adequacy of present and proposed Utility services
- (e) Occupancy group and land-use permitted by master plan
- (f) Type of construction
- (g) Population density of the area
- (h) Width of approach roads
- (i) Traffic density in the approach roads
- (j) Local fire-fighting facilities
- (k) Parking facilities

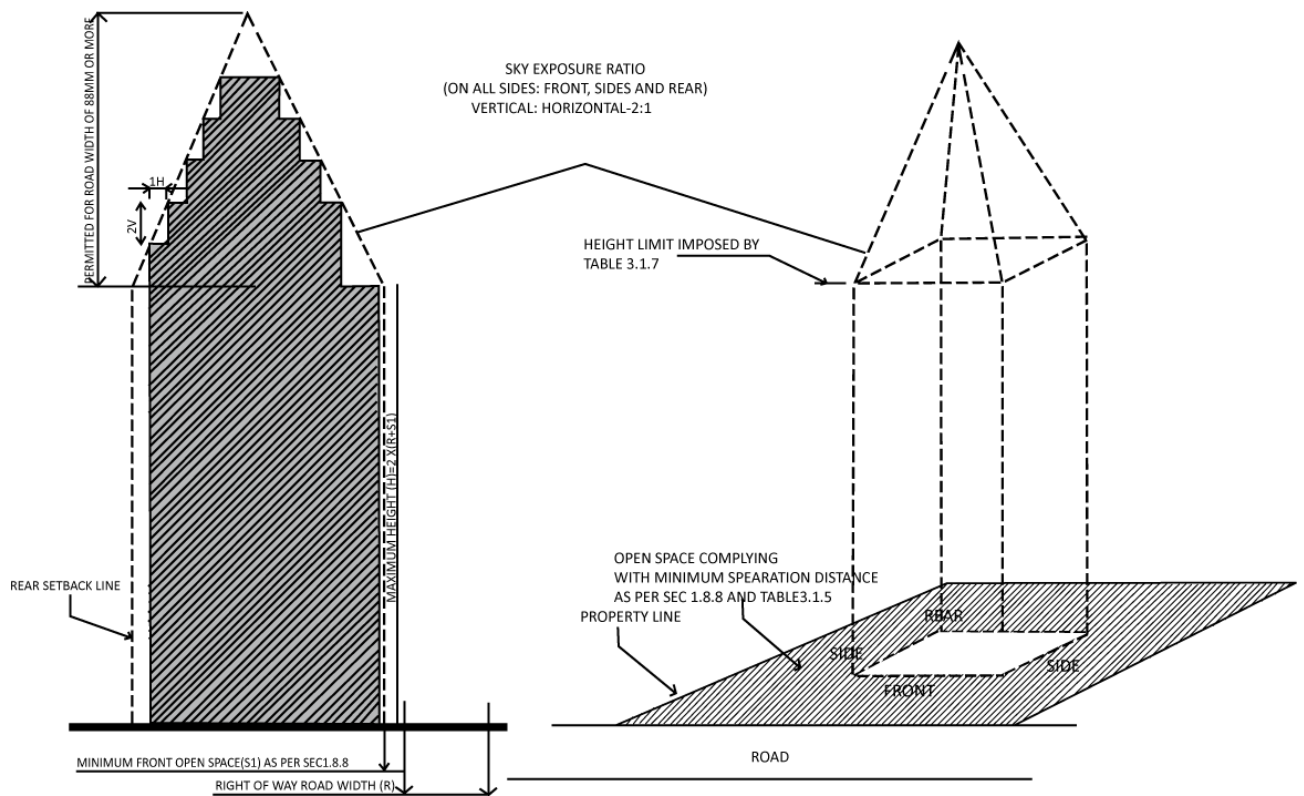


Figure 3.1.4 Limiting envelope for stepped tower structures

1.10 OFF STREET PARKING SPACES

1.10.1 Off street parking requirement for a building or an area shall be decided by the development authority having jurisdiction. A suggestive guideline for off-street parking given in appendix F might be followed.

1.10.2 Sloping drive way steeper than 1 vertical to 8 horizontal shall not be credited as a walking ramp. When a sloping surface used for both driveway and walking ramp shall be demarcated and the minimum width and sloping ratio of walkways shall be as per provisions of this Code. Sloping driveway entering below grade level shall be protected to prevent water flow into any level that they lead to.

1.11 STREET ENCROACHMENT

No part of any building shall project beyond the property line or building line established by the provisions of this Code into the street, except the following:

- (a) Below Grade: The footing of the boundary wall adjacent to the street may encroach on to the street land not more than 0.3 m and shall rest at least at a depth of 1.5 m below grade.
- (b) Above Grade: Marquee, canopy or other temporary cantilever type projection from buildings of business and mercantile occupancy may project on the footpath of a road, provided that no part of such projection is below a height of 3 m from the footpath level and that the outer edge of the canopy is at a minimum clear horizontal distance of 0.25 m from the road side edge of the footpath. The canopy shall be so constructed as to be readily removable without endangering the building structure. No canopy shall project into a street without a footpath. Such canopies shall not project over Mandatory Open Space (MOS). Under no circumstances shall the top of the canopy be used by any floor of the building.

1.12 COMMUNITY OPEN SPACE AND AMENITIES

Community open space for an area or a building shall be decided by the development authority having jurisdiction. Where no such guide line exists or yet to be developed, the guidelines of Sections A.4 and A.5 of Appendix A and Sec B.3.2 of Appendix B shall be applicable.

1.13 MINIMUM STANDARD OF A DWELLING

Minimum standard of a dwelling shall be decided by the development authority having jurisdiction.

1.14 REQUIREMENTS OF PARTS OF BUILDINGS

1.14.1 Plinth and Formation Levels

The plinth and formation levels of the building and the plot shall conform to the requirements of Sec 1.5.3.

1.14.2 Room Dimensions

1.14.2.1 Ceiling heights

- (a) All habitable rooms in non-air-conditioned residential, business and mercantile buildings, apart from kitchen, store room, utility room, box room and garage, shall have a ceiling height not less than 2.75 m measured from the finished surface of the floor to the underside of the finished ceiling, or false ceiling. A maximum of one-third of the floor area of such habitable rooms may, however, have a minimum ceiling height of 2.44 m. For air-conditioned rooms in such buildings, the minimum ceiling height shall be 2.44 m.

In the case of pitched roof without a horizontal ceiling the lowest point of the finished ceiling shall be at least 2 m above the finished surface of the floor and the average height of the ceiling shall not be less than 2.44 m.

- (b) The minimum clear head room under the ceiling, folded plate, shell etc. and under the false ceiling or duct in an air-conditioned room shall not be less than 2.44 m. The minimum clear distance between the floor below and the soffit of a beam shall not be less than 2.15 m.
- (c) The requirements of ceiling height for buildings of occupancy other than residential and business and mercantile shall be as follows:

Table 3.1.9: Minimum Ceiling Heights for Different Occupancies

Occupancy	Minimum Ceiling Height
Educational, Institutional, Health Care, Assembly.	3 m for non-air-conditioned and 2.6 m for air-conditioned buildings.
Industrial, Storage, Hazardous.	3.5 m for non-air-conditioned and 3.0 m for air-conditioned buildings.

1.14.2.2 Room sizes

All habitable rooms used for sleeping and other purposes of a dwelling unit shall not be less than 9.5 m² of net floor area with a minimum width of 2.9 m and shall comply with indoor air quality requirement as per provisions of this Code. Other non-habitable rooms in the dwelling unit shall have a minimum area of 5 m² with a minimum width of 2 m.

1.14.3 Kitchen

1.14.3.1 The minimum clear height of kitchen measured from the finished surface of the floor to the finished ceiling shall be 2.75 m, except for any floor trap of the upper floor which shall have a minimum clearance of 2.15 m above the finished floor. The minimum clear height of kitchen shall be 2.15 m where mechanical exhaust is installed.

1.14.3.2 The minimum floor area of kitchen without provision for dining shall be 4 m² with a minimum width of 1.5 m. The minimum floor area of a kitchen which is intended to provide dining or occasional sleeping space shall be 7.5 m² with a minimum width of 2.2 m.

1.14.3.3 Every kitchen shall be provided with a kitchen sink or other means for washing utensils. The waste water shall be discharged into the waste water pipe or drain as per provisions of Part 8.

1.14.3.4 The floor of the kitchen shall be slip-resistant and water tight.

1.14.3.5 Every kitchen shall be provided with window having a minimum area of 1 m² which shall open to the exterior or to an interior open space of adequate dimensions complying with Sec 1.19.

1.14.3.6 It is recommended that all kitchens should be designed as accessible kitchens for people with disability considering the door width, accessible route, turning clearance within the kitchen, counter heights, placement of fixtures, knee and toe clearances under counters and other relevant criteria in compliance to the guidelines of Appendix D.

1.14.4 Bathroom and Toilets

1.14.4.1 The height of any bathroom, toilet or water closet shall not be less than 2.15 m measured from the finished floor surface to the finished ceiling or false ceiling or to the lowest point of any trap of the upper floor's plumbing system.

1.14.4.2 The minimum requirement of floor area and width of a bathroom with 3 fixtures, 2 fixtures or single fixture shall conform to the space standards of Table 3.1.10.

1.14.4.3 Details for requirement of adaptable or accessible toilets shall follow the guidelines of Appendix D.

Table 3.1.10: Bathroom Space Standards

Facility	Minimum Width (m)	Floor Area (m ²)
Water closet + bathing + hand washing	1.25	3.00
Water closet + bathing	1.00	2.80
Bathing only	1.00	1.50
Water closet only	1.00	1.20
Adaptable toilets	1.50	as per Appendix D

1.14.4.4 No bathroom or toilet containing water closet shall open directly into any kitchen or cooking space by a door, window, ventilator, fanlight or any other opening. Every such bathroom or toilet shall have a door completely shutting it off from the exterior.

1.14.4.5 Every bathroom, toilet and water closet shall be located against an exterior wall or wall on the interior open space (see Sec 1.8.10), except where they are ventilated through an interior lighting and ventilation shaft. Such interior lighting and ventilation shafts shall have the minimum dimensions specified in Table 3.1.11 for different heights of buildings. In addition, shafts for buildings exceeding 6 storeys or a height of 20 m shall be mechanically ventilated. All shafts must be accessible at the ground floor level for cleaning and servicing purposes.

Table 3.1.10: Minimum Dimensions of Lighting and Ventilation Shaft

Building Height		Minimum Net Cross Sectional Area of Shaft (m ²)	Minimum Width of Shaft (m)
No. of Stories	Height (m)		
Up to 3	Up to 11	1.50	1.00
4	14	3.00	1.20
5	17	4.00	1.50
6	20	5.00	2.00
Over 6*	Over 20	6.50	2.50

* Mechanical ventilation of the shaft shall be provided for buildings over 6 stories high. Shaft dimensions shall conform to mechanical design considerations.

1.14.4.6 Floors of bathrooms, toilets or water closets shall be treated with water repellent material and shall be water tight. All bathroom walls or partitions shall be treated with non-absorbent water repellent smooth impervious finish material to a height of not less than 1 m above the finished floor level. The floor shall be sloped gently towards gratings or openings of the floor traps.

1.14.4.7 All public buildings shall have adaptable toilet as per requirement of the development authorities having jurisdiction. Each dwelling unit shall have at least one adaptable toilet. The details of such toilet shall comply with requirements of Appendix D (Universal Accessibility).

1.14.5 Stairways

1.14.5.1 Limiting Dimensions

The minimum width of the staircase for various occupancies shall be as specified in Table 4.3.6 of Part 4.

1.14.5.2 Sum of two risers and one tread excluding nosing dimension shall not be less than 610 mm and not more than 648 mm. All Risers and Treads shall be identical in consecutive two flights starting from one floor to another floor. Difference between two consecutive risers or treads shall not be more than 5 mm. The combination of riser and treads shall comply with Table 4.3.4 Chapter 3, Part 4.

1.14.5.3 The maximum flight height between landings shall not be more than 3660 mm. For Assembly occupancy maximum flight height between landings shall not be more than 2440 mm.

1.14.5.4 The minimum clear head room between flights of a staircase shall be 2.15 m. The clear head room may be reduced to 2.03 m for not more than three flights in any staircase.

1.14.5.5 The minimum clear height of any passage below a landing providing access to non-habitable and service spaces shall be 2.03 m. The minimum clear height of all other passages and spaces below a landing shall be 2.15 m.

1.14.5.6 Handrails shall have a minimum height of 0.9 m measured from the nose of stair to the top of the handrail.

1.14.6 Mezzanine Floor

1.14.6.1 Each mezzanine floor area in a space shall not exceed one-third of the main floor area. The area of the mezzanine shall be included in calculating the FAR.

1.14.6.2 The clear headroom both over and under the mezzanine floor shall be at least 2.2 m.

1.14.6.3 The lighting and ventilation of the space both over and under the mezzanine floor shall not be obstructed in any way.

1.14.7 Lofts

1.14.7.1 Space under slope roof termed lofts shall not be used as a habitable space where minimum ceiling height is less than the requirement but more than 1.5 m.

1.14.7.2 The minimum ceiling height requirements for various rooms specified under Sections 1.14.2.1, 1.14.2.2, 1.14.3 and 1.14.4 shall be maintained under the loft.

1.14.7.3 A maximum of 25% of the floor area of any room may be covered by a loft, except bathrooms, toilets, water closets, store rooms and corridors where the whole area may have an overhead loft.

1.14.7.4 The loft shall not interfere with the lighting and ventilation of any room.

1.14.8 Cabins or Chambers

1.14.8.1 Cabins or Chambers created by removable partitions on open floor shall have a minimum area of 3m².

1.14.8.2 Clear passages at least 0.75 m wide (or as stipulated in Part 4) shall be maintained between the cabins leading to a means of exit which shall in no case be further than 16 m from any cabin.

1.14.8.3 A clear gap of at least 300 mm shall be maintained between the top of the partition walls enclosing the cabin and the ceiling, unless the cabin is exposed to the exterior deriving natural light and ventilation or is artificially lighted and ventilated.

1.14.9 Store Room

A store room provided in a dwelling unit of a residential building shall have a minimum area of 1.5 m² with a minimum width of 1 m. The clear height of the store room shall not be less than 2.2 m.

1.14.10 Private Garage

Private garage in residential occupancy A1 and A2 building shall have a minimum clear height of 2.03 m. The minimum area of the parking stall in a garage shall be decided in accordance with the provision of Sec F.7.1 of Appendix F.

1.14.11 Basement

Any underground floor of a building wholly or partially below formation level shall be called a basement and shall satisfy the requirements of the following sections.

1.14.11.1 Subject to the provision of Sec 1.9.3.3, the area of the basement shall be included in the calculation of FAR.

1.14.11.2 The walls and floors of the basement shall be damp-proof and water-proof as per provision of this Code. The basement shall be protected against surface and sub-surface waste water intrusion.

1.14.11.3 The basement shall be lighted and ventilated as per provision of this Code.

1.14.11.4 The staircases of a building serving above grade level also entering into below street floor level shall be enclosed by barrier wall with two door smoke proof vestibule shall have minimum 2 hours fire resistance time.

1.14.11.5 Ramp provided as walkways shall not be steeper than 1 vertical in 8 horizontal.

1.14.11.6 The clear height of the basement below soffit of beams shall not be less than 2.03 m.

1.14.12 Entrance to the Building

All buildings shall have a covered entrance or other covered area for callers waiting at the door. The main entrance door to the building shall not open into an uncovered exterior. All public buildings shall have universal accessibility as per provisions of Appendix D of Part 3.

1.14.13 Roof Drainage

1.14.13.1 The roof of a building shall be constructed in such a manner that rain water is drained freely away from the building without causing dampness of the roof or the walls of the building or of an adjacent building.

1.14.13.2 Water from the roof shall not be discharged into the adjacent property or street.

1.14.13.3 For one or two storied buildings with flat or pitched roof, rain water may be discharged directly to the ground, in which case the roof shall have extended eaves or cornices to direct the water away from the walls.

1.14.13.4 For other buildings, gutters or parapets shall be provided to direct the water to the piping of an adequate rain water drainage system.

1.14.13.5 The roof shall be impermeable or shall be treated with an impervious material to make it effectively water tight. Flat concrete roofs shall be topped with an impervious layer of lime concrete or other effective means of waterproofing. All flat roofs shall be sloped gently towards gutters, gratings or mouths of the rain water drainage pipes.

1.14.13.6 For sustainable development, building may have rain water harvesting system as stipulated in Part 8, Chapter 7.

1.14.14 Parapet

All accessible flat roofs shall be enclosed by parapets or guardrails having a height of at least 1 m. All such parapets and guardrails shall be designed to withstand the lateral forces due to wind and occupancy in conformity with the provisions of Part 6 of this Code.

1.14.15 Septic Tank

A septic tank shall be provided within the premises for disposal of sewage, whether any public sewer is available or not. The location, design and construction of the septic tank shall conform to the requirements of this Code.

1.15 LANDSCAPING

1.15.1 Plantation of trees and shrubs within the open spaces of a plot aimed at enhancing the environmental quality of the building shall comply with the requirements of this Section.

1.15.2 Trees and shrubs shall be planted judiciously to meet the requirements of shade and sunshine, to control noise and dust, to provide privacy and to improve visual quality, without jeopardizing natural ventilation and lighting of a building.

1.15.3 Species of trees shall be so chosen and planted that their roots do not endanger the building foundation and their branches do not interfere with the building superstructure. This shall be achieved by maintaining sufficient distance between the trees and the building depending on the species of the tree.

1.16 DAMP-PROOFING AND WATERPROOFING OF FLOORS AND WALLS

Foundation, floor slabs, walls and roof of a building shall be damp proof, water proof and weather proof in accordance with the provisions of Part 6 of this Code.

1.17 EXISTING BUILDINGS

1.17.1 Existing buildings and structures in their present occupancy condition shall not be required to be in full compliance with all the requirements of this Part of this Code. Additions or alterations to such existing buildings or change of use thereof shall not be permitted if such addition, alteration or change of use or occupancy is likely to render the building more hazardous with respect to fire safety, life safety and sanitation than it was before.

1.17.2 Any horizontal or vertical extension of an existing building or any change of use thereof shall subject the altered building or occupancy to the provisions of this Code for a new building. The building together with the additions and changes shall not exceed the height, area and open space requirements for new buildings specified in this Code.

1.17.3 All buildings and structures, both new and existing shall be maintained in a safe and sanitary condition as provided for in this Code. To determine compliance with this requirement, the Authority may cause the building or structure to be periodically inspected.

1.17.4 Any proposed change in an existing building or structure shall have to satisfy the requirements set forth in Part 6 of this Code.

1.18 BUILDINGS AND AREAS OF HISTORICAL OR ARCHITECTURAL VALUE

1.18.1 Buildings and areas of Historical value are part of our heritage and cultural inheritance and should therefore be protected. Similarly buildings and works under the jurisdiction of and identified by the Authority as having architectural value shall also be protected. The identification, listing and classification of all such buildings and places of historic or architectural values shall follow the guidelines of Chapter 3 of Part 9, Section 1.5 of Part 1 and Section 3.14 of Part 2.

1.18.2 Repairs, alterations and additions necessary for the preservation, restoration, rehabilitation, continued use or adaptive reuse of such historic buildings and structures, and of buildings and works of architectural value may be exempted by the Authority from having to be in full compliance with all the requirements of this Code, provided that the restored building or structure will be no more hazardous, if any, than the existing conditions in terms of life safety, fire protection and sanitation. All such buildings and places shall comply with the provisions for conservation of heritage buildings or area of Part 9.

1.19 VENTILATION, LIGHTING AND SANITATION

1.19.1 All rooms and interior spaces designated for human occupancy shall be provided with means of natural or artificial lighting and natural or mechanical ventilation as per provisions of this Code. At least one side of all habitable rooms shall be exposed to an exterior or an interior open space or to a balcony or verandah exposed to an open space.

1.19.2 All buildings shall have water and sanitation facilities as per provisions of this Code.

1.19.3 Every kitchen shall have facility for washing of utensils.

1.19.4 Every building or independent unit thereof shall be provided with at least one water closet.

1.19.5 All naturally ventilated and illuminated interior spaces, staircases and other areas of human occupancy in a building shall have windows or ventilators opening directly to the exterior or an interior open space or to a verandah. Ventilation of bathrooms may also be achieved through ventilation shafts as provided for in Sec 1.14.4.5.

1.19.6 All habitable and non-habitable spaces within a building shall have the following minimum aggregate area of openings in the exterior wall, excluding doors, expressed as percentage of the net floor area:

Table 3.1.12: Dimension of Openings for Different Uses

Space	Percent of Net Floor Area
Habitable rooms such as those used for sleeping, living, study, dining etc.	15
Kitchens*	18
Non-habitable spaces such as bathrooms, store, staircase and other utility	10

* Minimum height from of the window sill of a kitchen shall be 450mm above cooking range. Air flow on cooking range shall be restricted.

1.19.6.1 An enclosed staircase shall have windows not less than 1 m² in area on exterior walls of every landings as per provisions of this Code.

1.19.6.2 Toilet and bathroom windows shall open to the exterior or an approved ventilation shaft and the operable area shall not be less than 1 m².

1.19.7 The required minimum average intensity of illumination in a habitable space at a height of 750 mm above the floor level shall be 65 lux. Any point in a room more than 7 m away from an exterior window shall be considered to be not illuminated by daylight unless measurement of illumination gives an intensity of 65 lux or more.

1.19.7.1 The required intensity of illumination for various tasks in a building shall be as specified in Chapter 1 of Part 8.

1.19.7.2 Whenever the illumination achieved by daylight is not sufficient or occupancy at night is necessary, artificial lighting shall be installed to supplement daylight, or to provide the required night lighting, in accordance with the provisions of Chapter 1 of Part 8.

1.19.8 Protected openings, when and where are installed shall not be normally operable form the inside of a building. Such openings however, shall not be credited towards meeting any ventilation requirements.

1.19.9 The requirements of opening areas specified in Sec 1.19.6 shall suffice for ventilation provided that the windows or ventilators forming the opening are operable. When part of a window area is made of fixed glazing, only the operable portion shall be counted in aggregating the opening area.

1.19.9.1 To achieve the desired indoor air quality by natural means, an interior space shall preferably have minimum two openings on two different walls where the opening acting as inlet must be an exterior wall and the summation of the net opening area on walls shall not be less than 5% of the net floor area thereof.

1.19.9.2 Mechanical ventilation, when provided, shall conform to the requirements of Chapter 3 of Part 8.

1.20 AIR-CONDITIONING AND HEATING

When air-conditioning and heating system are installed, an indoor air quality shall be maintained as per provisions of Chapter 3 Part 8.

1.21 PROVISION OF LIFTS AND ESCALATORS

Wherever required by this Code or desired by the owner for comfort, lifts and escalator facilities shall be planned, designed and installed in accordance with the provisions of Part 4 and Part 8 of this Code. The minimum size of a lift lobby shall be 1.5 m x 1.5 m. For accessible lift guidelines of Appendix D shall be applicable.

1.22 SOUND INSULATION

Acoustical design of a building to attain the desired noise levels shall be performed in accordance with the provisions of Chapter 4 Part 8.

1.23 THERMAL INSULATION

Thermal comfort in a building shall be achieved through adequate ventilation and thermal insulation of walls and roof.

1.24 LIGHTNING PROTECTION OF BUILDINGS

Lightning protection measures shall be installed on all buildings whose exposure conditions indicate the likelihood of lightning strike and consequential hazard to life and property. The requirement of lightning protection systems shall be assessed and they shall be designed and installed in accordance with the provisions of Chapter 2 Part 8.

1.25 RAT PROOFING AND TERMITE PROOFING OF BUILDINGS

Rat proofing and termite proofing measures shall be undertaken on the basis of the degree of protection desired from rats and termites. Any chemical used for the control of rats and termite shall be free from environmental hazards. Periodic inspections shall be undertaken for effective protection against rats and termites.

1.26 REQUIREMENTS FOR BUILDINGS IN FLOOD PRONE AND COASTAL REGIONS OF BANGLADESH

The specifications of this Section shall be applicable to all buildings located in the flood or surge prone areas in addition to other requirements of this Code.

- (a) The planning and development control authority of the city, township, municipality or region where this Code is intended to be applied shall delineate any area having a potential for being flooded under at least 1 m deep water due to flooding as Flood Prone Area (FPA). The provisions of Sec 1.26.1 shall be applicable to areas designated as FPA. There shall be a design flood level in the FPAs which shall be recommended by the Authority to be used in interpreting the provisions of this Section.
- (b) Similar delineation shall be made in the coastal regions on the basis of expected occurrence of a surge or wave run-up of 1 m or higher. Such areas shall be designated as Surge Prone Area (SPA). The provisions of Sec 1.26.2 shall be applicable to buildings located in the SPAs. There shall be a design surge height in the SPAs which shall be recommended by the Authority to be used in interpreting the provisions of this Section.

1.26.1 Flood Prone Areas

1.26.1.1 Elevation

The habitable floors of a building located in the flood prone area shall be elevated above the design flood level. Buildings up to two storeys high shall have accessible roof with an exterior stair. Buildings having three storeys or more height, the floor immediately above the design flood level shall be accessible with an exterior stair.

Exceptions:

- (a) Except for Occupancy A (Residential), any occupancy may have floors below the design flood level in accordance with the provisions of Sec 1.26.1.3.
- (b) Floors which are used only for building access, exits, foyers, storages or parking garages may be located below the design flood level in accordance with the provisions of Sec 1.26.1.2.

1.26.1.2 Enclosures below design flood level

There shall be no enclosed space below the design flood level except for building access, exits, foyers, storage, and parking garages. There shall be vents, valves or other openings in the walls of the enclosed spaces which shall equalize the lateral pressure of the water. The bottom of such openings shall not be higher than 300 mm above the finished grade. There shall be at least two openings for each enclosure in a building. The total net area of openings for an enclosure shall be at least 0.4 m², or 7 percent of the floor area of the enclosure, whichever is greater.

1.26.1.3 Flood-resistant Construction

Floors constructed below the design flood level under the provisions of Exceptions in Sec 1.26.1.1 shall comply with the following requirements:

- (a) Floors and exterior walls of such floors shall have a construction impermeable to the passage of water.
- (b) Structural components of such floors shall be capable of resisting the hydraulic and buoyant forces resulting from the occurrence of floods at the design flood level. Design requirements in such cases are specified in Chapter 1, Part 6.
- (c) Vents, openings and valves provided below the design level shall have water-tight closures capable of resisting any structural forces resulting from the occurrence of the design flood.
- (d) Penetrations made for electrical, mechanical or plumbing installations shall be made water-tight to prevent any penetration of flood water. Sewerage systems having opening below the design flood level shall have a closure device to prevent backwater flow during the occurrence of floods.

1.26.2 Surge Prone Areas

1.26.2.1 Elevation

The habitable floor of any building in a surge prone area shall not be located below the design surge height. For buildings of height two storeys or less the roof shall be accessible with an exterior stair. For buildings three storeys or higher, the floor immediately above the design surge level shall be accessible with an exterior stair.

Exception:

Footing, mat or raft foundations, piles, pile caps, columns, grade beams and bracings may be constructed below the design surge height.

1.26.2.2 Enclosures below Design Surge Height:

Spaces of a building in the SPAs below the design surge height shall not obstruct any flow of water during the occurrence of surge.

Exception:

Structural or non-structural members serving as entries or exits may be constructed below design surge height.

1.26.2.3 Foundations

Foundations of the buildings erected in the SPA's shall be located well below the ground level so that they are protected from erosion or scour during the occurrence of surge. If piled foundations are used, they shall be

designed to withstand with adequate factor of safety the loss of support due to scour. Design of the foundations shall conform to the requirements of Chapter 3 Part 6.

1.27 REQUIREMENTS FOR BUILDINGS IN OTHER DISASTER PRONE AREAS

In hilly region, authority shall ask for a special site drainage plan conforming to the area drainage network before approval of any building work. This shall apply for all buildings to be constructed in hilly areas where there is the danger of failure of slopes, including mudslides, flash floods and soil erosion. Such failures may occur in hilly areas, where the angle of slope is greater than 30°. Prevention of failure of slopes shall be achieved by the following measures:

- (a) Retaining walls to prevent soil erosion as per provisions of Part 6 of this Code.
- (b) Weep holes to allow water pressure balancing from the water logged soil on the retaining wall.
- (c) Adequate site drainage respecting the natural topography of the site and surrounds.
- (d) Use of vegetation to retain the top soil and bonding quality of the soil.
- (e) Protection of soil by catchment pools to prevent soil erosion due to discharge from elevated level onto the ground.

1.28 SPECIAL PROVISION FOR STORAGE OF DANGEROUS GOODS AND THEIR CLASSIFICATION

1.28.1 Any substance including mixtures and solutions shall be assigned to one of the following Classes for any Occupancy if it crosses the limits of exempted quantities as per Table 3.2.5 of Part 3, Section 2. Some of these classes are subdivided into divisions also. The numerical order of the classes or divisions is not the representative of the degree of danger. These classes including their divisions are listed below:

Class 1: Explosives

- Division 1.1: Substances and articles which have a mass explosion hazard.
- Division 1.2: Substances and articles which have a projection hazard but not a mass explosion hazard.
- Division 1.3: Substances and articles which have a fire hazard and either a minor blast hazards or a minor projection hazards, but not a mass explosion hazard.
- Division 1.4: Substances and articles which present no significant hazard.
- Division 1.5: Very insensitive substances which have a mass explosion hazard.
- Division 1.6: Very insensitive substances which do not have a mass explosion hazard.

Class 2: Gases

- Division 2.1: Flammable gases
- Division 2.2: Non-flammable, non-toxic gases
- Division 2.3: Toxic gases

Class 3: Flammable Liquids

Class 4: Flammable Solids; Substances Liable to Spontaneous Combustion; Substances which, in contact with Water, Emit Flammable Gases:

- Division 4.1: Flammable solids, self-reactive substances and solid

Division 4.2: Substances liable to spontaneous combustion

Division 4.3: Substances which, in contact with water, emit flammable gases

Class 5: Oxidizing Substances and Organic Peroxides

Division 5.1 Oxidizing substances

Division 5.2 Organic peroxides

Class 6: Toxic and Infectious Substances

Division 6.1: Toxic substances

Division 6.2: Infectious substances

Class 7: Radioactive Material

Class 8: Corrosive Substances

Class 9: Miscellaneous Dangerous Substances and Articles

The quantity and procedure for storage, merchandising, handling, processing, packaging, transportation, shipment and uses of all dangerous goods of above classification shall be regulated as per guidelines of Explosive Act and other relevant Acts and as per rules of Bangladesh Shipping Corporation for safe handling of container for dangerous goods. The signs and symbols for all such goods shall comply with the requirements of Bangladesh Shipping Corporation’s guidelines.

1.28.2 HS Code, Proper Shipping Names and UN Numbers

First Schedule of Bangladesh customs tariff that is Harmonized System code shall be used for the description of any substances and its corresponding UN number shall be used for proper shipping name and for the classifications of dangerous goods. The storage and use of all such substances and goods shall be controlled as per provision of this Code and explosive control act.

1.29 LIST OF RELATED APPENDICES

- Appendix A Development Control and Planning
- Appendix B Minimum Standard Housing
- Appendix C Cluster Planning
- Appendix D Universal Accessibility
- Appendix E Building Types
- Appendix F Road Hierarchy, On-street and Off-street Parking

CLASSIFICATION OF BUILDINGS BASED ON OCCUPANCY

2.1 OCCUPANCY CLASSIFICATION

2.1.1 Every building or portion thereof and land-use shall be classified according to its use or the character of its occupancy as a building of Occupancy A, B, C, D, E, F, G, H, I, J, K, L or M as defined below:

Occupancy A:	Residential
Occupancy B:	Educational
Occupancy C:	Institution for care
Occupancy D:	Health Care
Occupancy E:	Business
Occupancy F:	Mercantile
Occupancy G:	Industrial
Occupancy H:	Storage
Occupancy I:	Assembly
Occupancy J:	Hazardous
Occupancy K:	Garages
Occupancy L:	Utilities
Occupancy M:	Miscellaneous

2.1.2 Utilities under Occupancy L is incidental to operation in all other type of occupancy except Occupancy J shall be considered as non-separated use of the main occupancy but shall be taken special safety measure as per provision of this Code.

2.1.3 Any occupancy or use type not mentioned specifically in Table 3.2.6 (A-Z list) or elsewhere in this Code shall be classified by the Board of Appeals under the occupancy group to which its use most closely resembles, considering the life safety and fire hazard.

2.1.4 Each occupancy group shall be subdivided as detailed in the following sections. The detail classification including mixed occupancy provided in the Table 3.2.6 (A-Z list) is non-exhaustive. If there is any use or character of occupancy in a building which is not mentioned here, it shall be classified as per provision of Sec 2.1.3 of this Chapter.

2.1.5 Occupancy A: Residential Buildings

This occupancy type shall include any building or portion thereof providing sleeping and living accommodations to related or unrelated groups of people, with or without independent bathroom, cooking or dining facilities, except any building classified under Occupancy C or D. This Occupancy shall be subdivided as follows:

2.1.5.1 Single Family Dwelling (A1)

These shall include any building, row type or semi-detached or detached from neighboring buildings by distances required by this Code and having independent access to the plot, which is used as private dwelling by members of a single family.

2.1.5.2 Two Family Dwelling (A2)

These shall include any building, row type or semi-detached or detached from neighboring buildings by distances required by this Code and having shared or independent access for two families and having facilities for living, cooking and bathroom facilities independent of each other.

2.1.5.3 Flats or Apartments (A3)

These shall include any building or portion thereof which is provided for more than two families, having facilities for living, cooking and bathroom facilities independent of each other.

2.1.5.4 Mess, Boarding Houses, Dormitories and Hostels (A4)

These shall include any building or portion thereof in which sleeping, living accommodations and bathroom are provided for groups of related or unrelated persons, with or without common dining and facilities, and with common cooking under single management control or with individual or group cooking facilities.

2.1.5.5 Hotels and Lodging Houses (A5)

These shall include any building, a portion thereof or group of buildings under single management, in which sleeping, living accommodation and bathroom facilities are provided with or without dining facilities but without cooking facilities for adult individuals, is provided for hire on transient or permanent basis.

2.1.6 Occupancy B: Educational Facilities

This occupancy type shall include any building or portion thereof in which education, training and care are provided to children or adults. This Occupancy shall be subdivided as follows:

2.1.6.1 Educational Facilities up to Higher Secondary Level (B1)

These shall include any building or portion thereof used for purposes involving assembly for instruction, education and recreation of more than six persons on regular basis to fulfill the requirement of an academic curriculum approved by the Government up to Higher Secondary (12th Grade), and which is not covered by occupancy I.

2.1.6.2 Facilities for Training and for Above-Secondary Level (B2)

These shall include any building or portion thereof used for purposes involving assembly for instruction, education, training and recreation of more than six persons, and which is not covered by occupancy I and B1.

2.1.6.3 Pre-School Facilities (B3)

These shall include any building or portion thereof used for purposes involving care, recreation and education of children more than six in number, who have not yet reached the age to attend the school.

2.1.7 Occupancy C: Institution for Care

Buildings classified under this occupancy shall include those used for purposes of institutional care of the occupants, such as detention for correctional or penal purposes, medical or nursing care of persons suffering from illness or infirmity due to mental condition, or accommodation of children or minor, where the personal liberty of the inmate is restricted. These buildings shall ordinarily provide accommodation for sleeping, dining and other provisions approved by the authority for the occupants. This occupancy shall be subdivided as follows:

2.1.7.1 Institution for Care of Children (C1)

These shall include any building or portion thereof or group of buildings under single management used as an institution for the full time care of children or minor, each providing accommodation for sleeping, dining and other provisions approved by the authority for more than six children.

2.1.7.2 Custodial Institution for Physically Capable Adults (C2)

These shall include any building or portion thereof or group of buildings under single management used for purposes of full time care and custody of adult or mentally disabled persons but physically capable of responding to emergency.

2.1.7.3 Custodial Institution for the Incapable Adults (C3)

These shall include any building or portion thereof or group of buildings under single management used for purposes of full time care and custody of persons physically or mentally incapable of responding to emergency.

2.1.7.4 Penal and Mental Institution for Children (C4)

These shall include any building or portion thereof or group of buildings under single management used for housing children under restraint, or who are detained for penal and corrective purposes, in which personal liberty of the inmates is restricted.

2.1.7.5 Penal and Mental Institution for Adults (C5)

These shall include any building or portion thereof or group of buildings under single management used for housing persons under restraint, or who are detained for penal and corrective purposes, in which personal liberty of the inmates is restricted.

2.1.8 Occupancy D: Health Care Facilities

Buildings under this Occupancy group shall include those used for purposes of providing medical care, diagnostic facilities and treatment to persons suffering from physical discomfort, in which sleeping accommodation may or may not be provided. This Occupancy shall be subdivided as follows:

2.1.8.1 Normal Medical Facilities (D1)

These shall include any building or portion thereof or group of buildings under single management in which essential medical facilities having surgery, emergency and casualty treatment facilities, general or specialized medical and other treatment is provided to persons suffering from physical discomfort.

2.1.8.2 Emergency Medical Facilities (D2)

These shall include any building or portion thereof used for purposes of providing essential medical facilities having surgery, emergency, casualty treatment facilities, general or specialized medical and other treatment is provided to persons suffering from physical discomfort. This Type shall be equipped and designated to handle post disaster emergency, by construction it is required to remain operational during and after disasters, built as a part of disaster preparedness program.

2.1.9 Occupancy E: Business

These shall include any building or portion thereof which is used for any business transaction other than mercantile. This Occupancy shall be subdivided as follows:

2.1.9.1 Office (E1)

These shall include any building or part thereof which is used for paper works, documentations, only display of samples of Products but not for direct sale, maintaining accounts and records for administrative or consulting services, banking or activities for business purposes and professional training.

2.1.9.2 Research and Testing Laboratories (E2)

These shall include any building or portion thereof which is used as research establishment and/or test laboratory involving hazardous materials within the limit of exempted quantity permitted in this Code.

2.1.9.3 Essential Services (E3)

These shall include any building or portion thereof used for purposes of providing emergency services and utilities which are required to remain operational during and after a disaster or other emergency situations.

2.1.10 Occupancy F: Mercantile

This occupancy type shall include any building or portion thereof or group of buildings which is used for display and sale of merchandises. This Occupancy shall be subdivided as follows:

2.1.10.1 Small Shops and Market (F1)

These shall include any building or portion thereof with an area divided or undivided not exceeding 300 m², used for purposes of display and sale of merchandise, either wholesale or retail, with or without incidental storage and service facilities.

2.1.10.2 Large Shops and Market (F2)

These shall include any building or portion thereof with an area divided or undivided more than 300 m² used for purposes of display and sale of merchandise, either wholesale or retail, with or without incidental storage and service facilities.

2.1.10.3 Refueling Station (F3)

These shall include any building or portion thereof used for providing refueling and maintenance without repair services for automobiles which is moderately hazardous in nature.

2.1.11 Occupancy G: Industrial Buildings

Buildings under this Occupancy shall be subdivided on the basis of hazard potential of the contents and the processes of the industry. The hazard shall generally mean the relative danger of the start of fire and the rapidity of its spread, the danger of smoke and gases generated that pose a potential threat to the safety of the occupants of the building. Unless areas with different degrees of hazard are effectively segregated and separated in accordance with the provisions of this Code, the most hazardous area in a building shall govern its classification. This occupancy shall also include facilities for public utility services at the producer or distributor's end that deals with generation and distribution of utility facilities. Any such building or portion thereof, which is not using hazardous material quantified and categorized in occupancy group J, shall be subdivided as follows:

2.1.11.1 Low Hazard Industry (G1)

These shall include any industrial building in which the contents are of such low combustibility and the processes conducted therein are of such low hazardous nature that danger of self-ignition and self-propagation of fire is nonexistent, the only danger being an onset of fire from external sources with the resulting danger to life and property.

2.1.11.2 Moderate Hazard Industry (G2)

These shall include any industrial building in which the contents are moderately combustible and the industrial processes conducted therein are liable to give rise to a fire which will spread with moderate rapidity, giving off considerable smoke.

2.1.12 Occupancy H: Storage Buildings

Buildings under this Occupancy group shall include any building or portion thereof used primarily for storage or sheltering of goods, wares, merchandises, vehicles or animals. Any such building or portion thereof, which is not used for storing hazardous material quantified and categorized in occupancy group J, shall be subdivided as follows:

2.1.12.1 Low Fire-risk Storage (H1)

These shall include any building or portion thereof which is used for storage of materials or other contents which do not constitute the danger of self-ignition, and in the event of fire the rate of burning shall be less than moderate rapidity.

2.1.12.2 Moderate Fire-risk Storage (H2)

These shall include any building or portion thereof which is used for storage of materials which do not constitute the danger of self-ignition but which in the event of fire will burn with moderate rapidity.

Items which shall be deemed to render a building hazardous are specified in Sec 2.14.3 along with the exempted amount for each item.

2.1.13 Occupancy I: Assembly

Buildings under this Occupancy group shall include any building or portion thereof in which groups of people congregate or assemble for recreation, amusement, social, religious, political, cultural, travel and similar purposes. This Occupancy shall be subdivided as follows:

2.1.13.1 Large Assembly with Fixed Seats (I1)

This occupancy shall include a building or a portion thereof for assembly in a space provided with fixed seats for 1000 or more persons. Assembly buildings under this subdivision may be for theatrical, operatic performances or cinema projection having or not a raised stage, proscenium curtains, scenery loft or projection screen, lighting equipment, projection booth and necessary theatrical and mechanical equipment.

2.1.13.2 Small Assembly with Fixed Seats (I2)

This occupancy type shall include any building or portion thereof primarily meant for use as described for buildings under Occupancy I1, but with fixed seats for less than 1000 persons in a space. These assembly buildings may or may not be provided with a legitimate theatrical stage or related accessories or equipment.

2.1.13.3 Large Assembly without Fixed Seats (I3)

This occupancy type shall include any building or portion thereof for assembly in a space, in which there are no fixed seats, which may or may not be provided with a legitimate stage or theatrical accessories, and which has accommodation for 300 or more persons.

2.1.13.4 Small Assembly without Fixed Seats (I4)

This occupancy type shall include any building or portion thereof primarily intended for use as described in Occupancy I3, but with accommodation for less than 300 persons in a space.

2.1.13.5 Sports Facilities (I5)

This occupancy type shall include any building or portion thereof meant for assembly of spectators for recreational and amusement purpose mainly related to sports.

2.1.14 Occupancy J: Hazardous Buildings

Any Building or portion thereof used as storage, industrial, research and other facilities dealing with hazardous material in excess of exempted quantity defined in the Table 3.2.5 or any micro-biological facilities shall be categorized in this Occupancy group.

Definition of hazard and the amount of such materials which shall be deemed to render a building hazardous are set forth in Sec 2.14.3. This Occupancy shall be subdivided as follows:

2.1.14.1 Explosion Hazard Buildings (J1)

These shall include any building or portion thereof which is used for storage, handling, processing or manufacture of explosive materials and products that have explosion hazard.

2.1.14.2 Chemical Hazard Buildings (J2)

These shall include any building or portion thereof which is used for storage, handling, processing or manufacture of materials and products that are highly corrosive, toxic, poisonous and physically harmful including corrosive and toxic alkalis, acid or other liquids or chemicals, producing flame, fumes, radiation, and explosive, poisonous, irritant and corrosive gases.

2.1.14.3 Biological Hazard Buildings (J3)

These shall include any building or portion thereof which is used for storage, handling, processing or manufacture of materials and products that use biological processes and in which the risk of harmful biological threat to the occupants exist.

2.1.14.4 Radiation Hazard Buildings (J4)

These shall include any building or portion thereof which is used for storage, handling, processing or manufacture of materials and products that use nuclear and radioactive processes and in which the risk of radioactive contamination exists.

2.1.15 Occupancy K: Garage

These occupancy types shall include any building or portion thereof used one or more vehicles having containers of flammable liquid or compressed gas or carrying power or combination of any of these as a supply source for self-propelling are kept for use, sale, rental purpose, storage, repair, exhibition and all those floors of a building or portion thereof in which such vehicles are not separated by suitable cutoff to prevent fire spreading.

2.1.15.1 Parking Garage (K1)

This occupancy type shall include any building or portion thereof used solely for parking Motor Vehicles for a limited period of time.

2.1.15.2 Private Garage (K2)

This occupancy type shall include any building or portion thereof used as store of owner's or tenant's Motor Vehicles for private use for unlimited period of time.

2.1.15.3 Repair Garage and Showrooms (K3)

This occupancy type shall include any building or portion thereof wherein repair of electrical or mechanical system or denting or painting works of body is performed on any type of vehicles and includes associated floor spaces used as office, showrooms, incidental store and parking.

2.1.16 Occupancy L: Utility

This occupancy type shall include any building or portion thereof used to install any type of equipment to provide support service to any building or portion thereof or group of buildings of all occupancy groups and with special provisions for occupancy J.

This shall also include all public and private utility facilities of the consumer's end that are located within the consumer's site and all installations are required special care to ensure life and property safety as per provisions of this Code.

2.1.17 Occupancy M: Miscellaneous

Buildings under this Occupancy group shall include special buildings not covered in other Occupancy groups. These Occupancies shall be subdivided as follows:

2.1.17.1 Special Structure (M1)

Any building or structure which is neither listed in the A-Z list nor covered in any occupancy group provided in this Code but unique in character may be categorized in this occupancy by the Board of Appeals. Each and every individual M1 Structure shall be complied with NFPA or equivalent standards for the life and fire safety.

2.1.17.2 Fences, Tanks and Towers (M2)

These shall include fences and boundary walls over 1.5 m high, standalone structures for gravity water tank and towers for telecommunication, power distribution, air-traffic control terminal or observation towers.

2.2 CHANGE OF USE

2.2.1 Without prior permission from the Authorities having jurisdiction no change shall be made in the type of occupancy or use of any building that would place it in a different occupancy group or in a different subdivision of the same occupancy group. Such changes shall be permitted only when the land use and the building complied with the provisions of this Code and the laws of the land for such group of Occupancy.

2.3 MIXED OCCUPANCY

2.3.1 The following occupancies shall not be required to designate as a separated occupancy classification from uses to which they are accessory any occupancy Group other than Occupancy Group J

- (a) Assembly rooms having a floor area not more than 75 m².
- (b) The administrative and clerical offices and similar offices not exceeding 25 Percent of the floor area of the major occupancy and not related to Hazardous Buildings as defined in Occupancy J.
- (c) Administrative offices, gift shops and other similar uses in Occupancy A provided the uses do not exceed 10 Percent of the floor area of the major occupancy.
- (d) Kitchens associated with a dining area.
- (e) Carports having at least two sides entirely open associated with Occupancy A.

2.3.2 Forms of Occupancy Separations

A building is permitted to have multiple occupancy type, each type of occupancy shall be in groups, which may have combination of different occupancies and shall be separated horizontally or vertically or both accordingly as specified in the Table 3.2.1.

2.3.3 Types of Occupancy Separation

The occupancy separations shall be classified as follows:

- (a) Four Hour Fire Resistive: The four hour fire resistive separation wall or slab shall have no unprotected openings therein and shall provide a fire resistance for at least three hour.
- (b) Three Hour Fire Resistive: The three hour fire resistive separation wall or slab shall provide a fire resistance of not less than three hour. The total width of all openings in separation wall of any one storey shall not exceed 25 Percent of the length of that wall in that storey and no single opening shall have an area greater than 12 m². The openings shall be protected with a fire resistance assembly doors or windows providing fire resistance of at least three hour.

2.4.1.3 The exterior walls of a building shall have a fire resistance and opening protection as specified in Tables 3.3.1 (a), 3.3.1 (b) and 3.2.3.

2.4.1.4 Any outward projected elements from the peripheral wall of a building line shall be limited to the sunshade line.

2.4.1.5 When openings in exterior walls are required to be protected due to distance from the property line, the aggregate area of such openings shall not exceed 50 Percent of the total area of the wall in each storey.

2.4.1.6 Dwellings separation walls in semi-detached or row type development shall comply with Sec 2.4.3.

2.4.2 Allowable Floor Areas

2.4.2.1 The total area of the building shall comply with Sec 1.8.3 Chapter 1 of this Part.

2.4.2.2 The floor area of the mezzanines shall be included in the area of the respective main floor.

2.4.2.3 Floor area calculation shall be divided in to two: (a) All Floor areas at and above the formation level which shall be generally included in the FAR calculation. (b) Floor areas below the formation level shall generally be excluded in FAR calculation provided the Occupancy classifications remain within Utility or Private Garages.

Table 3.2.2: Fire Resistance Ratings in Hours of Exterior Walls for Various Occupancy Groups

Fire Separation Distance	Occupancy			
	A1, A2, K2, M2	A3, A4, A5, B,C, D, E1, F1, F2, G1, I	E2, F3, F4, E3, G2, H1	H2, J
Up to 1.5 m	1	2	3	4
Greater than 1.5 m and up to 3 m	N	1	2	3
Greater than 3 m and up to 4.5 m	N	N	1	2
Greater than 4.5 m and up to 9 m	N	N	N	1
Greater than 9 m	N	N	N	N

N= No requirements

Table 3.2.3: Requirements for Opening Protection Assembly Based on Fire Resistance Rating of Exterior Walls

Fire Resistance Ratings of Exterior Walls (in hours)	Fire Resistance Ratings for Opening Assembly (in hours)
4	Not permitted
3	3.0
2	1.5
1	0.5
N	No requirements

2.4.3 Permitted Types of Construction

2.4.3.1 The types of construction for any occupancy shall conform to the specifications set in Table 3.2.4.

2.4.3.2 Common walls in semi-detached or row type development shall not have any unprotected openings and shall be Type I-A construction and all such wall shall comply with requirements of Party wall or Fire wall or Separation wall.

2.4.3.3 Ground floor or basement of a building used for car parking and utilities within the barriers by at least three hour fire resistive construction shall be considered as non-separated occupancy provided the building accommodate one or more of the following occupancies:

- (i) A3, A5
- (ii) E1, F1, F2
- (iii) I2, I3, I4

2.4.3.4 Entry lobbies, mechanical and electrical rooms and other similar uses incidental to the operation of the building may be provided in the car parking floors provided that the total area of such uses remains within 1/3 (one third) of the parking floor area.

Table 3.2.4: Permitted Types of Construction and Fire Zones for Various Occupancy Groups

Occupancy	Permitted Types of Construction	Fire Zones
A B C D E1 F1,F2 I K1, K2, M2	Group I and Group II*	1
E2, E3, F3, K3, M1 G H	Group I or Group II*	2
J	Group I	3

*Fire resistance rating of a building shall be credited in case of the mixed type of construction on the basis of lower rated construction elements among the same group or same type used thereof.

2.4.4 General Provision for High-Rise Buildings

For the purpose of this Code, a building of any class of Occupancy will be considered as high-rise when it has floors used for human occupancy located more than 33 m from ground level or the lowest level of fire department vehicle access. The provisions of Sec 2.9.6 shall be applicable to all such buildings.

2.4.4.1 Maintenance and inspection

All fire protection systems shall be maintained and inspected on a regular basis to keep them in operative condition. The maintenance inspection shall be performed quarterly.

All plumbing installations shall be maintained and inspected periodically to keep them in operative conditions.

2.4.4.2 Type of construction

All high-rise buildings shall be of Type I-A or I-B construction.

2.4.4.3 Fire detection, alarm, evacuation and extinguishment system

All high-rise buildings shall conform to regulations set forth in Part 4 of this Code

2.4.5 Helipads

2.4.5.1 General

Helipads on the roof top of a building or other locations shall be constructed in accordance with this Section.

2.4.5.2 Size

The minimum dimension of the landing area for helicopters weighing less than 1600 kg shall be 6 m x 6 m. There shall be an average clearance of 4 m surrounding and at the level of the landing area which shall not be less than 2 m at any point.

2.4.5.3 Construction

Helicopter landing areas and supports shall be constructed with non-combustible material.

2.4.5.4 Aviation approval

Before helipads start operating formal approval shall be obtained from the civil aviation authority.

2.4.6 Universal Accessibility

2.4.6.1 All Building (except Occupancies G, H, M and J) shall have universal accessibility as per provisions of this Code.

2.4.6.2 Buildings have universal accessibility shall have accessible egress system.

2.5 REQUIREMENTS FOR OCCUPANCY A - RESIDENTIAL BUILDINGS

Buildings shall be classified as Occupancy A in accordance with Sec 2.1.5.

2.5.1 Construction, Height and Allowable Area

2.5.1.1 Buildings or parts thereof classified as Occupancy A shall be limited to the type of construction set forth in Table 3.2.4 and shall not exceed in area or height as specified in Sections 1.8 and 2.4.2 of this Part.

2.5.1.2 Walls and floors separating dwelling units in the same building shall not be less than Type I-D construction.

2.5.1.3 Storage or laundry rooms in Occupancy A2, A3, A4 or A5 that are used in common by the occupants shall be at least Type I-D construction.

2.5.1.4 When a basement or a ground floor of a building of Occupancy A3 or A5 is used for parking or storage of private cars of the occupants, the parking floor shall be of at least Type I-B construction.

2.5.1.5 When the basement or ground floor of a building of Occupancy A is used wholly or partly for generator or electrical substation, the walls and floors surrounding such use shall be of at least Type I-B construction.

2.5.2 Location on Property

Buildings of Occupancy A shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in this Code.

2.5.3 Access and Exit Facilities and Egress System

2.5.3.1 Facilities for access and exit and egress or escape shall comply with the provisions set forth in this Code.

2.5.3.2 Every sleeping room in ground, first and second floors shall have at least one operable window or door for emergency escape which shall open directly into the exterior or an interior courtyard. The units shall be operable from the inside without the use of any tool to provide a minimum clear opening of 500 mm width by 600 mm height with a maximum sill height of 1 m above the floor.

2.5.4 Lighting and Ventilation

All buildings or part of a building classified as Occupancy A shall conform to the provisions of Part 3, and Chapters 1 and 3 of Part 8.

2.5.5 Sanitation

Sanitation facilities provided in all Occupancy A buildings shall conform to this Part and Chapter 7 Part 8.

2.5.6 Minimum Dimension of Habitable and Non-habitable Rooms

The minimum dimensions of habitable and non-habitable rooms are specified in Sec 1.12.2 Chapter 1 Part 3.

2.5.7 Fire detection, Alarm, Evacuation and Extinguishment

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.5.8 Shaft and Exit Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction as specified in Part 4. Exit requirements shall comply with Part 4 of this Code.

2.6 REQUIREMENTS FOR OCCUPANCY B - EDUCATIONAL BUILDINGS

Buildings shall be classified as Occupancy B in accordance with Sec 2.1.6.

2.6.1 Construction, Height and Allowable Area

Buildings or parts of buildings classified as Occupancy B shall be limited to type of construction set forth in Table 3.2.4 and comply with the provisions of Sections 1.8 and 2.4.2 of this Part to meet the requirements of height and area limitations.

2.6.1.1 Rooms or groups of rooms sharing a common space where flammable liquids, combustible dust or hazardous materials are used, stored, developed or handled in an amount exceeding that specified in Sec 2.14.3 shall be classified as Occupancy J. Such rooms or groups of rooms shall comply with the requirements of fire protection as specified in Part 4, Chapters 4 and 5.

2.6.1.2 Rooms or groups of rooms, sharing a common space or having separate spaces, served by a common corridor or passage with less than 20 percent outdoor opening of wall in a building of height 11 m or less, or three storey's or less, need not be provided with smoke detectors and standpipe or sprinkler system for fire protection provided it conforms with the access and exit requirements specified in Part 3, Chapter 1, Sec 1.6 and Part 4, Chapters 4 and 5.

2.6.1.3 Buildings of Occupancy B situated outside the jurisdiction of any municipality shall have a construction of at least two hours fire resistance.

2.6.2 Location on Property

Buildings of Occupancy B shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.6.3 Access and Exit Facilities and Egress System

Facilities for access and exit and Egress system shall comply with the provisions set forth in Sec 1.6, Chapter 1 Part 3 and Chapter 3 Part 4.

2.6.4 Lighting, Ventilation and Sanitation

Lighting, ventilation and sanitation facilities provided in Occupancy Group B buildings shall conform to Sec 1.16, Chapter 1 Part 3 and Chapters 1 and 3 Part 8.

2.6.5 Minimum Dimensions of Class Rooms, Common Toilets and Staircases

The dimension of a class room shall be not less than 4 m on any side and shall have an area of not less than 0.75m² per student. Other provisions for minimum dimensions shall comply with the requirements set forth in Sec 1.8 of Chapter 1 Part 3.

2.6.6 Shaft and Exit Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 3 hour fire resistance. Exit requirements shall comply with Chapter 3 Part 4.

2.6.7 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.7 REQUIREMENTS FOR OCCUPANCY C - INSTITUTIONAL BUILDINGS

Buildings shall be classified as Occupancy C in accordance with Sec 2.1.7.

2.7.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy C shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 Chapter 1 Part 3 and Sec 2.4.2 to meet the requirements of height and area limitations.

2.7.2 Location on Property

Buildings of Occupancy C shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.7.3 Access and Exit Facilities and Egress System

Facilities for access and exit and egress system shall comply with the provisions set forth in Sec 1.6, Chapter 1 Part 3 and Chapter 3 Part 4.

2.7.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy C shall conform to the provisions of Sec 1.16, Chapter 1 Part 3 and Chapters 1 and 3, Part 8.

2.7.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.7.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.8 REQUIREMENTS FOR OCCUPANCY D-HEALTH CARE FACILITIES

Buildings shall be classified as Occupancy D in accordance with Sec 2.1.8.

2.8.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy D shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 Chapter 1 Part 3 and Sec 2.4.2 to meet the requirements of height and area limitations.

2.8.2 Location on Property

Buildings of Occupancy D shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.8.3 Access and Exit Facilities and Egress System

Facilities for access and exit and egress system shall comply with the provisions set forth in Sec 1.6 Chapter 1, Part 3 and Chapter 3 of Part 4.

2.8.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy D shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Chapters 1 and 3 of Part 8.

2.8.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least three hour fire resistance. Exit requirements shall comply with Chapter 3 of Part 4.

2.8.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.9 REQUIREMENTS FOR OCCUPANCY E–BUSINESS

Buildings shall be classified as Occupancy E in accordance with Sec 2.1.9.

2.9.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy E shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 Chapter 1 Part 3 and Sec 2.4.2 to meet the requirements of height and area limitations.

2.9.2 Location on Property

Buildings of Occupancy E shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.9.3 Access and Exit Facilities and Egress System

Facilities for access and exit and egress system shall comply with the provisions set forth in Sec 1.6 Chapter 1 Part 3, Chapter 3 of Part 4.

2.9.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy E shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Chapters 1 and 3 of Part 8.

2.9.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 3 hour fire resistance. Exit requirements shall comply with Chapter 3 of Part 4.

2.9.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.10 REQUIREMENTS FOR OCCUPANCY F–MERCANTILE BUILDINGS

Buildings shall be classified as Occupancy F in accordance with Sec 2.1.10.

2.10.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy F shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8, Chapter 1 of Part 3 and Sec 2.4.2 to meet the requirements and limitations of height and area.

2.10.2 Location on Property

Buildings of Occupancy F shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.10.3 Access and Exit Facilities and Emergency Escapes

Facilities for access and exit and emergency escape shall comply with the provisions set forth in Sec 1.6 Chapter 1 Part 3 and Chapter 3 Part 4.

2.10.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy F shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Chapters 1 and 3, Part 8.

2.10.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.10.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.10.7 Special Hazards

Installations which are discharging exhaust, heating apparatus, boiler and central heating/air-conditioning plant shall conform to the provisions of this Code as specified in this Code.

2.11 REQUIREMENTS FOR OCCUPANCY G–INDUSTRIAL BUILDINGS

Buildings shall be classified as Occupancy G in accordance with Sec 2.1.11. A non-exhaustive and indicative list of low hazard and moderate hazard industrial uses are listed in A to Z list. Storage and use of hazardous materials shall not exceed the exempt amount specified in Sec 2.14.3.

2.11.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy G shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 of Chapter 1, Part 3 and Sec 2.4.2 to meet the requirements and limitations of height and floor area.

The ceiling height of the production area, shall conform to the minimum volume required per workers as specified by the Bangladesh Labor Act, 2006 and other laws of the land. In any case the ceiling height and the head room clearance of a production floor shall not be less than 3.3 meter and 2.286 meter respectively.

2.11.2 Location on Property

Buildings of Occupancy G shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.11.3 Access and Exit Facilities and Egress System

Facilities for access and exit and emergency escape shall comply with the provisions set forth in Sec 1.6 Chapter 1, Part 3 and Chapter 3, Part 4.

2.11.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy G shall conform to the provisions of Sec 1.16 Chapter 1, Part 3 and Chapters 1 and 3, Part 8. Industrial buildings having roof opening for day lighting and natural ventilation shall comply with the following requirements:

- (a) The aggregate opening in roof and external windows shall not be less than 10 Percent of the floor area.
- (b) For natural ventilation by means of exterior window openings, the operable window area shall not be less than 5 Percent of the total floor area.

Exception:

Industrial buildings wherein artificial lighting and mechanically operated ventilation systems of approved quality are installed need not be provided with natural ventilation or natural lighting.

2.11.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.11.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.11.7 Special Hazards

Chimneys, vents and ventilation ducts shall be constructed with noncombustible materials. Every bailer, central heating plants, electrical rooms, or hot water supply boiler shall be separated from the rest of the occupancy or use by not less than two hour fire resistive construction.

2.12 REQUIREMENTS FOR OCCUPANCY H-STORAGE BUILDINGS

Buildings shall be classified as Occupancy H in accordance with Sec 2.1.12.

2.12.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy H shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 of Chapter 1, Part 3 and Sec 2.4.2 to meet the requirements of height and area limitations.

2.12.2 Location on Property

The location on property for Occupancy H shall conform to Sec 2.4.1.

2.12.3 Access and Exit Facilities and Egress System

Facilities for access and exit and egress system shall comply with the provisions set forth in Sec 1.6 of Chapter 1, Part 3 and Chapter 3, Part 4.

2.12.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy H shall conform to the provisions of Sec 1.16 of Chapter 1 Part 3, Chapters 1 and 3, Part 8.

2.12.4.1 Special provision

The provisions of Sec 1.16, does not apply to non-habitable spaces of H1 and H2 occupancies unless otherwise required by this Code. Ventilators of size not less than 0.25 m² shall be provided where suitable 0.30 m above the floor level for floor level ventilators and 0.30 m below the roof level for roof level ventilators. There shall be one floor level ventilator and one roof level ventilator for every 0.25 m² of the floor area. Mechanized ventilation system of approved quality shall be installed where required.

2.12.4.2 Though inhabitable, the minimum air quality of such indoor spaces shall be maintained in a way that it does not pose any health hazard to the occasional users of that space.

2.12.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.12.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.12.7 Special Hazards

The storage of hazardous materials shall not exceed the exempt amount as specified in Table 3.2.5. The storage of moderate and low hazardous materials shall be separated at least by a two hour fire resistive construction.

2.13 REQUIREMENTS FOR OCCUPANCY I-ASSEMBLY BUILDINGS

Buildings shall be classified as Occupancy I in accordance with Sec 2.1.13.

2.13.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy I shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 Chapter 1 Part 3 and Sec 2.4.2 to meet the requirements and limitations of height and area.

2.13.2 Location on Property

Buildings of Occupancy I shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.13.3 Access and Exit Facilities and Egress System

Facilities for access and exit and Egress system shall comply with the provisions set forth in Sec 1.6 Chapter 1 of Part 3 and Chapter 3 of Part 4 and universally accessibility as per provisions of this Code.

2.13.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy I shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Part 3 and Chapters 1 and 3, Part 8.

2.13.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.13.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

The specification of this Section shall apply to all parts of buildings and structures that contain stages or platforms and other similar appurtenances as herein defined.

- (a) Stages: A stage is a three side enclosed or partially enclosed portion of a building which is designed or used for presentation of plays or lectures or other entertainment. A stage shall be further classified as legitimate stage, regular stage and thrust stage.
- (b) Stage, Legitimate: A stage wherein curtains, drops, leg drops, scenery, lighting devices or other stage effects are adjustable horizontally or vertically or suspended overhead.
- (c) Stage, Regular: A stage wherein curtains, fixed drops, valances, scenery and other stage effects are suspended and are not adjustable or retractable.
- (d) Stage, Thrust: A stage or platform extended beyond the proscenium line and into the audience.

2.13.6.1 Legitimate Stage

Legitimate stage shall be constructed as specified in Part 4, specifying the type of construction but shall not be less than construction Type I-C. The position of the legitimate stage extending beyond the proscenium opening line shall be permitted to be constructed with two hour fire-resistive materials. The floor of the stage may be constructed with one hour fire rating materials. Thickness of a wooden floor shall not be less than 50 mm.

2.13.6.2 Regular and Thrust Stages

Regular stages and thrust stages shall be constructed by not less than two hour fire resistive materials. Wooden floor when required in a stage shall not be less than 50 mm in thickness with one hour fire resistive rating.

2.13.6.3 Trap doors

All trap doors and any other opening in stage floors shall be equipped with tight fitting solid wood trap doors with thickness not less than 50 mm.

2.13.6.4 Stage rigging loft

The grid iron frame in the loft, housing lighting and audio equipment, all the machinery for flying scenery and fly galleries, along with their installations, shall be constructed of approved noncombustible materials.

2.13.6.5 Foot lights and stage electrical equipment

Foot lights and border lights shall be installed in a protective cover constructed of noncombustible materials.

2.13.6.6 Trim, finish and decorative hangings

All materials used in moulding and decoration around the proscenium shall be of approved noncombustible materials.

2.13.6.7 Proscenium curtain

The proscenium curtain shall be of approved fire retardant material and shall protect against passage of flame and smoke for at least 30 minutes.

2.13.7 Motion Picture Projection Rooms

2.13.7.1 Every projection room shall be constructed in conformity with the construction requirements for the type of the building in which the projection room is located. The wall opening required for projection need not have a fire protection assembly but shall be closed with glass or other approved materials.

2.13.7.2 The floor area of a projection room shall not be less than 8 m² for a single machine. The working space between the machines when more than one machine is used shall not be less than 0.75 m.

2.13.7.3 The height of the projection room shall have a minimum clear space of 2.5 m.

2.13.8 Sports Facilities

2.13.8.1 Vomiters, aisles and exits of seating galleries

Tunnels, aisles and exits of galleries shall be constructed conforming to the following requirements.

- (a) There shall be a minimum of two exits remotely located from each other immediately to the outside for each balcony or tier. There shall be at least three exits when seating capacity exceeds 1000 persons and four exits when it exceeds 4000 persons. For every additional 1000 persons the exit shall be designed to accommodate provision (f) given below.
- (b) There shall be at least 0.6 m² of space per person in the gallery. Minimum width considered for a seat in the gallery shall be 0.45 m.
- (c) There shall be a maximum of 33 seats on each side of any aisle. Minimum width of the main aisles and the secondary aisles shall be 1.0 m and 0.7 m respectively.
- (d) Entrance and exits shall be protected by safety railings.
- (e) Back to back space between two rows of seats shall not be less than 0.80 m.
- (f) The evacuation time in the galleries shall not be more than 10 minutes.
- (g) All tunnels, aisles and exits shall conform to safety guidelines for means of escape set forth in Part 4.
- (h) One percent of the total seat capacity shall have provisions for accommodation with universal accessibility at the approach or exit level.

2.13.8.2 Swimming pools

Any swimming pool used or constructed for exclusive use by Occupancy A1 and is available only to the occupants and private guests shall be classified as a private swimming pool. Any swimming pool other than private swimming pool shall be classified as a public swimming pool. Swimming pools shall be constructed in conformity with the following requirements.

- (a) There shall be at least 1.5 m space between any sides of a swimming pool and a rear or side property line. For street property lines, this distance shall be at least 2.0 m.
- (b) Swimming pools shall be provided with overflow provision to remove scum and other materials from the surface of the water. When water skimmers are used for private pools there shall be one skimming device for each 50 m² of surface area or fraction thereof.
- (c) The overflow gutters shall not be less than 75 mm deep and shall be pitched to slope of one unit vertical to 50 units horizontal (1:50) toward drains.
- (d) Public swimming pools shall be so designed that the pool water turnover is at least once every 8 hours.
- (e) Private swimming pools shall be designed so that there is a pool water turnover at least once every 18 hours.
- (f) Public swimming pools shall be equipped with filters, the capacity of which shall be controlled to filter 140 liters per minute per m² of surface area. Private swimming pool filters shall not filter more than 230 liters per minute per m² of the surface area.
- (g) The pH value of the pool water shall be between 7.0 and 7.5.
- (h) All recirculation systems shall be equipped with an approved hair and lint strainer installed in the system ahead of the pump.
- (i) All swimming pool and equipment shall be designed to be emptied completely of water and the discharged water shall be disposed in an approved manner and shall not create problems in the neighboring property.
- (j) Pumps, filters and other mechanical and electrical equipment shall be placed in enclosed spaces and shall not be accessible to the bathers.
- (k) Used water from the pool when being discarded shall be reused as grey water for the building and its premises as per provision of Appendix G.

2.13.9 Amusement Building Fire Protection System

The fire protection system shall be as per provisions of this Code.

2.14 REQUIREMENTS FOR OCCUPANCY J–HAZARDOUS BUILDINGS

Buildings shall be classified as Occupancy J in accordance with Sec 2.1.14.

2.14.1 General

The plans for buildings and structures accommodating Occupancy J shall clearly indicate the type and intended use of materials and its processing or handling methods so as to reflect the nature of use of each portion of such buildings.

2.14.1.1 Occupancy J1

Any building or portion thereof containing any of the following items more than exempted quantity shall be classified as Occupancy J1.

- (a) Combustible dusts and any similar solid material sufficiently comminuted for suspension in still air which, when so suspended, is capable of self-sustained combustion.
- (b) Combustible liquids - Any liquid having a flash point at or above 40°C shall be known as class II and class III liquids. Combustible liquids shall be classified as follows:
 - (i) Liquids having flash point at or above 40°C and below 60°C.
 - (ii) Liquids having flash points at or above 60°C and below 95°C.
- (c) Cryogenic liquids (flammable or oxidizing): Any liquid that has a boiling point below -130°C.
- (d) Flammable Gases: Any gas when mixed with air in a proportion of 13% (by volume) forms a flammable mixture under atmospheric temperature and pressure.
- (e) Flammable Liquids: Any liquid that has a flash point below 40°C and has a net vapour pressure exceeding 275 kPa at 40°C. Flammable liquids shall be known as Class I liquid and shall be further classified as follows:
 - (i) Liquids having flash point below 25°C and having a boiling point below 40°C.
 - (ii) Liquids having flash point below 25°C and having a boiling point at or above 40°C.
 - (iii) Liquids having flash points at or above 25°C and below 40°C.
- (f) Oxidizers class 3: As determined in accordance with NFPA 43A.
- (g) Oxidizing gases: As determined in accordance with NFPA 43C.
- (h) Pyrophoric liquids, solids and gases that will ignite spontaneously in air at a temperature of 55°C or below.
- (i) Unstable (reactive) materials class 3, non-detonable as determined in accordance with NFPA 704.
- (j) Combustible fibers: Includes readily ignitable fibers like cotton, sisal, jute hemp, tow, cocoa fiber, oakum, baled waste, baled waste paper, kapok, hay, straw, excelsior, Spanish moss and other similar materials.
- (k) Flammable solid: Any solid including blasting agent or explosive that is liable to cause fire through absorption of moisture, spontaneous chemical change or retained heat from manufacturing or processing, or which when ignited burns so vigorously and persistently as to create a serious hazard.
- (l) Organic peroxides, Class II and Class III as determined in accordance with NFPA 43B.
- (m) Oxidizers Class I and Class II as determined in accordance with NFPA 43A.
- (n) The bulk storage of unstable (reactive) materials Class 1 and Class 2 as determined in accordance with NFPA 704, water reactive materials, Class 2 and Class 3 which react with water to release a gas that is either flammable or present a health hazard as determined in accordance with NFPA 704.

2.14.1.2 Occupancy J2

Any building or portion thereof containing the following shall be classified as Occupancy J2:

- (a) Corrosives: Any substance that causes visible destruction of or irreversible alteration in living tissues by chemical action at the site of contact.
- (b) Highly toxic materials: The materials falling in this category are as follows:
 - (i) Oral Toxicity: A chemical that has a median lethal dose of 50 mg or less per kg of body weight when administered orally to albino rats weighing between 200 and 300 gm each.
 - (ii) Toxicity of Inhalation: A chemical that has a median lethal concentration in air of 200 ppm or less by volume of gas or vapors, or 2 mg per liter or less of mist, fume or dust, when administered by

continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

- (iii) Toxicity by Skin Absorption : A chemical that has median lethal dose of 200 mg or less per kg of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kg each.
 - (iv) Irritants: Any noncorrosive chemical or substance which causes a reversible inflammatory effect on living tissues by chemical action at the site of contact.
 - (v) Radioactive Material: Any material or combination of materials that spontaneously emit ionizing radiation.
 - (vi) Sensitizers: A chemical or substance that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure.
- (c) The Occupancy J2 shall also include among others the followings:
- (i) Dry cleaning establishments using flammable solvents.
 - (ii) Explosive manufacturing.
 - (iii) Paint or solvent manufacturing (flammable base).
 - (iv) Pyrexin plastic manufacturing.
 - (v) Sodium nitrate or ammonium nitrate
 - (vi) Storage of combustible film.

2.14.1.3 Occupancy J3

Any building or portion thereof which is used for storage, handling, processing or manufacture of materials and products that use biological processes and in which the risk of harmful biological threat to the occupants exist, shall comply with the guidelines specified by the Department of Health.

2.14.1.4 Occupancy J4

Any building or portion thereof which is used for storage, handling, processing or manufacture of materials and products that use nuclear and radioactive processes and in which the risk of radioactive contamination exists, shall comply with the guidelines specified by Bangladesh Atomic Energy Commission.

2.14.2 Special Provisions

2.14.2.1 The following shall not be included in Occupancy J but shall be classified in the occupancy group which they most nearly resemble and such classification shall be approved by the Authority:

- (a) All buildings and structures and parts thereof which contain less than the exempt quantities as specified in Table 3.2.5, when such buildings comply with the fire protection provisions of this Code.
- (b) Rooms containing flammable liquid in lightly closed containers of 4 litre capacity or less for retail sales or private use on the premises and in quantities not exceeding 820 litres/m² of room area.
- (c) Retail paint sales rooms with quantities not exceeding 820 litres/m² of room area.
- (d) Closed systems housing flammable or combustible liquids or gases used for the operation of machinery or equipment.
- (e) Cleaning establishments.
- (f) Liquor stores and distributors without bulk storage.
- (g) Tire storage containing less than 10,000 vehicle tires.
- (h) The storage or use of materials for agricultural purposes for use on the premises.

- (i) Pyrophoric solids or liquids not exceeding 3 m³ in storage cabinet located in a building that is equipped throughout with an automatic sprinkler system provided in accordance with the fire protection provisions of this Code.
- (j) Pyrophoric solids or liquids not exceeding 3 kg in storage cabinet located in a building that is provided with an automatic sprinkler system installed in accordance with the fire protection provisions in accordance to Part 4 of this Code.
- (k) Class 2 water reactive materials not exceeding 100 kg in an approved storage cabinet located in a building that is provided with automatic sprinkler installed in accordance with the fire protection provisions in accordance to Part 4 of this Code.

2.14.3 Construction, Height and Allowable Area

2.14.3.1 The buildings or parts thereof classified as Occupancy J shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the provisions of Sec 1.8 of Chapter 1, Part 3 and Sec 2.4.2 of this Chapter to meet the requirements of height and area limitations.

2.14.3.2 Floors: The floors and spaces containing hazardous materials and in areas where motor vehicles, boats, helicopters or airplanes are stored, repaired or operated shall be of noncombustible, liquid-tight construction.

Exception: In floors and areas where no repair works are carried out may be surfaced or waterproofed with asphaltic paving materials.

2.14.3.3 Spill Control: The floors containing hazardous repair or other works shall be recessed a minimum of 100 mm so as to prevent flow of liquids to adjoining areas.

2.14.3.4 Drainage: The buildings and areas shall be provided with approved drainage system to direct the flow of liquids to an approved location or room or area designed to provide secondary containment of the hazardous materials and fire protection water.

Table 3.2.5(a): Exempted Amount of Hazardous Materials in Terms Physical Hazard in a Control Area

Sl. No.	Material	Class/State	Maximum Quantities in		
			Storage Limit	Use Closed Systems	Use Open Systems
1	Flammable liquids	Class I-A	115 liters *	115 liters *	38 liters
		Class I-B and Class I-C	454 liters *	454 liters *	115 liters
2	Combustible liquids	Class-II	454 liters*	454 liters*	114 liters
		Class-III-A	1249 liters*	1249 liters*	320 liters
		Class-III-B	49962 liters*	49962 liters*	12490 liters
3	Combination of flammable liquids	Class I-A, Class I-B, Class I-C	454 liters*	454 liters*	113 liters*
4	Flammable gases	Gaseous	28 m ³ at NTP (Natural Temperature and Pressure)	28 m ³ at NTP (Natural Temperature and Pressure)	Not applicable
		Liquefied	113 liters	113 liters	Not applicable
5	Liquefied flammable	Class I-A	113 liters	113 liters	38 liters
		Class I-B and Class I-C	454 liters	454 liters	113 liters
6	Combustible fibres	Loose	2.832 m ³	2.832 m ³	0.57 m ³
		Baled	28.32 m ³	28.32 m ³	5.7 m ³

Sl. No.	Material	Class/State	Maximum Quantities in		
			Storage Limit	Use Closed Systems	Use Open Systems
7	Flammable solids	Pigs, ingots, heavy castings	454 kg	454 kg	454 kg
		Light castings, light metallic products	57 kg	57 kg	57 kg
		Scraps, shavings, powders, dusts	0.454 kg	0.454 kg	0.454 kg
8	Unstable (reactive) detonable	Class 4	0.454kg or 0.28m ³ (NTP)	0.113 kg or 0.057m ³ (NTP)	0.454kg or 0.28m ³ (NTP)
		Class 3	0.454kg or 0.28m ³ (NTP)	0.113 kg or 0.057m ³ (NTP)	0.454kg or 0.28m ³ (NTP)
9	Unstable (reactive) detonable	Class 4	0.454kg or 0.28m ³ (NTP)	0.113 kg or 0.057m ³ (NTP)	0.454kg or 0.28m ³ (NTP)
		Class 3	2.27 kg or 1.42m ³ (NTP)	0.454kg or 0.2832m ³ (NTP)	0.454kg
		Class 2	22.7kg or 70.8 m ³ (NTP)	22.7kg or 70.8m ³ (NTP)	4.54 kg
		Class 1	Not limited or 21.24m ³ (NTP)	Not limited	Not limited
10	Water-reactive detonable	3	0.454 kg	11.25 kg	11.25 kg
		2	0.454 kg	11.25 kg	11.25 kg
11	Water-reactive non-detonable	3	2.27 kg	2.27 kg	0.454 kg
		2	22.7 kg	22.7 kg	4.54 kg
		1	Not Limited	Not Limited	Not Limited
12	Oxidizing Materials	Class 4	0.454 kg,	0.1135kg	0.1135kg
		Class 3	4.54 kg	0.227kg	0.227kg
		Class 2	113 kg	113 kg	113 kg
		Class 1	1816 kg	1816 kg	1816 kg
13	Oxidizing Gas	Gaseous	42.48 m ³ (NTP)	42.48 m ³ (NTP)	Not applicable
		Liquefied	56.78 liters	56.78 liters	Not applicable
14	Pyrophoric Material detonable	Not applicable	0.454 kg or 0.056 m ³ (NTP)	0.056 m ³ (NTP)	0
15	Pyrophoric Material non-detonable	Not applicable	1.8 kg. or 1.4 m ³ (NTP)	0.28m ³ (NTP)	0
16	Explosives**	Division 1.1	0.454 kg	0.1135 kg	0.1135 kg
		Division 1.2	0.454 kg	0.1135 kg	0.1135 kg
		Division 1.3	2.27 kg	0.454 kg	0.454 kg
		Division 1.4	22.7 kg	22.7 kg	Not applicable
		Division 1.4G	56.75 kg	Not applicable	Not applicable
		Division 1.5	0.454 kg	0.1135 kg	0.1135 kg
		Division 1.6	0.454 kg	Not applicable	Not applicable

* The maximum quantities may be increased by 100 Percent in areas not accessible to the public in buildings provided with automatic sprinkler system.

** see: Explosive control act.

Table 3.2.5(b): Exempted Amounts of Hazardous Materials in Terms Health Hazard in a Control Area

Material	Class/State	Maximum Quantities in		
		Single Storage	Closed Systems	Open Systems
Corrosive	Not applicable	2270 kg or 1892 liters or 23 m ³ NTP	227kg or 1892 liters or 23 m ³ NTP	454kg or 379 liters
Highly toxic	Not applicable	4.54 kg or 0.57 m ³ NTP	4.54 kg or 0.57 m ³ NTP	1.362 kg
Toxic	Not applicable	227 kg or 23 m ³ NTP	227 kg	56.75 kg

Table 3.2.5(c): Location and Number of Control Areas

Grade Level	Floor Level ¹	Number of Control Areas per Floor ²	Fire Resistance Rating of Barriers in Hours		
			Walls	Floors	Floor Supporting Members
Above	Higher than 9	5	1	2	2
	7-9	5	2	2	2
	6	12.5	2	2	2
	5	12.5	2	2	2
	4	12.5	2	2	2
	3	50	2	1	2
	2	75	3	1	2
	1	100	4	1	2
Below	1	75	3	1	2
	2	50	2	1	2
	Lower than 2	Not Allowed	Not Allowed	Not Allowed	Not applicable
The maximum allowable quantity per control area shown in Table 3.2.5					

2.14.3.5 The drains shall be designed with adequate slope and section to carry the design discharge of the sprinkler system. The material used in the drains shall be suitable for drainage of the storage materials.

2.14.3.6 Separate drainage system shall be designed for materials which react with each other producing undesirable results. They may be combined when they have been provided with approved means of discharge into the public sewer or natural stream or river.

2.14.3.7 Containment: The outflow from the drains shall be directed to a containment system or other area that provide a secondary storage for the hazardous materials and liquids and fire protection water. The containment capacity shall be capable of containing the outflow from the drains for a period of at least one hour.

2.14.3.8 The overflow from secondary containment system shall be directed to a safe location away from the building, adjoining properties and storm drain.

2.14.3.9 If the secondary containment storage area is open to rainfall it shall be designed to accommodate 24 hour rainfall or a continuous rainfall of 100 mm per day.

2.14.3.10 Smoke and Heat Vents: Smoke and heat vents shall be provided in areas or rooms containing hazardous materials exceeding the exempt amount of Table 3.2.5.

2.14.3.11 Standby Power: Standby power shall be provided in the occupancies where Class I, II or III organic peroxides are stored.

2.14.4 Location on Property

The location on property for Occupancy J shall conform to Sec 2.4.1 and Part 4.

2.14.5 Access and Exit Facilities and Emergency Escapes

Facilities for access and exit and emergency escape shall comply with the provisions set forth in Sec 1.6 of Chapter 1 Part 3, and Chapter 3, Part 4.

2.14.6 Lighting and Ventilation

2.14.6.1 All spaces and rooms customarily occupied by human beings shall be provided with natural light by means of exterior glazing with an area of not less than 10 Percent of the floor area. Such rooms and spaces shall be provided with natural ventilation by means of exterior openings with an open able area not less than 5 Percent of the total floor area or artificial light and mechanically operated ventilation system as per provisions of this Code.

2.14.6.2 Ventilation in Hazardous Locations: The rooms, spaces or areas where explosive, corrosive, combustible, flammable or highly toxic dust, mists, fumes, vapors or gases are stored or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated.

2.14.6.3 The mechanical ventilation of all hazardous uses shall be segregated or separated from the ventilation of other areas. The emissions generated at work areas shall be confined to the area in which they are generated and shall be removed or discharged outside the building and preventive measures against back flow of such hazardous fumes or gases inside the building shall be installed.

2.14.6.4 Ventilation of Toilets: Toilets shall be provided with fully open able exterior window of at least 0.3 m² in area or a vertical duct not less than 62500 mm² in cross-section for the first water closet, with 31250 additional mm² for each additional fixture or a mechanically operated exhaust system equipped to provide a complete change of air in every 15 minutes. Such system shall be connected to the outside air and the point of discharge shall be at least 1.0 m away from any other opening into the building.

2.14.6.5 Other requirements of water closets are specified in Sec 1.12.4 Chapter 1, Part 3.

2.14.7 Sanitation

All buildings or part of a building classified as Occupancy J shall conform to the provisions of Sec 1.16 of this Chapter and Part 8 of this Code.

2.14.8 Shaft and Exit Enclosures

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3, Part 4.

2.14.9 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.14.10 Explosion Control

Explosion control, equivalent protective devices or suppression systems or barricades shall be installed to control or vent the gases resulting from deflagrations of dusts, gases or mists in a room or area, building or other enclosures to minimize structural or mechanical damage.

Walls, floors and roofs separating a use from explosion exposure shall be designed according to the provisions of Chapter 1, Part 6.

Explosion venting shall be designed in exterior walls or roof only. The venting shall be provided to prevent serious structural damage and production of lethal projectiles. The venting design shall recognize the natural characteristics and behaviors of building materials in an explosion. The vents shall be designed to relieve at a maximum internal pressure of 1.0 kPa but not less than the loads required by Chapter 2, Part 6. One or more of the following systems shall be installed to relieve explosion, where applicable:

- (a) Lightweight materials in walls
- (b) Light fastening devices with hatch covers
- (c) Light fastening with outward opening swing doors in exterior walls
- (d) Nonbearing walls with light ties

The venting devices shall discharge vertically or horizontally directly to an unoccupied yard having a width of not less than 16 m on the same plot.

The releasing devices shall be so located that the discharge end shall not be less than 3 m vertically and 6 m horizontally from window openings or exits in the same or adjoining buildings.

2.14.11 Special Hazard

Chimneys, vents and ventilation ducts shall be of noncombustible materials.

All boilers, central heating plants, electrical rooms or hot water supply boiler shall be separated from the rest of the occupancies or uses by not less than 2 hour fire resistive construction.

The devices that generate a spark, flame or glow capable of igniting gasoline shall not be installed or used within 0.5 m of the floor.

Equipment or machinery that produces or emits combustible or explosive dust or fibers shall be provided with an approved dust collecting and exhaust system.

The equipment or systems that are used to collect or process or convey combustible dust or fibers shall be installed with explosion venting or containment system.

2.15 REQUIREMENTS FOR OCCUPANCY K–GARAGE BUILDINGS

Buildings shall be classified as Occupancy K in accordance with Sec 2.1.15.

Exception: Non-separated use mentioned in Sec 2.3.1.

2.15.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy K shall be limited to the type of construction set forth in Table 3.2.4 and Sec 2.4.4.2 and shall comply with the other provisions of Sec 1.8 Chapter 1 Part 3, Appendix F and Sec 2.4.2 to meet the requirements and limitations of height and area. With the exceptions mentioned in Sec 2.4.3, all garage floors shall be constructed with not less than 4 hour fire resistance materials.

2.15.1.1 Floors: The floors and spaces where motor vehicles are stored, repaired or operated shall be of noncombustible, liquid-tight construction.

Exception: In floors and areas where no repair works are carried out may be surfaced or waterproofed with asphaltic paving materials.

2.15.1.2 Spill Control: The floors containing hazardous repair or other works shall be recessed a minimum of 100 mm so as to prevent flow of liquids to adjoining areas.

2.15.1.3 Drainage: The buildings and areas shall be provided with approved drainage system to direct the flow of liquids to an approved location or room or area designed to provide secondary containment of the hazardous materials and fire protection water.

The drains shall be designed with adequate slope and section to carry the design discharge of the sprinkler system. The material used in the drains shall be suitable for drainage of the storage materials.

The quality of discharged liquids must attain approved level before discharging into the public sewer or natural stream or river.

2.15.1.4 Smoke and Heat Vents: Smoke and heat vents shall be provided in areas or rooms containing hazardous materials exceeding the exempt amount of Table 3.2.5.

2.15.2 Location on Property

Buildings of Occupancy K shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.15.3 Access and Exit Facilities and Emergency Escapes

Facilities for access and exit and emergency escape shall comply with the provisions set forth in Sec 1.6 Chapter 1 Part 3, Chapter 3 Part 4 and Appendix F.

2.15.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy K shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Chapters 1 and 3, Part 8.

2.15.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3 Part 4.

2.15.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.16 REQUIREMENTS FOR OCCUPANCY L – UTILITY BUILDINGS

Buildings shall be classified as Occupancy L in accordance with Sec 2.1.16.

2.16.1 Construction, Height and Allowable Area

The buildings or parts thereof classified as Occupancy L shall be limited to the type of construction set forth in Table 3.2.4 and Sec 2.4.3, and shall comply with the provisions of Sec 1.8 Chapter 1 Part 3, and Sec 2.4.2 to meet the requirements and limitations of height and area.

2.16.2 Location on Property

Buildings of Occupancy L shall comply with the requirements for location on property and fire resistive exterior walls and openings as specified in Sec 2.4.1.

2.16.3 Access and Exit Facilities and Egress System

Facilities for access and exit and egress system shall comply with the provisions set forth in Sec 1.6 Chapter 1 Part 3 and Chapter 3 Part 4.

2.16.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy L shall conform to the provisions of Sec 1.16 Chapter 1 Part 3, Chapters 1 and 3, Part 8.

2.16.5 Shaft and Enclosure

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with Chapter 3 Part 4.

2.16.6 Fire Detector, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

2.16.7 Special Hazard

2.16.7.1 Since the nature of use of this occupancy involves hazard, special consideration for maintenance and operational safety must be ensured. Depending upon the degree of hazard involved, this occupancy type may have separate and isolated structure.

2.16.7.2 Chimneys and vents and ventilation ducts shall be of noncombustible materials.

All boilers, central heating plants, electrical rooms or hot water supply boiler shall be separated from the rest of the occupancies or uses by not less than 2 hour fire resistive construction.

The devices that generate a spark, flame or glow capable of igniting gasoline shall not be installed or used within 0.5 m of the floor.

Equipment or machinery that produces or emits combustible or explosive dust or fibers shall be provided with an approved dust collecting and exhaust system.

The equipment or system that is used to collect or process or convey combustible dust or fibers shall be installed with explosion venting or containment system.

2.17 REQUIREMENTS FOR OCCUPANCY M – MISCELLANEOUS BUILDINGS

Buildings shall be classified as Occupancy M in accordance with Sec 2.1.17.

2.17.1 General

The buildings or parts thereof classified as Occupancy M shall be limited to the type of construction set forth in Table 3.2.4 and shall comply with the requirements of Sections 1.8 and 2.4.2 to meet the requirements of height and area limitations.

Any building or portion thereof that exceeds the limitations provided in this Chapter shall be classified in the occupancy group other than M that it most nearly resembles.

2.17.2 Location on Property

The location on property for Occupancy M shall conform to Sec 2.4.1.

2.17.3 Access and Exit Facilities and Emergency Escapes

Access and exit facilities for Occupancy M shall comply with the specification set in Sec 1.6 Chapter 3, Part 4.

2.17.4 Lighting, Ventilation and Sanitation

All buildings or part of a building classified as Occupancy M shall conform to the provisions of Sec 1.16 Chapters 1 and 3, Part 8.

2.17.5 Shaft and Exit Enclosures

Elevator shafts, vent shafts and other vertical openings shall be enclosed with a construction of at least 4 hour fire resistance. Exit requirements shall comply with the requirements of Chapter 3, Part 4.

2.17.6 Fire Detection, Alarm, Evacuation and Extinguishment System

All buildings shall conform to regulations set forth in Part 4 of this Code.

Table 3.2.6: A-Z List of Occupancy Classification

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
A		
Adhesives manufacture	Excluding manufacture of basic components...	G or J depending on nature of materials involved
Advertising displays manufacture...		G
Agricultural machinery manufacture,	Including repairs...	G
Agriculture	Without nuisance or sales limitation	H
Agricultural	Small farm house, (limited to storage quantity)	F
	Large farm house, storage quantity unlimited...	H or J
	Small grain processing unit, (limited to quantity)	G
	Large grain processing unit, quantity unlimited...	G or J
Aircraft manufacture (including parts)...		G or J depending on nature of materials and process involved
Airports...		MIXED USE (depending on detail requirement)
Amusement parks, children's	(See children's amusement parks)	-
Amusement park activities...		I
Animal	Animal hospitals...	F
	Animal pound (for stray and lost animal)...	H
	Animal crematorium...	G
	Killing establishments, for retail sales ...	F
	Slaughtering, processing and packing...	G
Antique stores...		F
Apartments	(see residential)	
	in walkup buildings...	A
	In high rises...	A
	in housing complex...	A
Apartment hotels...		A5
Apparel	(See clothing)	
Appliances	Electrical appliance Manufacturing...	G
	Television, radio, phonograph or household appliance stores, (Limited as to floor areas)...	F
	Television, radio, phonograph or household appliance stores, (Unlimited)...	F
	Household appliance repair shops...	F
Arenas, auditoriums, or stadiums	See Assembly (Limited as to capacity)...	I
	See Assembly (Unlimited)...	I
Art Galleries	Commercial (sales included)	F
	With exhibition open to public viewing for limited period (sales included)	I
Art goods manufacture, religious temple or church, excluding foundry operations...		G
Art metal craft shops...		F
Art needle work...	Six occupants or less...	Non-separated use to A1 and A2 Occupancy
	More than six occupants (see industrial)	G

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Artist's supply stores...		F
Asphalt or asphalt products	Manufacture...	J
Assembly	Large assembly with fixed seats	I1
	Small assembly with fixed seats	I2
	Large assembly without fixed seats	I3
	Small assembly without fixed seats	I4
	For sport facilities	I5
Athletic equipment manufacture...		G
Athletic goods stores...		F
Auctions rooms, open to public...		I
Auditoriums	See assembly	I
Automatic laundries		G
Automobiles	Dead Storage...	H
	Driving Schools...	E
	Glass or mirror shops...	F
	Washing...	K
	Manufacture, including parts, or engine rebuilding...	J
	Rental establishments...	K
	Repairs, body...	K
	Repairs, without body repairs...	K
	Sales open or enclosed...	K
	Seat cover or convertible top establishments, selling or installation...	F
	Showrooms, no repair services....	K
	Supply stores, no repair services....	F
	Tire sales establishments, limited to quantity...	F
	Tire sales establishments, unlimited...	J
Wrecking establishments...	G	
Automotive service stations	Limited as to total area...	K
	Unlimited....	K
Awnings	Custom shops	H
	Manufacture, with no limitation on production or on floor area ...	G
B		
Bakeries	Home-made, six or less occupants (baking included)	non-separated use to main occupancy
	Large scale, more than six occupants (baking included)	G
	Sales only	F
Banks,	Including drive-in banks...	E
Banquet halls...		I
Bar, alcoholic		I
Barber shops...		F
Barns		H

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Barracks	(See residential)	A4
Baths, steam...		I
Beaches, commercial ...		Not applicable
Beauty parlors...		F
Beverages	Bottling works ...	G
	Manufacture, Alcoholic ...	J
	Non-alcoholic ...	G
Bicycle	Manufacture ...	G
	Rental or repair shops ...	F
	Sales...	F
Billiard parlors		I
Blacksmith shops	small scale (limited to six occupants), repair or making	F
	Unlimited...	G
Blueprinting establishments	drawing printing	G
Boarding houses	(See residential)	A
Borstals		C
Boatels		A
Boats or ships	Bailer works at port or dock	J
	Breaking	J
	Building or repair, for boats less than 200 ft. in length...	J
	Building or repair, for boats 200 ft. or more in length...	J
	Docks, for small pleasure boats ...	Not applicable
	Fuel sales, open or enclosed	
	Un- restricted as to location...	F
	Restricted as to location...	J
	Rentals opened or enclosed...	F
	Sales opened or enclosed...	F
	Showrooms, with no repair services...	F
	Storage, repair, or painting, including the incidental sales of boats, boat parts, or accessories, with restrictions on boat size and setbacks...	G
Bone distillation...		G or J depending on process or material used
Botanical garden structures		M
Book	Binding (see printing)	
	Hand binding or tooling...	G
	Store....	F
Bottling works, for all beverages...		G
Bowling alleys...	Limited as to number of lanes...	I
	Unlimited...	I
Breweries...		G
Brick manufacture...		J

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Brush or broom manufacture...		G
Building materials sales	open or enclosed, limited as to lot area ...	F
	Yards, for sales, storage, or handling, open or enclosed, unlimited as to lot area except in the case of lumber yards ...	F
Bungalow	(See residential)	A
Business	Offices	B1
	Research and testing laboratories	B2
	Essential services	B3
Bus stations	With less than 10 berths...	K (bus area) and I (passenger area)
	With 10 or more berths...	MIXED (as per detail requirement including K and I)
Bus stops	see Bus stations	
Business machines	Manufacture...	G
	Small, repair shops...	F
	Stores, sales, or rentals...	F
Business schools or colleges ...		B
Buying house (garments)	storage restricted to sample	E
C		
Café	Six persons or less	Non-separated use to main Occupancy
	More than six persons (see mercantile)	F
Cafeteria	With commercial kitchen	MIXED (G and I)
	Without commercial kitchen	I
Camera and photo equipment	Manufacture...	G
Camps, overnight or outdoor day ...		MIXED (A, I and other depending on the nature of use)
Candy stores		F
Canneries, including food products		J
Canteen	With or without cooking facility	I
Canvas or canvas products manufacture...		G2
Cargo terminal	containing low fire-risk materials	H
	containing moderate fire-risk materials	H
	containing high fire-risk materials	J
Carnivals, temporary...		I5
Carpentry shops ...		G
Carpet	Cleaning establishments....	J or G depending on the nature of materials involved
	Manufacture...	G
	Carpet, rug, linoleum or other floor covering stores	F
	Unlimited ...	
Carport	Roofed wall less shelter for car	K or H depending on the nature of use
	Automated mechanical parking	K or H depending on the nature of use

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Catering establishments...	Commercial kitchen	G
	Office	E
	Storage, open or enclosed ...	H
	Storage for temporary structure's fabrication material	J
Cattle shed, stables		H
Cement manufacture ...		G2
Cemeteries...		H
Ceramic products ...	Manufacture	G or J based on nature of material used
	Display and sales	F
Chamber, doctors' or dentists', (outpatient only)	50 or less occupants	E
	above 50 occupants	D
Charcoal manufacture...		G
Chemicals	Compounding or packaging...	G or J depending on nature of materials involved
	Manufacture...	G or J depending on nature of materials involved
Child care home		C
Child care institution		C
Children's amusement parks	Small...	I
	Medium size...	I
	Large size....	I
	Unlimited as to size...	I
Churches, with fixed pews	(See Assembly with fixed seats)	I
Cigar stores...		F
Cinema hall	(See Assembly with fixed seats)	I
Cineplex	(See Assembly with fixed seats)	I
Circuses, temporary...	(See Assembly)	I
Class room	School, college or university	B
Clay manufacture ...		G
Clay pits...		Not applicable
Cleaning or cleaning and dyeing establishments	(See dry cleaning)....	
Clinics	With inpatient	D
	Only outpatient, limited to quantity (see chambers, doctors' or dentists')	
	Only outpatient, unlimited	D
	With diagnostic facilities (see diagnostic facilities)...	
	Government community clinic	E
Coaching centre	(See educational facilities)	B
Cold storage		H
Composite textile mill		G or J depending on nature of material and process used

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Cottage industries	Small, fifty or less workers...(see industrial facilities)	G1
	Large, more than fifty workers... (see industrial facilities)	G1 or G2 depending on the nature of material and process used
Clock	Manufacture...	G
	Stores or repair shops...	F
Clothing	Accessory stores	F
	Custom manufacture or altering for retail...	F
	Manufacture...	G or J depending on nature of the material involved
	Rental establishments...	F
	Store, Limited as to floor area...	F
	Store, Unlimited...	F
Clubs Non-commercial (members only)	Including accommodation	MIXED (A and I)
	Night-club	I
	All types except those with outdoor swimming pools...	
Clubs, for public use	Excluding accommodation	I
	Including accommodation	MIXED (I and A or other occupancies depending upon nature of use)
Clubs, Sporting		MIXED (I and A or other occupancies depending upon nature of use)
Coal	Products manufacture...	J
	Sales, open or enclosed, Limited as to plot area...	J
	Unlimited (see coal storage)	J
	Storage, open or enclosed ...	J
Coin stores...		F
Condensed and powdered milk	Manufacture...	J
Coke products	Manufacture...	J
Colleges or universities	See educational facilities	B
Colony, government or non-government		MIXED (A and other occupancies depending on use)
Commercial building	(see business and/ or mercantile)	
Commercial parking garages or plots	(See garages)	K
Community centers...	With commercial kitchen	MIXED (G and I)
	Without commercial kitchen	I
Concrete batching		G
Concrete products manufacture		G
Construction machinery	Manufacture, including repairs....	G
Container terminal		H or J (According to the hazard classification regulation of the port authority)

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Contractors' establishments	Electrical, glazing, heating, painting, paper hanging, plumbing, roofing, or ventilating	F
	Contractors' yards...	Not applicable
Convalescent homes	(See nursing homes)	
Convents		MIXED (A, B and I)
Cork products	Manufacture...	G
Cosmetics or toiletries	Manufacture...	J
Costume rental establishments...		F
Cottage, tourist	(See residential)	A5
Cotton ginning or cotton wadding or liner manufacture...		J
Court houses...		I
Crate manufacture		G or J depending on the material and process involved
Crematoriums	Animals.	J
	Human.	MIXED (J and I)
Cultural center		Mixed (depending on detail requirement)
D		
Dance halls	Public	I
Dance School		A
Dance studios	(see studios)	
Day camps, outdoor		I
Day care Centre	With six or less children	Non-separated use to Residential Occupancy
	More than six children	C
Decorator's establishment	Office	E
	Storage, separated	H or J depending upon the material involved
Defense Buildings, for critical national defense capabilities		Not Applicable
Delicatessen stores	(See food stores)	F
Dental	Instruments manufacture...	G
	Laboratories (See laboratories, medical or dental)	
Department stores...	not exceeding 300 m ²	F1
	more than 300 m ²	F2
Diagnostic facilities, medical	Outpatients only	D
Diaper supply establishments...		H
Disinfectants manufacture...		G
Dispensaries	Attached to hospital	L
	See drug store	F
Dormitories	Universities or colleges (above 12 grade)	A
	Schools (12 grade or below)	C
Drafting instruments	Manufacture...	G
Dressmaking shops, custom...		F

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Drinking places, non-alcoholic	(See cafe)	
Drive-in theaters...		I
Drug stores...		F
Dry cleaning or clothes pressing establishments	Limited as to floor area, solvents and machine capacity...	G or J depending on the process and quantity of material used
Dry cleaning or cleaning and dyeing establishments	Without restrictions...	G or J depending on the process and quantity of material used
Dry Cleaning, using other than flammable liquids in cleaning or dyeing operations		G
Dry goods stores	Limited as to floor area...	F
	Unlimited...	F
Dumps		Not applicable
Dyeing facilities/ industries		J
E		
Eating or drinking places	With restrictions on entertainment (see Assembly)	I
	Without restrictions on entertainment or dancing but limited to location in hotels (see Assembly)	I
	Without restrictions (See assembly)	I
Eco park structures		MIXED (depending upon the nature of use)
Educational facilities	Up to higher secondary level	B1
	Training and above-higher-secondary education	B2
	Pre-school facilities	B3
Electric	Power or steam generating plants ...	G
	Substations, Public transit or railroad	G
	Substations, as part of public distribution system	G
	Substations, low to medium voltage step down, at consumers' end	L
Electrical Appliance	Manufacture ...	G or J depending upon the process or material to be used
	Stores (including television, radio, phonograph or household appliances)	F
	Contractors (See contractors' establishments)	
	Equipment assembly, not including electrical machinery...	G
	Supplies, manufacturing.....	G
Electronics manufacturing		J
Electrolysis works		J
Electrotyping or stereotyping	Limited to quantity	F
	Unlimited (see printing)	G
Embassy or High-commission or Consulate		MIXED (depending on detail requirement)
Engine	including rebuilding or reconditioning	J
Engraving or photo-engraving	Limited to quantity	F

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
	Unlimited (see printing)	G
Excelsior manufacture		J
Exhibition hall	See assembly	I
Exterminators	See pest control	F
F		
Fabric stores		F
Factory		G or J (depending on process and material involved)
Fairs, temporary		MIXED (I and F)
Feathers	Bulk processing, washing, curing, or dyeing	J
	Products manufacture, except washing, curing or dyeing	J
Felt	Bulk processing, washing, curing, or dyeing	G
	Products manufacture, except washing, curing or dyeing	G
Fertilizer manufacture		J
Field hospital, temporary	With provision for ambulance access (to parks and play grounds)	E
Filling stations	(See refueling station)	B
Film, photographic	Manufacture	G
Fire Stations		E
Fish products, packing or processing		G
Fishing tackle or equipment rental or sales		F
Flats	(see residential) In walkup buildings... In high rises... in housing complex	A A A MIXED (A and other occupancies)
Florist shops		F
Food	Products processing, except meat slaughtering or preparation of fish for packing Stores, including supermarkets, grocery stores, meat markets, or delicatessen stores	G F
Foundries	Ferrous or non-ferrous	G or J (depending on process and material involved)
Fraternity houses	(See colleges or universities)	
Freight depot	See storage and hazardous buildings	H and/or J
Frozen food lockers		J
Fuel briquettes manufacture		G
Fuel sales, open or enclosed	Limited up to exempted quantity Unlimited, See coal storage or petroleum storage	F J
Funeral establishments		I
Fungicides manufacture		G
Fur	Goods manufacture, not including tanning or dyeing Tanning, curing, finishing, or dyeing...	G J

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Furniture	Custom shop, floor area of 100 m ² or less	F
	Custom shop, floor area over 100 m ²	G
	Manufacture...	J or G depending upon nature of materials involved
	Store, Limited as to floor area...	F
	Store, Unlimited ...	F
Furriers shops, custom		F
Freight depot		H or J depending on the nature of material involved
G		
Garages	Parking garage	K1
	Private garage	K2
	Repair garage and show-rooms	K3
Garbage incineration or reduction		G
Garden shed		M
Garden supply stores		F
Gardens, truck	(See agriculture)	
Garments industries		G
Gas, fuel	Manufacture...	J
	Distribution regulatory system (DRS)	G
Gas manufacture for	Medical purpose	J
	Hot-works (welding)	J
Gasoline service stations	(See refueling stations)	
Gelatin manufacture		G
Generating plants, electric or steam		G
Gift stores		F
Glass	Cutting shops...	F
	Manufacture...	G
	Products manufacture from previously manufactured glass...	G
Glazing contractor's establishment	(See contractors' establishments)	F
Glue manufacture		G
Godown	See storage buildings	
Golf	Courses...	Not applicable
	Courses, miniature.....	I
	Driving ranges	I
Grain	Milling or processing....	J
	Storage...	J
Graphite or graphite products	Manufacture...	G
Gravel pits		Not applicable
Grocery stores		F
Group homes	Segregation of occupants on the basis of age group and disabilities (See institutional)	C
Gypsum production industry		J

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Gymnasiums	Less than 300 occupants	I
	300 or more occupants	I
	Commercial without spectator gallery (max 50 occupants)	
H		
Hair	Bulk processing, washing, curing, or dyeing	G
	Products manufacture (except washing, curing, or dyeing)	G
	Products manufacture, custom	G
Hall, for incidental show (picture, drama, theatre...)	(See assembly)	I
Hardware	Manufacture...	G
	Stores...	F
	Bodies manufacture...	G
	Repair shops...	F
Hazardous buildings	Explosion-hazard building	J1
	Chemical-hazard building	J2
	Biological-hazard building	J3
	Nuclear-hazard building	J4
Health centers	With inpatient	D
	Without inpatient (not more than 50 occupants)	E
	Government operated health centers	E or D (depending upon the facilities)
Healthcare facilities	Normal medical facilities	D1
	Emergency medical facilities	D2
Health club		I
Heating contractor's establishment	(See contractors' establishments)	
Heat, ventilation and air-conditioning equipment showrooms	Without repair facilities...	F
Heliports		G
Hemp products manufacture...		G
High Commission	See embassy	
Home for care	of the old and infirm (see institution)	
	of mentally disabled (see institution)	
Home office	Not more than 6 occupants	Non-separated use of Occupancy A
Hosiery manufacture		G
Hospital, except animal hospital	As part of disaster preparedness program	D
	Casualty unit	D
	Emergency unit	D
	Non-profit or voluntary, and related facilities...	D
	Proprietary and related facilities...	D
Hostels	For adults	A
	For children	C
Hotels	Transient...	A

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
	Apartment hotel	A
	Starred hotel	MIXED
Household	Appliance repair shops...	F
	Appliance stores (See appliances television, radio, phonograph, or household appliance stores)	F
Housing, complex multi-storied		MIXED (see appendix)
Housing, cluster		MIXED (see appendix)
Housing, low-income		MIXED (see appendix)
Housing, minimum standard		MIXED (see appendix)
Housing, rehabilitation		MIXED (see appendix)
I		
Ice cream stores...		F
Ice	Manufacture, dry or natural.....	G or J (depending on the process or material used)
	Sales, open or enclosed Limited as to lot area...	F
	Unlimited	F
Incineration or reduction of garbage, offal, or dead animals...		G
Indoor facility, for amusement park		I
Industrial buildings	Low-hazard Industries	G1
	Moderate-hazard Industries	G2
Infirmaries		C
Ink or inked ribbon manufacture		G or J depending on nature of materials involved
Inns	See residential	A
Insecticides manufacture		G or J depending on nature of materials involved
Institution	For care of children	C1
	Custodial, for physically capable adults	C2
	Custodial, for physically incapable adults	C3
	Penal or mental, for children	C4
	Penal or mental, for adults	C5
Institutions, philanthropic or non-profit	With sleeping accommodations.....	A
	Without sleeping accommodations...	
Interior decorating establishments	Limited as to floor area for processing, servicing, or repairs	F
	Unlimited, see furniture, textiles or upholstery	F
Irradiation plant		J
J		
Jail	see prisons	
Jewelry	Manufacture...	G
	Costume...	G
	From precious metals...	G
	Shops...	F
Junk Yards		Not applicable

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Jute products manufacture...		G or J (depending on quantity or process)
Juvenile correctional center	For children (see assembly)	
K		
Kennels		H
Kindergarten	See educational facilities	B
Knitwear industries		G2
L		
Laboratories	Medical or dental, for research or testing, with limitations on objectionable effects... Research, experimental, or testing, unlimited... Radiological laboratory, see radiological facilities Pathological laboratory Microbiological laboratory, for diagnostic facility Microbiological laboratory, for research	E (G or J) and H depending on process or material used in compliance with safety standards G (in compliance with safety standards) G or J depending on process or material used in compliance with safety standards G or J depending on process or material used in compliance with safety standards
	Microbiological laboratory, for academic facility	G or J depending on process or material used in compliance with safety standards
Lampblack manufacture...		G
Laundries, with no limitations on type of operation...		G
Laundry establishments, hand or automatic self-service...		G
Lavatory, public	see public toilet	
Leather	Tanning, curing, finishing or dyeing... Goods stores... Products manufacture...	J F G
Libraries...	Reading area (see assembly) Stack area (see storage) Reading and stack area combined	I H MIXED (I and H)
Lillah boarding	For children (see institutional) For adults (see residential)	C A
Linen supply establishments...		
Linoleum	Manufacture... Stores (See carpet stores)...	J
Liquor stores, package...		F
Livestock	Storage, more than six castles Slaughtering or preparation for packing...	H G

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Loan offices...		E
Locksmith shops...		F
Lodging	See residential	A
Luggage	Manufacture...	G
	Stores...	F
Lumber	Processing or woodwork, bulk...	G
	Sales, Limited as to lot area	G
	Sales, Unlimited...	G
	Yard, Limited as to lot area....	G
	Yard, Unlimited...	G
M		
Machine	Shops including tool, die or pattern making...	G
	Tools manufacture...	G
Machinery	Manufacture or repair, Heavy...	G or J depending on material and process
	Miscellaneous or electrical equipment...	G or J depending on material and process
	Rental or sales establishments...	F
	Repair shops...	F
Machines, business	(See business machines)	
Madrasa	(See institution)	
Manure storage		H
Markets	Retail, including meat (See mercantile)	F
	Wholesale, produce or meat (See mercantile)	F
Masseurs		F
Matches manufacture		J
Mattress manufacture, rebuilding or renovating		J
Meat	Markets, Retail (See food stores)...	F
	Markets, Wholesale...	F
	Slaughtering or preparation for packing...	G
Medical	Appliances, Custom manufacture...	G
	Appliances, Manufacture...	G
	Stores...	F
	Instruments, manufacture...	G
	Laboratories (See laboratories, medical)	
	Offices or group medical centers, Limited as to location within building...	E
Offices or group medical centers, Unlimited...	E	
Meeting halls	See Assembly	I
Mess houses	(See residential)	
Metal Fabrication industry		J
Metal Assembly industry		J

Use or Occupancy	Brief Description	Occupancy Class/Sub-class	
Metals manufacture	Alloys or foil, miscellaneous...	G	
	Casting or foundry products, heavy....	G	
	Finishing, plating, grinding, sharpening, polishing, cleaning, rust proofing, heat treatment, or similar processes...	G	
	Ores reduction or refining...	G	
	Products treatment or processing...	G	
	Reduction, refining, smelting, or alloying...	G	
Metal manufacture	Stamping or extrusion...	G	
	Treatment or processing...	G	
	Mental institution	Without detention facilities	D
	Mental hospitals	(See institution)	C
	Mercantile	Small shops and markets	F1
Large shops and markets		F2	
Refueling station		F3	
Mill	(See industrial and/ or hazardous buildings)	G or J (depending on material or process)	
Mill works, and woodworking, wood distillation and particle boards manufacturing		J	
Millinery shops		F	
Mining machinery manufacture	Including repairs...	G	
Mirror silvering shops		G	
Miscellaneous buildings	Special structures	M1	
	Fences, tanks and towers	M2	
Monasteries		MIXED	
Monument	Sales establishments, with incidental processing to order...	F	
	Works, with no limitations on processing...	G	
Mosque	(See assembly)	I	
Motels	(See residential)	A	
Motion picture production and filming facilities		MIXED (G and other Occupancies as required)	
Motorcycles	Manufacture...	G	
	Repairs, body...	G	
	Repairs, except body repairs...	G	
	Sales open or enclosed...	F	
	Showrooms, with no repair services(See garage)	K	
Motor freight stations	See truck terminals		
Motor vehicles	Dead storage...	H	
	Moving or storage offices, Limited as to storage	K	
	Unlimited	K	
Movie theatre	See assembly	I	
Museums	See assembly	I	
Music stores		F	
Music studios	See studios		

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Musical instruments	Manufacture, Excluding pianos and organs...	G1
	Including pianos and organs...	G2
	Repair shops...	G1
N		
Newspaper publishing	Printing	MIXED (G and E) G
	Office	E
Newsstands, open or closed		F
Novelty products manufacture		G
Novitiates...	See institution	A
Nuclear medicine facilities	see radiological facilities	
Nuclear plant		J
Nurseries	See agriculture	
Nursing homes	Philanthropic or non-profit...	C or D depending on the type of occupants and nature of use
	Private	C or D depending on the type of occupants and nature of use
Nursery schools	See pre-school	B
O		
Oakum products manufacture....		G
Office equipment or machinery repair shops...		F
Office or business machine stores	sales or rental	F
Offices	General	E
	Business, professional or Governmental...(see business occupancy)	E
	Dental, medical, or osteopathic (See medical offices)	E
	Wholesale, with storage restricted to samples (see business occupancy)	E
Offices, small	Architect's/ engineer's/ consultant's (Limited to six occupants)	Non-separated use of Occupancy A
	Architect's/ engineer's/ consultant's (more than six occupants)	E
Oil cloth manufacture...		J
Oil sales, open and enclosed	Limited as to lot area.....	F
	Unlimited (See petroleum or petroleum products storage)...	J
Old home	See institution	C
Optical	Equipment manufacture...	G
	Goods manufacture...	G
Orphanage	See institution	C
Optician or optometrist establishments		F
Orthopedic	Appliances, Custom manufacture...	G
	Manufacture...	G
	Stores...	F
	Instruments, manufacture...	G
Osteopathic offices	(See medical offices)	

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
P		
Packing or crating establishments		G2
Packing materials manufacture....		G2
Pagoda	See Prayer hall	
Paint	Manufacture...	J
	Stores, limited to quantity...	F
	Stores, unlimited...	H
Painting contractors	(See contractors' establishments)	
Paper	Mills (See wood pulp or fiber)...	G
	Products manufacture...	G
	Stock companies...	H
Paper-hanging contractors	(See contractors' establishments)	
Parish houses		A
Parks, public or private...	With provision for emergency vehicle access as part of disaster preparedness program	Not applicable
Park structures		M
Parking garages, public	See garage, parking	K
Parking lots, public	See garage, parking	K
Passenger stations and terminals	Small, passenger station	MIXED (depending on nature of use)
	Large, passenger station or terminal	MIXED (depending on nature of use)
	Passenger and freight terminal	MIXED (depending on nature of use)
Peat storage		H
Perfumed or perfumed soaps	compounding only, not including soap manufacture	J
Pest control	Exempted quantity only	F
Pet shops		F
Petrol pump	See refueling station	F
Petroleum or petroleum products	Refining...	J
	Storage and handling...	J
Pharmaceutical products manufacture		G or J depending on nature of materials used
Philanthropic, religious or non-profit activities		MIXED (depending on nature of use)
Phonograph	Repair shops...	F
	Stores (See appliances)...	F
Photocopying and book binding	Binding limited in quantity...	F
Photographic	Developing or printing establishment, Retail	F
	Developing or printing establishment, Wholesale, Limited as to floor area	H
	Developing or printing establishment, Wholesale, Unlimited	H
	Equipment, Manufacture (film)	J
	Equipment, Manufacture (except film)	G
	Stores	F
	Studios	F
Supply stores (limited to exempted quantity)	F	

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Photostatting establishments		F
Physical culture establishments		I
Picture framing stores		F
Plants, Industrial		G
Plants, Refrigeration		G
Plastics	Products, manufacture.....	J
	Raw, manufacture.....	J
Plate making	(See printing)	
Playgrounds	With provision for emergency vehicle access as part of disaster preparedness program	I
Plots, parking	(See parking lots, public)	
Plumbing	Contractors' establishments	F
	Equipment manufacturer (See tools or hardware manufacturing)	
	Showrooms, without repair facilities...	F
Police Stations		E
Pool halls		I
Porcelain products manufacture		G
Post offices		E
Poultry	Storage (live)	H
	Killing establishments, for retail sales on the same zoning lot only...	G
	Packing or slaughtering...	G
Power plant		G
Power stations	As part of national grid power distribution system	E
	At consumer's end	L
Prayer hall	See assembly	I
Precision instruments manufacture	Optical equipment, clocks, or similar products...	G
	Medical, dental, or drafting instruments, optical goods, or similar products...	G
Pre-school facilities	See educational	
Press club, for journalist		I
Press, printing	See printing	
Primary schools	See educational	
Printing	Custom...	G
	Limited as to floor area...	G
	Unlimited...	G
Printing, publishing, dyeing and printing industries		J
Prisons	See jail	C
Produce or meat markets, wholesale		F
Psychiatric sanatoria	With detention facilities (see institution)	
Public auction rooms		MIXED (F and/or I)
Public transit yards		Not applicable
Publishing	With printing	G
	Without printing	E
Pumping stations	Water or sewage (for city supply system)	G
	Dedicated to consumer	U

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Q		
Quarter, Staff	Government or non-government	A or Mixed (See appendix)
R		
Racetracks		I
Radio	Appliance repair shops...	F
	Stores...	F
	Studios, with less than six occupants	Non-separated use to main Occupancy
	Studios, without transmission tower...	E
	Studios, with transmission tower(see radio station) Towers, non-accessory...	M
Radio station		Mixed (depending on the type of use)
Radiological facilities, medical	In compliance with the standard of atomic energy commission	D
Radioactive waste disposal services		J
Railroad	Equipment manufacture, including railroad cars or locomotives...	G or J depending on the material and hot-work used
	Passenger stations...	I
	Right-of-way...	Not applicable
	Substations...	
	Small or medium size...	G
	Large... Railroads, including rights-of-way, freight terminals, yards or appurtenances, or facilities or services used or required in railroad operations, but not including passenger stations...	G Not applicable
Rail station		Mixed (depending on the type of use)
Record stores		F
Recreation centers, non-commercial		I
Recreation piers	See assembly	I
Recreational vehicles manufacturing		J
Rectories		A
Reducing salons		I
Reformatories	See institutional facilities	
Refreshments stand, drive-in...		I
Refrigerating plants		G
Refueling station	Petroleum product storage within exempted quantity	E
Refuse incinerators		J
Religious or church art goods manufacture.....		G
Research establishment	dealing with non-hazard or low hazard materials only	E
Residences	Single-family detached...	A
	One-family semi-detached or two-family detached or semi-detached...	A
	Boarding or rooming houses...	A
	Rest homes (See nursing homes)	

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Residential	Single family dwelling	A1
	Two family dwelling	A2
	Flats or apartments	A3
	Mess, boarding house, dormitories and hostels	A4
	Hotels and lodging houses	A5
Rest Houses		
Restaurant	Dining area	I
	Performing area, limited	I
	Kitchen and storage	L
Reviewing stand		I
Riding academies, open or enclosed		E and H
Roofing contractors' establishments		F
Rooming houses	See residential	A
Rubber	Processing or manufacture, natural or synthetic	J
	Products manufacture (excluding all natural or synthetic rubber processing)	J
Rug stores	(See carpet stores)	
S		
Sail-making establishments		F
Salvage storage		H
Sand pits		Not applicable
Saloon, hair dressing		F
Sanatoriums	With detention facilities (see institution)	C
	Without detention facilities	D
Sawmills		G
Scenery construction		G
School (see educational)	Dormitories, for children	C
	Nursery, kindergarten, elementary or secondary schools	B
	Trade or other schools for adults, limited as to objectionable effects...	B
	Trade schools for adults, unlimited....	B
	For physically challenged, without accommodation	B
	For mentally challenged, without accommodation	B
Scrap metal, paper and rag storage		H
Secondary school	See educational	B
Seed stores		F
Seminar halls	For 50 or more occupants, See assembly	I
Seminaries		B
Settlement houses	(see housing)	MIXED (A and other Occupancy depending on the nature of use)
Sewage	Disposal plants...	G
	Pumping stations...	G
Sewing machine stores, selling household machines only.....		F
Ship chandlers, candle shops		F

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Ship or boat building or repair yards	For ships 200 ft. in length or over....	G
Shipping, waterfront		Not applicable
Shoes	Manufacture... Repair shops... Stores...	G or J depending on the process and material involved F F
Shops	see definition	F or G (depending on the process and material involved)
Shop-house		mixed occupancy (A and F) or (A, F and G)
Sign painting shops	Limited as to floor area... Unlimited...	G G
Silk processing and spinning		J
Silo, for storage of grain		H
Silver plating shops, custom...		G
Silverware manufacture, plate or sterling		G
Sisal products manufacture		J
Skating rinks, roller	Indoor... Outdoor...	I I
Slag piles		Not applicable
Slaughtering of animals or poultry...		G
Soap or detergents	Manufacture, including fat rendering... Packaging only...	J G
Soldering shops...		G
Solvent extracting...		J
Sorority houses	(See hostel)	A
Sports centre		I
Sporting equipment manufacture.		G
Sporting goods stores...		F
Stable for horses...		H
Stadiums	Indoor or outdoor, with access for emergency vehicle as part of disaster preparedness program	I
Staff quarter	see quarter, staff	
Stamp stores...		F
Station	Rail, bus, air and water way	MIXED (I and other Occupancy depending on the nature of use)
Stationary stores...		F
Statuary, mannequins, figurines, religious or church art goods manufacture, excluding foundry operations...		G
Steel products	Miscellaneous fabrication or assembly (without hot-work)... Structural products manufacture...	G J
Stock yards or slaughtering of animals or poultry		G
Stone processing or stone products		G

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Storage buildings	Low-fire-risk storage	H1
	Moderate-fire-risk storage	H2
Storage facilities	Wholesale (see storage buildings)...	H
	Offices, limited to quantity	Non-separated use
	For cotton/jute/ paper/textile	J
Stores	See definition	F
Students' halls of residence	For children	C
	For adults	A
Studios	Music, dancing, or theatrical...	I
	Radio... (see radio studio)	
	Television, with spectator...	MIXED (I, E or G)
	Television, without spectator...	MIXED (depending on nature of material and process involved)
Sugar	Production and Refining...	J
Super market	See mercantile	F
Swimming pools	Commercial...	I
	Non-Commercial (See clubs)....	I
T		
Table tennis halls...	See assembly	I
Tailor shops, custom...		F
Tanning (See leather or fur)...		J
Tapestries manufacture...		G
Tar products manufacture...		G
Taxidermist shops...		F
Telegraph offices...		E
Telephone exchanges or other communications equipment structures...		E
Television	Repair shops...	F
	Stores (See appliances)...	F
	Studios (see television studios)	
	Towers, non-accessory...	M
Television station	See business	MIXED (E3 with other Occupancies according to detail requirement)
Temple	See prayer hall...	
Tennis courts, indoor.....		I
Terminal facilities at river crossings for access to electric, gas, or steam lines...		G
Test laboratory	involving low hazard material	E
Textiles	Bleaching (see industrial)...	G
	Products manufacture (see industrial)...	G
	Spinning, weaving, manufacturing, dyeing, printing, knit goods, yarn, thread, or cordage (see industrial)...	G
Textile industries and jute mills	including canvas, cotton cloth, bagging burlap, carpet and rags (see industrial)	J
Theater	See assembly	I

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Theaters, drive-in.....	(See studios)	
Theatrical studios	without spectator	G
Tile	Manufacture	G
Tire sales establishments	Including installation services, Limited to quantity	F
	Including installation services, unlimited quantity	J
Tobacco	Curing or manufacture, or tobacco products manufacture....	J
	Stores (retail)...	F
Toilet, public		L
Toiletries manufacture		G or J depending on the material and process involved
Tool or hardware manufacture...	See industries	G
Topsoil storage...	See storage	H
Tourist cabins...	See residential	A
Towel supply establishments...		F
Toys	Manufacture...	G
	Stores...	F
Trade or other schools for adults	Limited as to objectionable effects (see educational)	B
	Unlimited (see educational)...	B
Trade expositions	Limited as to rated capacity...	I
	Unlimited...	I
Trailer, truck, bus	Manufacture, including parts...	G or J depending on the material and process involved
	Repairs, body...	G or J depending on the material and process involved
	Sales open or enclosed...	F
	Showrooms, with no repair services....	F
Training center	lecture based, limited to quantity(see educational facilities)	E1 or B2
	vocational or demonstrative (see educational facilities)	B2
Transit substations	Small or medium size...	G
	Large...	G
Transport terminal	Small or medium size...	MIXED depending on nature of use
	Large...	MIXED depending on nature of use
Travel agency	(see business)	E
Travel bureaus	(see business)	E
Truck	Manufacture (including parts) or engine rebuilding...	G or J depending on the material and process involved
	Repairs, body...	G
	Repairs, except body repairs...	G
	Sales open or enclosed...	F
	Showrooms, with no repair services...	F
	Trucking terminals or motor freight stations, Limited as to lot area...	K1
	Trucking terminals or motor freight stations, Unlimited...	K1

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Tutorial homes	More than six occupants (see educational)	B
Turpentine manufacture....		J
Typewriter stores...		F
Typewriter or other small business machine repair shops...		F
Typography	(See printing)	
U		
Umbrellas	Manufacture...	G
	Repair shops...	F
University	See educational facilities	B2
Upholstery	Manufacturing	J
	Bulk, including shops not dealing directly with consumers...	J
	Shops dealing directly with consumers, retail...	F
Utility		L
V		
Variety stores	Limited as to floor area...	F
	Unlimited...	F
Varnish manufacture		J
Vehicles	Dead storage of motor...	H
	Manufacture, children's...	G
	Storage, commercial or public utility, open or enclosed...	K
Venetian blind, window shade, or awning	Custom shops, limited as to floor area...	F
	Manufacture, with no limitation on production or on floor area...	J or G depending upon nature of materials involved
Ventilating contractors	(See contractors' establishments)	F
Ventilating equipment showrooms	Without repair facilities.....	F
Video games shop		F
Vihara, Buddhist	with occasional or regular assembly	mixed use
W		
Wallpaper stores	Limited to quantity	H
Warehouses		H or J (depending on the nature of material stored)
Watch or clock stores or repair shops		F
Watch making		G
Waterfront shipping		Not applicable
Water pumping stations	At distributor's end	G
	At consumer's end	L
Water tank tower		M
Wax products manufacture...		G
Weaving, hand...	Up to six hand-weaving machines	Non- separated use to main Occupancy
	More than six hand-weaving machines	G

Use or Occupancy	Brief Description	Occupancy Class/Sub-class
Wedding chapels...	See assembly	I
Welding shops...	Arc welding only Gas welding within exempted quantity	G G or J depending upon the quantity of material and process
Welfare centers...		
Wholesale establishments		H or J depending upon the nature of material
Wholesale offices or showrooms, with storage restricted to samples...		E
Window manufacture		G
Window shades	Custom shops, limited as to floor area... Manufacture, without limitation on production or on floor area...	F G
Wood	Bulk processing or woodworking... Distillation... Products manufacture... Pulp or fiber, reduction or processing, including paper mill operations... Sales, open or enclosed, Limited as to lot area... Unlimited (See lumber yards)... Woodworking shops, custom...	G G G G F F J or G depending upon nature of materials involved
Wool scouring or pulling...		G
Workshops	With hot-works Without hot-works	J G
X		
X-ray facilities	See radiological facilities	
Y		
Yard		Not applicable
Yard, ship	See ship or boat building or repair yards	
Yarn, manufacturing		G or J depending on the quantity (see Table 3.2.5)
Z		
Zoo structures		M

** The occupancy classification for any project, not included in this list, shall be determined through the following process:

- i. The functional requirements of the unidentified occupancy shall be compared with the Occupancy use type, classification, sub classification categories and descriptions to match with the given occupancies to find the most similar Occupancy,
- ii. If process (i) fails to determine the Occupancy, the project will be referred to the Board of Appeal constituted as per directives of Part 2 Chapter 2. The Board of Appeal shall determine the Occupancy, and
- iii. The decision of Board of Appeal shall be considered as an explanatory material of this Code and shall be added as addendum to this Code. For any future projects of similar nature this addendum will suffice and need not be referred to the Board of Appeal again.

This page is intentionally left blank.

CLASSIFICATION OF BUILDING CONSTRUCTION TYPES BASED ON FIRE RESISTANCE

3.1 GENERAL

3.1.1 Classification by Type of Construction

For the purpose of this Code, every room or space of a building or a building itself hereafter altered or erected shall be classified in one specific type of construction as grouped as follows:

GROUP I: Noncombustible, subdivision:

Type I-A:	4 hour fire protected
Type I-B:	3 hour fire protected
Type I-C:	2 hour fire protected
Type I-D:	1 hour fire protected
Type I-E:	Unprotected

GROUP II: Combustible subdivision:

Type II-A:	Heavy timber
Type II-B:	Protected wood joist
Type II-C:	Unprotected wood joist
Type II-D:	Protected wood frame
Type II-E:	Unprotected wood frame

The fire resistance ratings of various types of construction for structural and nonstructural members are specified in Tables 3.3.1 (a) and (b). For hazardous Occupancies involving an exceptionally high degree of fire risk or an exceptionally high concentration of combustible or flammable content, the Authority may increase the requirement of Table 3.3.1 (a).

Buildings having a height of more than 33 m shall be constructed with noncombustible materials.

The fire resistance ratings of various building components shall conform to ASTM standards.

No building or portion thereof shall be designated a given construction type unless it fully conforms to the minimum requirements for that Construction type.

When a type of construction is utilized which is superior than the type of construction required by this Code, there shall be no requirement to upgrade the rest of the construction to comply to that higher type of construction and the designated construction type shall be that of the lesser classification, unless all of the requirements for the higher classification are met.

3.1.2 Group I: Non-Combustible Construction

Buildings or portion thereof in Non-combustible Construction Group I are those in which the walls, exit-ways, shafts, structural members, floors, and roofs are constructed of non-combustible materials and assemblies having fire-resistance ratings specified in Table 3.3.1 (a). The Non-combustible group consists of Construction Type I-A, I-B, I-C, I-D and I-E.

3.1.2.1 Construction Type I-A

This construction type includes buildings in which the bearing walls and other major structural elements are generally of four-hour-fire-resistance rating.

3.1.2.2 Construction Type I-B

This construction type includes buildings in which the bearing walls and other major structural elements are generally of three-hour-fire-resistance rating.

3.1.2.3 Construction Type I-C

This construction type includes buildings in which the bearing walls and other major structural elements are generally of two-hour-fire-resistance rating.

3.1.2.4 Construction Type I-D

This construction type includes buildings in which the bearing walls and other major structural elements are generally of one-hour-fire-resistance rating.

3.1.2.5 Construction Type I-E

This construction type includes buildings in which the bearing walls and other major structural elements generally have no fire-resistance rating.

3.1.3 Group II: Combustible Construction

Buildings or portion thereof in Combustible Construction Group II are those in which the walls, exit-ways, shafts, structural members, floors, and roofs are constructed wholly or partly of combustible materials having fire-resistance ratings specified in Table 3.3.1 (b). The Non-combustible group consists of Construction Type II-A, II-B, II-C, II-D and II-E.

3.1.3.1 Construction Type II-A

This Construction type includes heavy timber construction in which fire-resistance is attained by-

- (a) Limiting the minimum sizes of wood structural members and the minimum thickness and composition of wood floors and roofs;
- (b) Avoiding concealed spaces under floors and roofs or by providing fire-stopping protection for these spaces; and
- (c) Using fastening, construction details, and adhesives for structural members as required by this Chapter and Part 4.
- (d) The minimum dimensions for framing members shall be prescribed in this Chapter and Part 4, except that members are protected to provide a fire-resistance rating of at least one hour need not comply with this requirement.

3.1.3.2 Construction Type II-B

This Construction type includes buildings and portion thereof in which

- (a) Exterior walls, fire walls, exit-ways, and shaft enclosures are of non-combustible materials having the required fire-resistance ratings; and
- (b) The floors, roofs and interior framing are wholly or partly of wood of smaller dimensions than required for type II-A construction, or are of other combustible or non-combustible materials, having the required fire-resistance rating.

Table 3.3.1 (a): Fire Rating for Construction Group I: Non-Combustible

Exterior wall with Fire Separation Distance of	Construction Element Exterior Wall	TYPE -I-A		TYPE -I-B		TYPE -I-C		TYPE -I-D		TYPE -I-E	
		Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}
0.9m or less	Bearing	4	N.P	3	N.P	2	N.P	2	N.P	2	N.P
	Non-bearing ^f	2		2		2		2			
More than 0.9m but less than 4.5m	Bearing	4	as per provisions of this Code	3	as per provisions of this Code	2	as per provisions of this Code	2	as per provisions of this Code	2	as per provisions of this Code
	Non-bearing ^f	2		2		2		2			
4.5m or more but less than 9.0m	Bearing	4		3		2		1		0	
	Non-bearing ^f	1½		1½		1		1		0	
9.0m or more	Bearing	4	N.L	3	N.L	2	N.L	1	N.L	0	N.L
	Non-bearing ^f	0		0		0		0		0	
Interior bearing walls and bearing partitions		4		3		2		1		0 ^{g,i}	
Enclosure of vertical exits ^e , exit passageways, hoistways and shafts		2		2		2		2		2	
Fire divisions and fire barrier Walls or partitions or ceiling slab		See Table 3.2.1 and provisions of this Code									
Columns ^k , girders, trusses (other than roof trusses) and framing	Supporting one floor	3		2		1½		1		0 ^{g,i}	
	Supporting more than one floor ^l	4		3		2		1		0 ^{g,i}	
Structural members supporting walls		Structural members shall have the same fire resistance rating of wall to be supported, but not less than rating required by the construction classification.									
Floor construction including beams		3		2		1½		1		0 ^{g,i}	
Roof construction, including beams, trusses and framing including arches, domes, shells, cable supported roofs and roof decks ^h	4.5m or less in height above floor to lowest member of ceiling	3		1½		1 ⁱ		1 ⁱ		0 ^{g,i}	
	4.5m to 6m in height above floor to lowest member of ceiling	2 ^{c,i} or 1 ^{d,i}		1½ ^{c,i} or 1 ^{d,i}		1 ⁱ		1 ⁱ		0 ^{g,i}	
	6m or more in height above floor to lowest member of ceiling	2 ^{c,i} or 0 ^{d,g,i}		1½ ^{c,i} or 1 ^{d,g,i}		1 ^{c,i} or 0 ^{d,g,i}		1 ^{c,i} or 0 ^{d,g,i}		0 ^{g,i}	
Shafts (other than exits) and elevator hoistways		2		2		2		2		2	
Fire separation wall and party wall		4		2		2		2		2	
Access corridor leading to fire exits		1		1		1		1		1	
 Noncombustible Material ; N. P Not Permitted ; N. L No Limit											

Table 3.3.1 (b): Fire Rating for Construction Group II: Combustible

Exterior wall with Fire Separation Distance of	Construction Element Exterior Wall	TYPE -II-A		TYPE -II-B		TYPE -II-C		TYPE -II-D		TYPE -II-E	
		Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}	Ratings in Hours	Exterior Opening ^{a,b}
0.9m or less	Bearing	2	N.P	2	N.P	2	N.P	2	N.P	2	N.P
	Non-bearing ^f	2		2		2		2			
More than 0.9m but less than 4.5m	Bearing	2	as per provisions of this Code	2	as per provisions of this Code	2	as per provisions of this Code	1	as per provisions of this Code	1	as per provisions of this Code
	Non-bearing ^f	2		2		2		1			
4.5m or more but less than 9.0m	Bearing	2	as per provisions of this Code	2	as per provisions of this Code	2	as per provisions of this Code	1	as per provisions of this Code	0	as per provisions of this Code
	Non-bearing ^f	2		2		2		1			
9.0m or more	Bearing	1	N.L	1½	N.L	1½	N.L	1	N.L	0	N.L
	Non-bearing ^f	0		0		0		0			
Interior bearing walls and bearing partitions		2		1		0		1		0	
Enclosure of vertical exits ^e , exit passageways, hoistways and shafts		2		2		1 ⁱ		1 ⁱ		1	
Fire divisions and fire barrier Walls or partitions or ceiling slab		See Table 3.2.1 and provisions of this Code									
Columns ^k , girders, trusses (other than roof trusses) and framing	Supporting one floor	as per provisions of this Code		1		0 or 1 ^j		1		0	
	Supporting more than one floor	as per provisions of this Code		1		0 or 1 ^j		1		0	
Structural members supporting walls		3		2½		2		1½		1	
Floor construction including beams		as per provisions of this Code		1		0 or 1 ^j		1		0	
Roof construction, including beams, trusses and framing including arches, domes, shells, cable supported roofs and roof decks ^h	4.5m or less in height above floor to lowest member of ceiling	as per provisions of this Code		¾		0		¾		0	
	4.5m to 6m in height above floor to lowest member of ceiling	as per provisions of this Code		¾		0		¾		0	
	6m or more in height above floor to lowest member of ceiling	as per provisions of this Code		¾		0		¾		0	
Shafts (other than exits) and elevator hoistways		2		2		2		2		2	
Fire separation wall and party wall		4		2		2		2		2	
Access corridor leading to fire exits		1		1		1		1		1	
<div style="display: flex; align-items: center; gap: 10px;"> Noncombustible Material ; N. P Not Permitted ; N. L No Limit </div>											

Notes:

- ^a Requirements of protected exterior openings shall not apply to religious assembly. [Protected openings within an exterior separation of 0.9m or less are permitted for buildings classified in Occupancy Groups A provided, however said openings do not exceed in total area of 25% of the façade of the storey in which they are located. The openings however, may not be credited towards meeting any of the mandatory natural light and ventilation as per provisions of this Code. Protection of openings with an exterior separation of 0.9 m to 9 m shall not be required for A-1, A-2 and A-3 Occupancy groups] or to buildings classified in Occupancy groups J, G and H additional requirements for exterior walls and exterior wall openings as per provisions of this Code.
- ^b Upon special application, the area development authorities may permit exterior wall openings to be constructed in excess of the permitted area established by this Table if such openings at the time of their construction are located at least 18m in a direct line from any neighboring building except as otherwise permitted in footnote f. Such additional openings may not however be credited toward meeting any of the mandatory natural light and ventilation requirements of Sec 1.19 Chapter Part 3 of this Code. If any neighboring building is later altered or constructed to come within the above distance limitation, the affected exterior openings shall immediately be closed with construction meeting the fire-resistance rating requirements for exterior wall construction of the building in which they are located.
- ^c Applies to occupancy groups J, G and H
- ^d Applies to occupancy groups J, G and H
- ^e See Provisions of this Code for additional impact resistance requirements applicable to certain stair enclosures and for certain exceptions to stair enclosure requirements.
- ^f When two or more buildings are constructed on the Plot and the combined floor area of the buildings does not exceed the limits established by this Code for any of the buildings, no fire-resistance rating shall be required for non-bearing portions of the exterior walls of those buildings facing each other, and there shall be no limitation on the permitted amount of exterior openings.
- ^g Fire retardant treated wood complying with the requirements of this Code may be used.
- ^h Tabulated ratings apply to buildings over one storey in height. In one storey building, roof construction may be of material having zero hour fire-resistance rating.
- ⁱ Materials which are not non-combustible as defined in this Code may be used in nonbearing construction elements as per provisions for this Code.
- ¹ Materials having a structural base of non-combustible materials as defined in this Code, and having a surface not over 3.2 mm thick which when tested in accordance with the provisions of this Code has a flame spread rating not higher than 50 (fifty).
- ² Materials which when tested in accordance with the provisions of this Code have a surface flame spread rating not higher than twenty five without evidence of continued progressive combustion, and which are of such composition that surface which would be exposed by cutting through the material in any way would not have a flame spread ratings higher than twenty-five without evidence of continued progressive combustion.
- ^j Applies to the construction of the street floor and all construction below the level of the street floor in building or spaces classified in occupancy group A-3 except where the space below the street floor does not exceed five feet in height.
- ^k Columns supporting the roof of a one-story building shall have the same fire-resistance rating as required for a column supporting one floor in a building of the same construction class.
- ^l Members supporting loads of not more than two floors or one floor and a roof need not have a fire-resistance rating greater than the floor construction fire-resistance requirement in buildings classified in occupancy groups B, C and A-3, not including unsprinklered spaces of other occupancies, and in fully sprinklered buildings in occupancy groups E and A-5.

3.1.3.3 Construction Type II-C

This Construction type includes buildings and portion thereof in which

- (a) Exterior walls, fire walls, exit ways, and shaft enclosures are of non-combustible materials having the required fire-resistance ratings; and
- (b) The floors, roofs and interior framing are wholly or partly of wood of smaller dimensions than required for type II-A construction, or are of other combustible or non-combustible materials, having no required fire-resistance rating.

3.1.3.4 Construction Type II-D

This Construction type includes buildings and portion thereof in which exterior walls, bearing walls, floors, roofs, and interior framings are generally of wood or other combustible materials having the required fire-resistance ratings.

3.1.3.5 Construction Type II-E

This Construction type includes buildings and portion thereof in which

- (a) The exterior walls are generally of wood or other combustible materials having the required fire-resistance ratings, and
- (b) In which the bearing walls, floors, roofs, and interior framing are of wood or other combustible materials, generally having no fire-resistance ratings.

3.1.4 Separated Occupancy and Construction

When two or more occupancies accommodated in a building, each such occupancy shall be separated according to the provisions specified in Sec 2.3 Chapter 2 Part 3 and Table 3.2.1.

When two or more types of construction used within a building, the entire building shall be subject to the most restrictive construction type and shall comply with FAR restrictions as per provisions of this Code.

However if the Occupancies within the different Types of Construction are completely separated by construction that meets the fire-resistance rating requirements for fire separation listed in Table 3.2.1 of Chapter 1 Part 3 then each Occupancy so separated may, for the purpose of this Code, be considered as separate building section.

3.1.4.1 Restriction for mixed construction

In buildings of mixed construction, no structural element shall be supported by construction having a lower fire-resistance rating than that required for the element being supported.

3.1.5 Fire Zones

The planning and development authority of the city, township, municipality or region where this Code is intended to be implemented shall divide the area under their jurisdiction into distinct fire zones. The basis for this zoning shall be the fire hazard inherent in the buildings and the degree of safety desired for the occupancy accommodated therein. The number of zones in an area shall depend on its size and the strategies undertaken for its development.

3.1.5.1 Fire Zone 1

The following occupancy groups shall comprise this zone:

Occupancy A:	Residential	Occupancy F:	Mercantile
Occupancy B:	Educational	Occupancy H:	Livestock Storage Building
Occupancy C:	Institutional for Care	Occupancy I:	Assembly
Occupancy D:	Health Care	Occupancy K:	K1 and K2 Parking
Occupancy E:	Offices	Occupancy M:	Miscellaneous Buildings

3.1.5.2 Fire Zone 2

The following occupancy groups shall comprise this zone:

- Occupancy G: Industrial Buildings
- Occupancy H: Storage Buildings
- Occupancy K: K3 Parking

3.1.5.3 Fire Zone 3

The only occupancy falling in this zone shall be Occupancy J, Hazardous Buildings.

3.1.5.4 Change in Fire Zone Boundaries

The demarcations of fire zones may be changed or new occupancies may be included in any fire zone through the same procedure as for promulgating new rules or ordinances or both.

3.1.5.5 Buildings on overlapping fire zones

Buildings falling on more than one fire zones shall be considered to be situated on the zone in which the major portion of the building falls. If a building is divided equally between more than one fire zones, it shall be considered as falling in the fire zone having more hazardous occupancy buildings.

3.1.5.6 Restrictions on temporary constructions

Permission may be granted by the Authority for temporary constructions only in fire zones 1 and 2 and not in fire zone 3. Such temporary constructions shall adhere to the conditions of the permission and shall be demolished and removed completely after the expiry of the duration of the permission unless it is extended by the Authority or a new permission is obtained.

3.1.6 Permissible Types of Construction for Various Occupancies

3.1.6.1 New buildings

Types of constructions permitted for various buildings on the basis of fire zones are specified in Table 3.2.4.

3.1.6.2 Existing buildings

Existing buildings in any fire zone need not comply with the provision of this Code for type of construction unless they are altered or in the opinion of the Authority they constitute a hazard to the safety to the occupants of the buildings or the adjacent properties.

3.1.7 Exterior Walls

The fire resistance rating of the exterior walls shall conform to the provisions set forth in Table 3.2.2 and Sec 3.2.3.

3.1.8 Basement Floor

Basement floor of a building shall be enclosed with a one hour fire resistive construction. Doors in such constructions shall be made of noncombustible materials.

3.1.9 Restricting Horizontal and Vertical Spread of Fire

Generally walls restrict horizontal movement and slabs restrict vertical movement of fire.

3.1.9.1 Interior or barrier or enclosure wall

Propagation of fire, smoke, gas or fume through the openings or shafts or penetrations of fire resistive floors and walls shall be restricted by sealing with an approved material which shall have a fire resistance rating at least equal to that of the floor-wall assembly. The sealing material shall be capable of preventing passage of flame and hot gases sufficient to ignite cotton waste when tested in accordance with ASTM E119.

3.1.9.2 Exterior walls

Permitted unprotected openings in the exterior wall in two consecutive floors lying within 1.5 m laterally or vertically shall be separated with flame barriers as similar as sunshades or cornices or projected wall at least 750 mm from the external face of the exterior wall. The flame barrier shall have a fire resistance rating of not less than three-fourths hour.

3.1.10 Exceptions to Fire Resistance Requirements

The provisions of this Section are exceptions to the occupation separation requirements of Table 3.2.1.

3.1.10.1 Fixed partitions

- (a) Stores and Offices: In such cases where offices, stores and similar places occupied by one tenant are separated by non-load bearing walls that do not form a corridor serving an occupant load, the partition walls may be constructed of any one of the following:
- (i) Noncombustible materials;
 - (ii) Fire retardant treated wood;
 - (iii) One hour fire resistive construction;
 - (iv) Wood panels or similar light construction up to three fourths the height of the room in which placed; and
 - (v) Wood panels or similar light construction more than three-fourths the height of the room in which placed with not less than upper one fourth of the partition constructed of glass.
- (b) Hotels and Apartments: In such cases where non-load bearing walls act as interior partitions in individual dwelling units in apartment houses and guest rooms or suites in hotels when such dwelling units, guest rooms or suites are separated from each other and from corridors by not less than one-hour fire-resistive construction, the partition walls may be constructed of any one of the following:
- (i) Noncombustible materials of fire retardant treated wood in buildings of any type of construction; or
 - (ii) Combustible framing with noncombustible materials applied to the framing in buildings of Type II construction.
- (c) Folding, Portable or Movable Partitions: Folding, portable or movable partitions need not have a fire resistance rating if the following conditions are satisfied:
- (i) Required exits are not blocked without providing alternative conforming exits;
 - (ii) Tracks, guides or other approved methods are used to restrict their locations; and
 - (iii) Flammability shall be limited to materials having a flame-spread classification as set forth in Tables 3.3.2 and 3.3.3 for rooms or areas.

Table 3.3.2: Flame Spread Classification

Class	Flame Spread Index
I	0-25
II	26-75
III	76-200

- (d) Walls Fronting on Streets or Yards: For walls fronting on a street or yard having a width of at least 12 m, certain elements of the wall may be constructed as follows regardless of their fire-resistive requirements:
- (i) Bulkheads below show windows, show window frames, aprons and show-cases may be of combustible materials provided the height of such construction does not exceed 5 m above grade.
 - (ii) Wood veneer of boards not less than 25 mm in nominal thickness or exterior type panels not less than 10 mm in nominal thickness may be used in walls provided:
 - the veneer does not extend beyond 5 m above grade; and
 - The veneer is placed either directly against noncombustible surface or furred out from such surfaces not to exceed 40 mm with all concealed spaces fire blocked.

- (e) Trim: Wood may be used to construct trim, picture moulds, chair rails, baseboards, handrails and show window backing. If there is no requirement for using fire protected construction, unprotected wood doors and windows may be used.
- (f) Loading Platform: Noncombustible construction of heavy timber may be used for exterior loading platforms with wood floors not less than 50 mm in nominal thickness. Such wood construction shall not be carried through the exterior walls.
- (g) Insulating Boards: Combustible finished boards may be used under finished flooring.

3.1.11 Shaft Enclosures

3.1.11.1 General

Construction requirement for shafts through floors shall conform to the provisions of Tables 3.3.1 (a) and (b).

3.1.11.2 Extent of enclosures

Shaft enclosures shall extend from the lowest floor opening through successive floor openings and shall be enclosed at the top and bottom.

Exceptions:

- (a) Shafts need not be enclosed at the top if it extends through or to the underside of the roof sheathing, deck or slab.
- (b) Noncombustible ducts carrying vapours, dusts or combustion products may penetrate the enclosure at the bottom.
- (c) Shafts need not be enclosed at the bottom when protected by fire dampers conforming to "Test Methods for Fire Dampers and Ceiling Dampers", installed at the lowest floor level within the shaft enclosure.

3.1.11.3 Special provision

In groups other than Occupancies C and D, openings which penetrate only one floor and are not connected with any other floor or basement and which are not concealed within building construction assemblies need not be enclosed.

3.1.11.4 Protection of openings

Openings in shaft enclosures shall be protected with a self-closing or an automatic-closing fire assembly having a fire resistance rating of

- (a) one hour for one hour fire resistive walls
- (b) one and one-half hours for two hour fire resistive walls

3.1.11.5 Rubbish and linen chute termination rooms:

Rubbish and linen chute shall terminate in rooms separate from the remaining of the building having the same fire resistance as required for shafts in Table 3.3.1 (a) and (b) but not less than one hour.

3.1.12 Expansion and Contraction Joints

Expansion and contraction joints provided to accommodate expansion, contraction, wind or seismic movement shall be protected with an approved material having the same degree of fire resistance as that of the wall or floor in which it is installed.

3.1.13 Weather Protection

3.1.13.1 Weather resistive barrier:

All weather exposed surfaces shall have a weather barrier to protect the interior wall from dampening. Such weather barriers shall have a fire resistance rating of at least equal to that of the wall or floor on which it is applied. Weather resistive barrier need not be used in the following cases:

- (i) When exterior covering is of approved waterproof panels
- (ii) In back plastered construction
- (iii) When there is no human occupancy
- (iv) Over water repellent panel sheathing
- (v) Under approved paper backed metal or wire fabric lath
- (vi) Behind lath and Portland cement plaster applied to the underside of roof and eave projections

3.1.13.2 Flashing and counter flashing

Exterior openings exposed to the weather shall be flashed to make them weather proof. There shall be copings with all parapets. Corrosion resistant metals shall be used for flashing, counter flashing and coping.

3.1.13.3 Waterproofing weather-exposed areas

Waterproofing shall be applied to exposed surfaces like balconies, external stairways and landings.

3.1.13.4 Damp-proofing foundation walls

Outside of foundation walls enclosing a basement floor below finished grade shall be damp-proofed from outside.

3.1.14 Members Carrying Walls

All members carrying masonry or concrete walls shall be fire protected as specified in Table 3.3.1 (a) and (b).

3.1.15 Parapets

Parapets constructed on exterior wall of a building shall have the same degree of fire resistance required for the wall upon which they are erected and there shall be noncombustible faces on the side adjacent to the roof surface for the uppermost 405 mm including counter flashing and coping materials. The height of the parapet shall be at least 750 mm from the upper surface of the roof.

3.1.16 Projections

Sunshades, cornices, projected balconies and overhanging beyond walls of Type I construction shall be of noncombustible materials. Projections from walls of Type II may be of combustible or noncombustible materials.

3.1.17 Guards and Stoppers

3.1.17.1 Guards

Guards or Guardrails shall be provided to protect edges of floor, roof, roof openings, stairways, landings and ramps, balconies or terraces and certain wall, which are elevated more than 750 mm above the grade and as per provisions of this Code.

3.1.17.2 Stoppers

Stopper shall be provided in open parking garages located more than 450 mm above the adjacent grade or back to back parking stall. The height of the stopper shall be at least 300 mm and it shall be positioned at outer edges of a car parking stall.

3.1.18 Insulation

The provisions of this Section are applicable to thermal and acoustical insulations located on or within floor-ceiling and roof ceiling assemblies, crawl spaces, walls, partitions and insulation on pipes and tubing.

Materials used for such insulation and covering shall have a flame spread rating not more than 25 and a smoke density not more than 450.

3.1.19 Atrium

3.1.19.1 General

Atrium may be provided in all groups other than Occupancy J (Hazardous Buildings). Such atrium shall have a minimum opening and are as specified in Table 3.3.4.

Table 3.3.4: Atrium Opening and Area

Height in Stories	Minimum Clear Opening ¹ (m)	Minimum Area (m ²)
2-4	6	40
5-7	9	90
8 or more	12	160

¹ The specified dimensions are the diameters of inscribed circles whose centers fall on a common axis for the full height of the atrium.

3.1.19.2 Smoke control system

A mechanically operated air-handling system shall be installed to exhaust the smoke either entering or developed within the atrium.

- (a) Exhaust Openings: The location of the exhaust openings shall be in the ceiling or in a smoke trap area immediately adjacent to the ceiling of the atrium above the top of the highest portion of door openings into the atrium.
- (b) Supply Openings: Supply openings designed for a minimum of 50 percent of the exhaust volume shall be located at the lowest level of the atrium. Supply air may be introduced by gravity provided the height of the atrium is not more than 18 m and smoke control is established. For atria having height greater than 18 m, supply air shall be introduced mechanically from the floor of the atrium and directed vertically toward the exhaust outlets. Supplemental air supply may be introduced at upper levels in atrium over six storeys in height or when tenant spaces above the second storey are open to the atrium.
- (c) Automatic Operation: The smoke control system for the atrium shall be activated automatically by the automatic sprinkler system or smoke detectors installed within the atrium or areas open to the atrium.
- (d) Manual Operation: The smoke control system shall also be manually operable for use by the fire department. The smoke control system may be separate from or integrated with other air handling systems. Air handling systems interfering with the smoke control system shall be shut down automatically when the smoke control system is activated.
- (e) Smoke Detector Location: Smoke detectors which will automatically operate the smoke control system of the atrium shall be accessible for maintenance, testing and servicing. Their locations shall be as follows:
 - (i) At the atrium ceiling, spaced in accordance with the manufacturer's instructions.
 - (ii) On the underside of projections into the atrium, in accordance with the manufacturer's instructions.

- (iii) Around the perimeter of the atrium opening on all floors open to the atrium. These detectors shall be spaced no more than 9 m on centre and shall be located within 5 m of the atrium opening.
- (iv) If projected beam type smoke detectors are used, they shall be installed in accordance with manufacturer's instructions.
- (f) Enclosure of Atrium: A atrium shall be separated from the adjacent spaces with fire resistive separation of at least one hour.

Fire windows may be provided in fixed glazed openings when the window has a fire resistive rating of at least three-fourths hour and the area of the opening does not exceed 25 percent of the wall common to the atrium and the room into which the opening is provided.

3.1.20 Mezzanine Floors

Construction of a mezzanine floor shall conform to the requirements of the main floor in which it is constructed but the fire resistance rating need not exceed one hour for unenclosed mezzanines.

ENERGY EFFICIENCY AND SUSTAINABILITY

4.1 SCOPE

The purpose of including this Chapter in the Code is to enhance the design and construction of buildings through the use of building concepts having a positive environmental impact and encourage sustainable construction practices, allowing efficiency and conservation of energy, water and building materials, and to promote resource efficiency.

In addition to the clauses stipulated here, all Codes and standards relevant to a building occupancy as set forth in other Sections of this Code will be applicable during implementation.

Design and drawings will be submitted to indicate the location, nature and scope of the proposed energy efficient/sustainable feature. These shall indicate compliance to the provisions of this Code, and will be supplied by the relevant design professionals, e.g. electrical engineers, mechanical engineers, plumbing engineers, etc., supporting architectural drawings.

4.1.1 Rationale for Sustainable/Green Buildings

Climate change is an established phenomenon affecting the environment globally and it is recognized that buildings and the built environment play a vital role in the process, impacting on the natural environment and the quality of life. Sustainable development concepts and approaches applied to the design, construction and operation of buildings or to any built environment can enhance both the economic and environmental benefits of the community in Bangladesh and around the world. Energy efficiency and sustainability is not an individual issue rather an integrated and inseparable part of the building design and construction process. The benefits of sustainable design principles include resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land use and strengthened local economics and the communities, objectives vital for future development of Bangladesh.

4.2 DEFINITIONS

DAYLIGHT ZONE	An area with a depth of 5 m parallel to any glazed external wall.
EMERGENCY LIGHTING	Lighting used for emergency spaces and functions, e.g. in fire stairs, for egress path signage.
GREY WATER	Waste water generated from wash hand basins, showers and baths, Grey water often excludes discharge from laundry, dishwashers and kitchen sinks due to the high nutrient levels. It differs from the discharge of WC's which is designated sewage or black water to indicate it contains human waste.
REGULARLY OCCUPIED SPACE	All the main areas in the buildings that are used on a frequent basis, such as living rooms, bedrooms, classrooms, lobbies, meeting rooms, hall rooms and office spaces. Service spaces like toilets, bathrooms, corridors and stores will not be considered as frequently occupied areas.

WINDOW TO WALL RATIO OF BUILDING (WWRB)	The window-to-wall ratio of a building is the percentage of its facade taken up by light-transmitting glazing surfaces, including windows and translucent surfaces such as glass bricks. It does not include glass surfaces used ornamentally or as cladding, which do not provide transparency to the interior. Only facade surfaces are counted in the ratio, and not roof surfaces.
LIGHTING POWER DENSITY (LPD)	Average total lighting power installed divided by the total occupied area.
SHADING COEFFICIENT (SC)	The ratio of solar heat gain at normal incidence through glazing to that occurring through 1/8 inch thick clear, double-strength glass. Shading coefficient, as used herein, does not include interior, exterior, or integral shading devices.
SOLAR HEAT GAIN COEFFICIENT (SHGC)	An indicator of glazing performance is the amount of heat admitted through the glass vis-à-vis the total heat incident on the glass by virtue of direct solar radiation. The unit is a simple fraction or percentage.
U-VALUE (THERMAL TRANSMITTANCE)	Heat transmission in unit time through unit area of a material or construction and the boundary air films, induced by unit temperature difference between the environments on each side. Units of U-value are $W/m^2/^{\circ}k$
VISIBLE LIGHT TRANSMITTANCE (VLT)	Amount of light transmitted through glazing, expressed as a simple fraction or percentage

4.3 SITE SUSTAINABILITY

This Section deals with sites to ensure energy efficiency through passive and low energy architectural features and management of resources.

4.3.1 Mandatory Unpaved Area

Fifty (50) percent of mandatory open space shall be permeable on sites of all occupancy categories. The permeable area shall not remain bare generating dust, but will have green cover or be treated with perforated paving ($\geq 50\%$), organic mulch, charcoal, etc.

4.3.2 Site Drainage and Run-Off Coefficient

Designs shall indicate site drainage considerations along with flash flooding and erosion prevention measures for sites above 1340 m^2 in area. As excessive paving is largely responsible for fast water run-off and flash flooding, design shall indicate measures taken to make paving permeable. The net run-off from a site shall be a maximum of sixty (60) percent. The following method will be used for the calculations, in conjunction with Table 3.4.1:

$$\text{Total Perviousness on Open Area of Site } (A_p) = A_1 \times C_1 + A_2 \times C_2 + \dots \quad (3.4.1)$$

Where, A_1 , A_2 , etc., being the areas of various surfaces, e.g. Pavements, roads, vegetation, etc., with different run-off coefficients C_1 , C_2 , C_3 etc., shown in the Table 3.4.1.

4.3.3 Vegetation Plan

For sites above three (3) acres, it is mandatory for a vegetation plan to be submitted along with the site plan and Irrigation Plan, where priority shall be given to native plants in the selection for planting.

4.3.4 Irrigation Plan

4.3.4.1 For sites above ten (10) acres, an irrigation plan with construction details shall be submitted with the site plan, where considerations shall include for management of rainwater.

4.3.4.2 For these sites a retention pond of $\geq 3\%$ of site area shall be provided. This shall include any existing natural water body within the site.

Table 3.4.1: Run-Off Coefficient`s of Various Surfaces

Surface Type	Run-Off Coefficient, C
Roofs, conventional	0.95
Green Roofs (soil/growing medium depth ≥ 300 mm)	0.45
Concrete paving	0.95
Gravel	0.75
Brick paving	0.85
Vegetation:	
1-3%	0.20
3-10%	0.25
>10%	0.30
Turf Slopes:	
0-1%	0.25
1-3%	0.35
3-10%	0.40
>10%	0.45

4.3.5 Rain Water Harvesting System

4.3.5.1 Buildings of total floor area ≥ 4000 m² shall have its own rain water harvesting system as discussed in Chapter 7 Part 8 and installed complying with Section 7.13 Part 8, of this Code. The reservoir capacity shall be a multiple of the area of Ground Coverage of the building and a rain collection coefficient of 0.073.

4.3.5.2 The rainwater reservoir may be placed under the roof or at lower levels, including underground.

4.4 BUILDING ENVELOPE

4.4.1 Window to Wall Ratio

4.4.1.1 For mechanically ventilated and cooled buildings of all occupancies, other than Hazardous and Storage, the Window to Wall ratio of building (WWRB), will be determined in conjunction with the glazing performance, as indicated by the Solar Heat Gain Coefficient (SHGC) or Shading Coefficient (SC) of the glass used. The relationship is given in Figure 3.4.1 and Table 3.4.2.

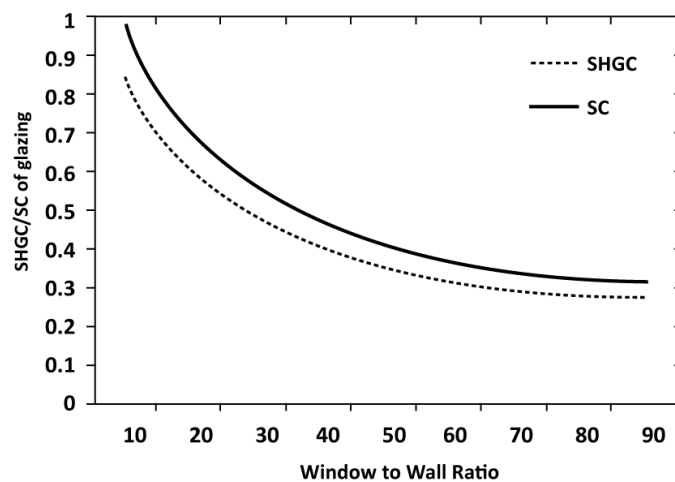


Figure 3.4.1 Selection of glazing SHGC based on WWR

Table 3.4.2 Selection of Glazing SHGC Based on WWR in Tabular Format

WWR	SHGC	SC
10	0.85	0.98
20	0.6	0.69
30	0.5	0.57
40	0.4	0.46
50	0.35	0.4
60	0.33	0.38
70	0.31	0.36
80	0.3	0.34
90	0.27	0.31

4.4.1.2 In all of the above cases, the Visible Light Transmittance (VLT) of the glazed element shall not be lower than thirty five (35) percent.

4.4.1.3 For Air-conditioned buildings with external shading, permitted SGHC limit may be adjusted, but the increase shall not exceed values determined by Eq. 3.4.2 below:

$$SHGC_{adj} = SHGC + A \quad (3.4.2)$$

Where,

$SHGC_{adj}$ is the adjusted solar heat gain coefficient limit for windows with shading

$SHGC$ is the solar heat gain coefficient from Table 3.4.2

A is the SHGC correction factor for the external shading as per Table 3.4.3 or Table 3.4.4: . For a window with overhang and fin, the value of A can be only used either from overhang or from fin.

4.4.1.4 For naturally ventilated buildings, window size shall be based on Sec 4.4.2 Window Openings of this Code and shading shall be provided as per Sec 4.4.3.

4.4.1.5 Window size shall under no circumstances be less than as stipulated under Part 3: Chapter 1, Section 1.17 of this Code.

Table 3.4.3: Correction Factor against Overhang Shading Projection Factor

Overhang Projection Factor	SHGC Correction Factor(A)
0.0	0.00
0.1	0.05
0.2	0.09
0.3	0.14
0.4	0.19
0.5	0.24
0.6	0.28
0.7	0.33
0.8	0.38
0.9	0.43
1 or higher	0.47

Projection factor for overhang is the depth of the overhang divided by the height of the window

Table 3.4.4: Correction Factor against Vertical Shading (fins) Projection Factor

Vertical Shading (Fins) Projection Factor	SHGC Correction Factor (A)
0.0	0.00
0.1	0.04
0.2	0.08
0.3	0.12
0.4	0.16
0.5	0.20
0.6	0.24
0.7	0.28
0.8	0.32
0.9	0.36
1 or higher	0.40

Projection factor of fins is the depth/length of fin divided by the width of the window.

4.4.2 Window Openings

Mechanically ventilated and cooled buildings of all occupancies, other than hazardous, retail and storage, shall have the provision of using natural ventilation for cooling and fresh air, in frequently occupied areas, with a fraction $\geq 4\%$ of the floor area being specified as openable windows. Openable balcony doors can be counted in this calculation. Note if the window area defined under Sec 4.4.1 is less than openable area, then fifty (50) percent of window area should be openable.

4.4.2.1 Naturally ventilated buildings of all occupancies, other than hazardous and storage, shall provide for fifty (50) percent of its window area to be openable.

4.4.2.2 All the openable windows above ground should be designed with safety measures in place such as protection hand rails for child safety.

4.4.2.3 Windows to any regularly occupied space on exterior walls in naturally ventilated buildings shall be shaded conforming to Sec 4.4.3.

4.4.3 Shading

4.4.3.1 For naturally ventilated buildings of all occupancies, horizontal sunshades shall be provided over windows on South, East and West, the depth of which shall be calculated by multiplying the window height with a factor of 0.234 (Figure 3.4.2). Horizontal louvers can be used instead of sunshades, in which case, depth of louver shall not be less than 0.234 times the gaps between the louvers (Figure 3.4.3).

4.4.3.2 Vertical Shading devices shall be provided on the West, depth of which shall be calculated, by multiplying the gaps between the vertical fins, or the window width if the shades border the window width, with a factor of 0.234 (Figure 3.4.4).

Exceptions:

- (a) The above rule shall be relaxed if it can be demonstrated that shading is achieved by existing neighbouring structures.
- (b) The north side of all buildings are exempt from the above rules.

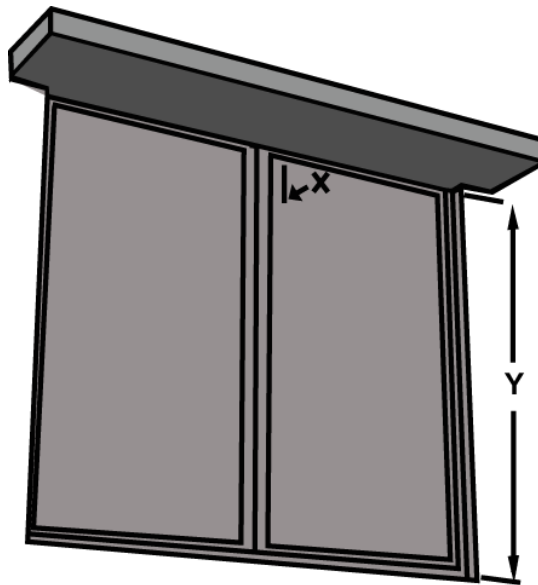


Figure 3.4.2 Horizontal shade: $x \geq 0.234y$

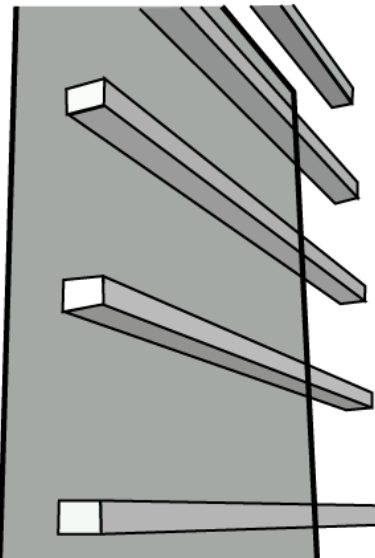


Figure 3.4.3 Horizontal Louvres: relationship between depth (x) and gap (y): $x \geq 0.234y$

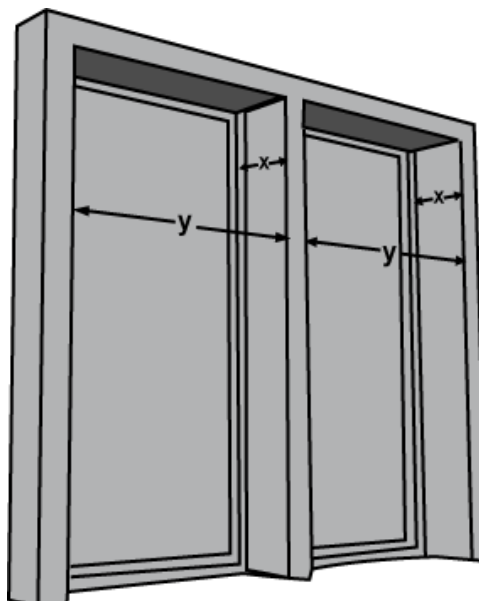


Figure 3.4.4 Vertical shading or louvres: relationship between depth (x) and gap (y): $x \geq 0.234y$

4.4.4 Roof Insulation and Green Roofing System

4.4.4.1 Fifty (50) percent of horizontal exposed roof slabs of Buildings of Occupancy B, C, D and E, shall have green roofing system, to manage water run-off from roof tops, to control internal temperatures within the top floors and to reduce the carbon footprint of the building. This shall not include any covered roof surface, e.g. solar panels, solar thermal heaters, machinery for mechanical or electrical systems, water tanks, etc. Stair loft or machine room tops will be exempt from this rule.

- (a) The roof slab design shall consider structural support of the green roof system, with growing medium of minimum 300 mm.
- (b) The design will indicate protection from dampness and provide a drainage system

4.4.4.2 Horizontal roof slabs, which are not covered by green roofing system, will have roof slabs with insulation, so that the time lag and decrement factor is greater than the other floor slabs of the building.

4.5 ENERGY EFFICIENT BUILDING SYSTEMS

4.5.1 Daylighting and Supplementary Lighting System

4.5.1.1 Window area shall not be less than 14 percent or $1/7^{\text{th}}$ of the total floor area of the building

4.5.1.2 Every regularly occupied space shall contain a minimum percentage of day-lit area along the building perimeter zones, with no window less than an area of 1 m^2 and will ensure the appropriate stipulations given below.

- (a) for rooms that measure less than 8 m in depth, window area shall be at least 20 percent of the area of the external wall of the room,
- (b) for rooms that measure between 8 to 14 m in depth, window area shall be at least 30 percent of the area of the external wall of the room and 35 percent of the external wall
- (c) for rooms that measure more than 14 m in depth, window area shall be at least 35 percent of the area of the external wall of the room

4.5.1.3 For Buildings of Occupancy A5, B, C, E1 and E2, photoelectric sensors shall be connected to luminaires, to enable dimming or switching off lamps that do not require to be operated, due to the presence of adequate daylight. The photoelectric sensor shall be located approximately at half ($1/2$) the depth of day-lit zone.

4.5.1.4 If occupancy sensors are installed in the daylight area, the occupancy sensor shall override the daylight sensor during non-occupancy period.

Exceptions:

- (a) Zones with special requirements are exempt from the stipulation of Sec 4.5.1.3. The designer shall justify the reason for exemption.
- (b) Hotel guest rooms are exempt.

4.5.2 Lighting Power Density

4.5.2.1 Lighting Power Density (LPD) of the values set in Table 3.4.5 shall be provided for the respective functions within all building occupancies, or as specified.

4.5.2.2 In addition to Sec 4.5.2.1, Illumination values (Lux) as specified in Tables 8.1.5 to 8.1.14 of Part 8 of this Code shall be provided for buildings of the respective occupancies.

4.5.3 Occupancy Sensors

4.5.3.1 In order to limit the use of electricity in the unoccupied areas of buildings, occupancy sensors linked to lighting (except for emergency and security lighting) shall be installed in the public areas of buildings of occupancies specified in Table 3.4.6.

Table 3.4.5: Maximum Allowable Lighting Power Density for Different Occupancies

Occupancy		Maximum LPD (W/m ²)
E1 and E2:	Offices	9
F1 and F2:	Retail/Mercantile	13
A5:	Hotels	9
D1:	Hospitals	11
A1, A2 and A3:	Apartments/residences	7
B:	Educational	11
All occupancies:	Covered parking*	3
All occupancies:	Open / outdoor parking	1.6

* LPD for car parks shall calculated from the total lighting power divided by the total car park area

Table 3.4.6: Applicability of Occupancy Sensors

Occupancy	Applicability
E1 and E2 Offices	Meeting rooms and corridors
A5 Hotels	Meeting rooms and corridors
A3 Apartments	Covered car parks and corridors
B Educational	Covered car parks and corridors

4.5.3.2 For car parks a minimum 2/3rd of the lighting shall be controlled by occupancy sensors.

4.5.3.3 Emergency lighting shall not be connected to occupancy sensors.

4.5.4 Ceiling/ Wall Mounted Fans

4.5.4.1 For naturally ventilated buildings of occupancy A, ceiling/wall mounted fans shall be provided in each regularly occupied space.

4.5.4.2 For buildings of occupancy B, C, D, E and I, ceiling/wall mounted fans shall be provided in each room larger than 25 m², with a minimum of one fan every 25 m².

Exceptions:

- (a) Corridors of buildings of all occupancies
- (b) ICU, CCU, operating theatres of Hospitals and Clinics

4.5.5 Lift and Escalator Efficiencies

4.5.5.1 Escalators, in buildings of all occupancies, shall be fitted with controls to reduce speed or to stop when no traffic is detected.

4.5.5.2 Such escalators shall be designed with one of the energy saving features as described in i or ii below:

Reduced speed control: The escalator shall change to a slower speed when no activity has been detected for a period of a maximum of three (3) minutes. Detection shall be by photocell activation at the top and bottom landing areas.

Use on demand: The escalator shall shut down when no activity has been detected for a period of a maximum of fifteen (15) minutes, designed with energy efficient soft start technology. The escalator shall start automatically when required; activation shall be by photocells installed in the top and bottom landing areas.

4.5.5.3 Elevators (lift) in buildings of occupancy A5, D1, E1, E2, F1, F2, I1 and I3 occupancies shall be provided with controls to reduce the energy demand, using the following features in traction drive elevators:

- (a) AC Variable-Voltage and Variable-Frequency (VVVF) drives on non-hydraulic elevators.

- (b) An average lamp efficacy, across all fittings in the lift car, of >55 lamp lumens/circuit watt, with provision for switching off, when lift is inactive for a period of a maximum of five (5) minutes.
- (c) The provision to operate in stand-by condition during off-peak periods, when the lift has been inactive for a period of a maximum of five (5) minutes.

4.5.6 Renewable Energy Options

4.5.6.1 Buildings of occupancy A shall use Solar or other renewable sources of energy to power 3% of the total electric load of the building, applicable to the uses in Sec 4.5.6.3.

4.5.6.2 Buildings of all occupancies other than A, shall use Solar or other renewable sources of energy to power 5% of the lighting and fan loads of the entire building, mandatory to uses in Sec 4.5.6.3.

4.5.6.3 For all occupancies, the solar or other renewable energy connection shall power spaces in the following order of priority: lighting in underground/basement spaces, dark corridors, supplementary lighting, fans, emergency lighting like fire stairs, emergency signage's, egress path lighting, etc.

4.5.7 Heating Ventilation and Air-conditioning (HVAC) system

For conditioned buildings any Heating Ventilation and Air conditioning (HVAC) system planned for installation will meet energy efficiency standards specified in Part 8 of this Code.

4.6 INTERNAL WATER MANAGEMENT

4.6.1 Reuse of Grey Water

Buildings of occupancy A5, E1 and E2 and I shall reuse grey water for water efficiency and management.

Grey water from wash basin shall be reused in toilet flushing and/or irrigation after filtration to ensure a BOD (Biochemical Oxygen Demand) level <50. Such water shall not be considered potable.

4.6.2 Efficient Fittings in Toilets

Water efficient fittings, including faucets, showerheads and flushes, that use less water for the same function as effectively as standard models, shall be used in buildings of all occupancies. The low flow fixtures shown in Table 3.4.7 shall be used.

Table 3.4.7: Fixture Ratings

Type of Fixtures	Quantity (max)	Unit
Water closets	Dual Flush (6/4)	liters/flushing cycle (full/low)
Shower	9.5	liters/min at 551 kPa
Urinals	3	liters/flushing cycle
Hand wash taps	6	liters/min at 417.7 kPa
Kitchen/pantry faucets	6	liters/min at 417.7 kPa

4.6.3 Service Hot Water and Pumping

In order to reduce the energy used for water heating, buildings of occupancy A5 and D1 shall use solar hot water system to supply a minimum of thirty (30) percent of the total building hot water requirements. The solar hot water system can be flat plate solar collectors or vacuum tube solar system, this system must be designed and installed with the backup system or as a per heating for the main hot water system.

This page is intentionally left blank.