CHAPTER 1

General Building Requirements

1.1 SCOPE

This part of thiscode 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 thiscode. 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 aplotor 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 unobstructedpath 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.

Adaptable Spaces or features are designed for persons having physical limitation shall have a prefixadaptablesuch as adaptable toilet, adaptable kitchen, and adaptable lift and so on.

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 2.286m 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% 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.
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.
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 overflown 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	A building is used for human occupancy and located at level more than 20m high from the center of the adjacent road level or from lowest level of the fire department access vehicle which is capable of reaching the floor or the

protected openings of highest isolated refuge area located in a building.

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 be remained uncovered up to the sky from formation level of the building.

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.

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	A sloping driveway or Ramped Driveway steeper than 1 in 8 shall not be credited as a component of means of exit.
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 1829mm or 2438mm 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	The plots are situated opposite or face to face of each other and divided by a space in between the plots which is unobstructed and open to outer air having required width and used by the public as pedestrian or walkway or animal or vehicular movement or any combination of these 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 form 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 and permitted uses

A city or a township or a municipality or a unionor any other habitat development shall be brought under a structured planningincluding 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 following uses for each zone.

a. permitted occupancies

b. conditionally permitted occupancies and

c. restricted occupancies.

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 alloccupancy group and sub-divisions 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.

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	H1	Low fire risk storage	3

Occupancy type	Subdivision	Nature of use or occupancy	Fire Index*
buildings	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 plot which is waste water logged, or on any part of which is deposited refuse, excreta or other objectionable material, until such plot 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

1.5.2.1 No building or any part thereof shall be erected within, nor any auxiliary part of the building be allowed to come closer than, the distances 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 line and service line	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 m for each additional 33 kV or part thereof	1.75 Plus 0.3 m for each additional 33 kV or part thereof.

1.5.3 Road , Formationlevel andPlinth Levels

1.5.3.1 Road level shall be lower than the populated formation level of an area. 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.

1.5.3.1 The Development of a formation level of a plot shall not be lower than the adjacent road levels. Areas are not susceptible to flood or water logging, the formation level shall not be required to change in highs more than 450 mm from the surface level of the center line of the adjacent roads.

1.5.3.2 The plinth level of a building shall be at least 450 mm above the surface level of the center line of the adjacentroad. 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 plotor 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 aboundary wall shall be capable to resist collapsing as per provision of this code.

1.6 MEANS OF ACCESS

The provision of means of access implied on a plot or an area when there is more than one building intended to be erected or more than one plot intendedto be created respectively where buildings or any plot do not have frontage or not approachable by a public or a private road or street shall have anaccessfacilities which shall beconnected with national road transportation system. The components of means of access shall be complied 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 width of 4.5 m and the minimum vertical clearance shall be 5m. The width and vertical clearance of fire apparatus access roads may be increased when in the opinion of the fire authority, 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 shall be marked by approved sign.

e) The 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 stairsas per provisions of this code sections 1.6 (a), (b) and (c) may be exempted.

1.6.1 Internal Road or Access Road

Access road or internal roadare legally limited and restricted for thoroughfareto the citizens and/or reserved for a group of people of a plot or an area which shall have access provisions for the department of fire service and civil defense.

1.6.1.1 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
Permissible Length of Internal or Access Roads in a Non-Residential plot or an area

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

1.6.2 Pedestrian or Walkways or Footpath

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 walkers only.

1.6.2.1 Anuncoveredpaved pedestrian that links buildings and the approach road shall not be included as a floorarea of a building.

1.6.2.2 The walkways shall not be used for any other purpose.

1.6.2.3 The minimum width of the pedestrian 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; otherwise the minimum width shall be 1.25 m.

1.6.2.4 Pedestrians or walkways as accessibility route in public buildings shall be complied with the provisions of this code. Any changes in elevation in accessibility route shall be with table 3.1.5

Table 3.1.5
Slope of accessibility route when changes in elevation

Changes in Elevation (mm)	Gradient not steeper than
0 to 15	1:2
>15 to 50	1:5
>50 to 200	1:10
>200	1:12

1.7 OPEN SPACES WITHIN A PLOT

1.7.1 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.

1.7.2 At least 50 per cent of the mandatory open space in a plot shall remain unpaved with or without vegetation to allow water penetration.

1.7.3 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 per cent of the plot area.

1.7.4 The total open area in a plot on which a building of any occupancy, except those mentioned in 1.7.2 and 1.7.3, is constructed shall not be less than 33 per cent of the plot area.

1.7.5 For the purpose of Sec 1.7.2 and 1.7.3, the total open area shall include all exterior open spaces and interior courtyards, but exclude the area of any lighting and ventilation shaft.

1.7.6 For approved row type or cluster type housing or site and service schemes, the requirement of 1.7.3 shall be applicable.

1.7.7 **Separation of Buildings in the Same Plot**

1.7.8.1 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.

1.7.8.2 Equidistant imaginary lines shall be drawn between the buildings of same height and shall comply with setback and fire separation distance.

1.7.8.3 The imaginary lines shall satisfy the setback distances for both the buildings when heights of the buildings are not equal.

1.7.8.4 Due to the common walls of row or semidetached houses shall be treated as one building. More than one row or semidetached houses shall comply with setback distances and means of access requirements.

1.7.8 Frontage Open Space for All Buildings

1.7.8.1 Irrespective of the height of building frontagesshall be constructed at a distances of at least 4.5 m from the midpoint of the public or private street or roadwidth or at a distance of at least 1.5 m plot abuttingstreets or roads edgeswhichever is greater.

1.7.8.2 When two frontages of a plot intersects each other and form a sharp corner shall be transformed to provide a turning clearancewith a minimum radius of 2m.

1.7.9 Side and Rear Separation distances

1.7.9.1 The minimum side and rear open space requirements of a plot for buildings of various occupancy classes shall be as specified in Table 3.1.6.

1.7.9.2 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.

1.7.9.3 For semidetached buildings approved by the city or development authority, which are permitted to be constructed with one side on the property line, the minimum requirements of open space, specified in Sec 1.7.9, 1.7.10.1 and 1.7.10.2, for the side opposite to that property line shall be increased by 0.5 m. The requirement of separation distance for the remaining sides shall remain unchanged.

Table 3.1.6
Minimum rear and side separation distancerequirements for buildingsin 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)	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 (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
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

Note :

[a] The two dimensions separated by comma stands for each of side separation distance of a semi-detached development.

[b]No side separation distance is required between buildings up to 15m 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.

[d]Mercantile occupancies shared walls between adjacent plots will only be allowed by the development authority.

* For narrow plots (with site frontage below 12m) of size 268m² 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

1.7.10 **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 buildings or walls or combination thereof shall be designated a Courtyard. Area of a Courtyard shall be measured from clear cross-sectional dimensions. In relation with height of the surrounding building or buildings the area shall not be shaded more than two third duringthe mid-daylight.

When a courtyard is fully surrounded by a building shall be designated as an Interior courtyard or a close courtyard.

A courtyard has exposures to the outer air. Sum of the exposures shall be at least thirty percent of its peripheral length shall be designated as open courtyard.

1.7.10.1 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 3.1.10. The shorter side dimension of such interior courtyard shall not be less than one-third of the longer side dimension.

For buildings over 20 storeys high, 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.

1.7.10.2 The courtyard shall not be interrupted by any form of construction at the courtyard level, except landscaping, sculpture etc.

1.7.10.3 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.

1.7.11 **Permitted Construction in the Open Space**

1.7.11.1 Landscaping, sculpture,walkways, water body shall be permitted in the open space. Any such construction shall comply with Sec 1.7.2 of this chapter.

1.7.11.2 A maximum of one-third of the open space in a plot required by the provisions of Sec 1.7.9 and 1.7.10 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 the 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 orsloping drivewayshall not be directly from a public road or street. Distance between the entrance to a garage or a sloping driveway and the plot line adjoining the road shall be kept at least 2.15m or3.35m 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.

Table 3.1.7
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

Note: 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

1.7.11.3 Edges of slope roof or cornice of the building may be projected into the mandatory open space for a maximum distance of 750mm.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 adjacentplot or street.

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

1.7.11.5 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 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.

1.7.11.6 Balconies at levels higher than 6 m may project intothe mandatory open space by not more than 0.9 m provided that a clearance of at least 1.5 m is maintained between the edge of the balcony and the property line.Balcony shall be constructed as per provisions of this code.

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

1.8 GENERAL HEIGHT AND AREA LIMITATIONS

1.8.1.1 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.

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		

1.8.1.2 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.

1.8.1.3 Where more than one construction type permitted within a building as per provision of this codeamong 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.

1.8.2 FARAllotment and Limitations

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

1.8.2.2 For Occupancy for which unlimited FAR is permitted, the minimum open space requirements specified in Table 3.1.10 shall be applicable.

1.8.2.3 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 and lifts, which are accessory to the main occupancy, shall be excluded from the calculation of the total floor area of the building.

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.

1.9 OFF STREET PARKING SPACES

1.9.1 Off street parking requirement for a building or an area shall be decided by the development authority having jurisdiction.

1.9.2 Sloping drivewaysteeper 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 demarked 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.

1.10 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 the street land not more than 0.3 m at least 1.5 m below grade.

b. Above Grade: Marquee, canopy or other temporary projection of cantilever type 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. Under no circumstances shall the top of the canopy be used by any floor of the building.

1.11 COMMUNITY OPEN SPACE AND AMENITIES

Community open space for an area or a building shall be decided by the development authority having jurisdiction**.**

1.12 MINIMUM STANDARD OF A DWELLING

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

1.13 REQUIREMENTS OF PARTS OF BUILDINGS

1.13.1 Plinth and Formation Levels

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

1.13.2 Room Dimensions

1.13.2.1 Ceiling Heights

a. All habitable rooms in non-air-conditioned residential and business & 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 & 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.

1.13.2.2 **Room Sizes**

Sleeping room size 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 be complied 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.

1.13.3 **Kitchen**

1.13.3.1 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.

1.13.3.2 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.

1.13.3.3 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.

1.13.3.4 The floor of the kitchen shall be water tight.

1.13.3.5 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.

1.13.3.6 Details for adaptable Kitchen for disabled persons are shown with minimum dimensions in following figures:

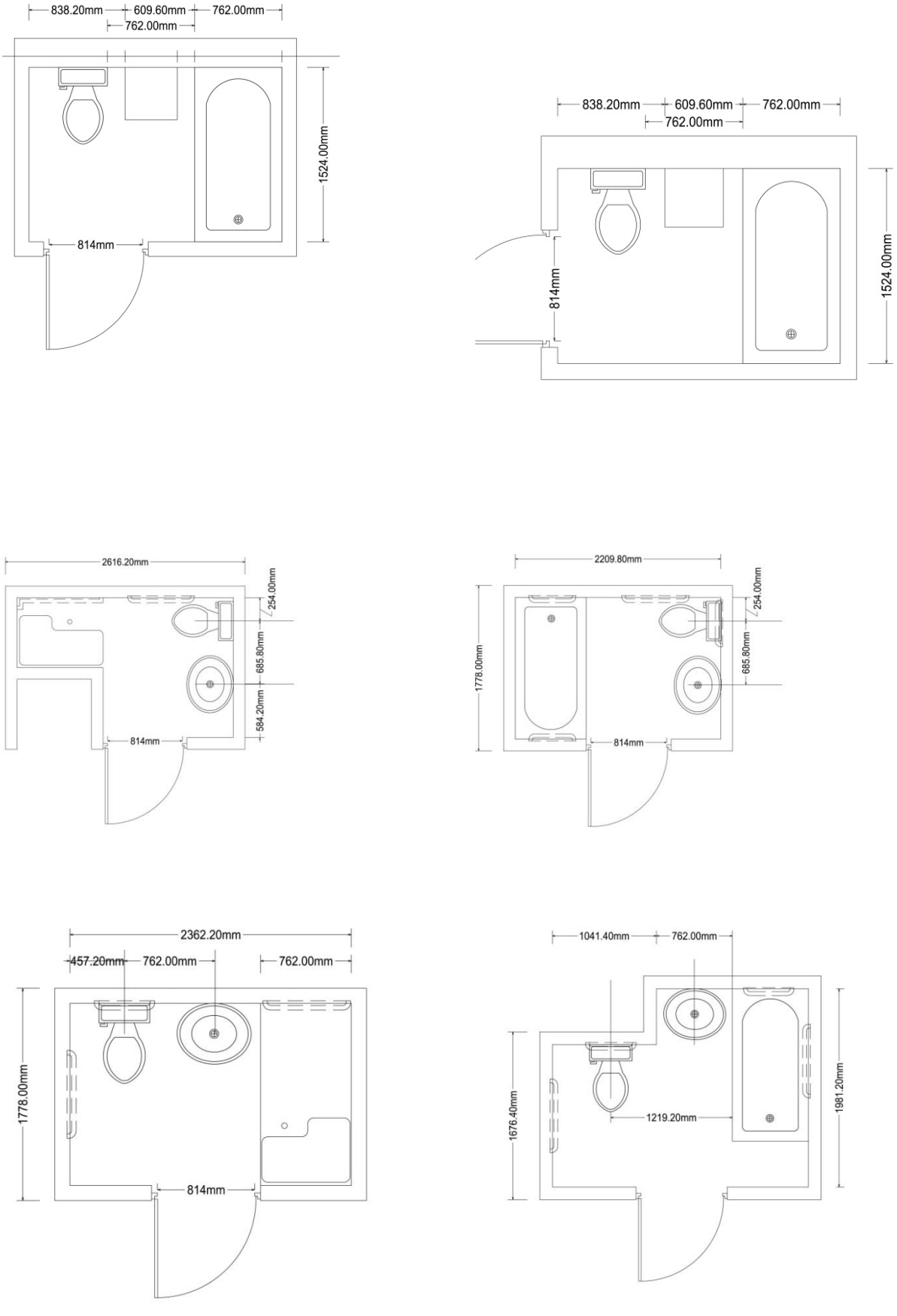
Adaptable Kitchen with Minimum dimensions

1.13.4 **Bathroom and Toilets**

1.13.4.1 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.

1.13.4.2 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 3.1.16.

1.13.4.3 Details for adaptabletoilet for disabled persons are shown in following figures with minimum dimensions.



Adaptable toilets with minimum details and dimensions

Table 3.1.10
Bathroom space standards

Facility	Minimum width	Floor area
Water closet + bathing + hand washing	1.25m	3.0m^2
Water closet + bathing	1 m	2.8 m^2
Bathing only	1m	1.5 m^2
Water closet only	1m	1.2 m^2
Toilet for Disabled persons	1.5m	2.25 m^2

1.13.4.4 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.

1.13.4.5 Every bathroom, toilet and water closet shall be located against an exterior wall or wall on the interior open space (see Sec 1.7.11), 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 3.1.12 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 3.1.11
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 to11	1.5	1.0
4	14	3.0	1.2
5	17	4.0	1.5
6	20	5.0	2.0
Over 6*	Over 20	6.5	2.5

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

1.13.4.6 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.

1.13.4.7 All public buildings shall have adaptable toilet as per requirement of the development authorities having jurisdiction. Each dwelling unit shall have atleast one adaptabletoilet.

1.13.5 **Stairways**

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

1.13.5.2 Sum of tworisers and one tread excluding nosing dimension shall not be less than 610mm and not more than 648mm.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 5mm.

1.13.5.3 The maximum flight height between landings shall not be more than 3658mm. For Assembly occupancy maximum flight height between landings shall not be more than 2439mm.

1.13.5.4 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.

1.13.5.5 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.

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

1.13.6 **Mezzanine Floor**

1.13.6.1 Eachmezzanine floorarea in a space shall not exceed one-third of the main floorarea.

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

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

1.13.7 **Lofts**

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

1.13.7.2 The minimum ceiling height requirements for various rooms specified under Sec 1.12.2, 1.12.3 and 1.12.4 shall be maintained under the loft.

1.13.7.3 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.

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

1.13.8 **Cabins or Chambers**

1.13.8.1 Cabins or Chambers created by removable partitions on an open floor shall have a minimum area of 3 m^2.

1.13.8.2 Clear passages at least 0.75 m wide 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.

1.13.9 Store Room

A store room provided in a dwelling unit of a residential building shall have a minimum area of 1.5 m^2 with a minimum width of 1 m. The clear height of the store room shall not be less than 2.2 m.

1.13.10 Private Garage

Private garagein a residential building shall have a minimum clear height of 2.03 m. The minimum area of the parking stall in a garage shall not be less than 23 m^2.

1.13.11 Basement

1.13.11.1 Subject to the provision of Sec 1.8.3.6, the area of the basement shall be included in the calculation of FAR.

1.13.11.2 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 waste water intrusion.

1.13.11.3 The basement shall be lighted and ventilated as per provision of this code.

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

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

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

1.13.12 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 this code.

1.13.13 Roof Drainage

1.13.13.1 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.

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

1.13.13.3 For one or two storey 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.

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

1.13.13.5 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.

1.13.14 **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.

1.13.15 **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 with the requirements of this Code.

1.13.16 **Landscaping**

1.13.16.1 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.

1.13.16.2 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.

1.13.16.3 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.

1.14 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.

1.15 EXISTING BUILDINGS

1.15.1 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.

1.15.2 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.

1.15.3 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.

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

1.16 BUILDINGS AND PLACES OF HISTORICAL OR ARCHITECTURAL VALUE

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.

1.17 VENTILATION, LIGHTING AND SANITATION

1.17.1 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.

1.17.2 All buildings shall have water and sanitation facilities as per provisions of this code.

1.17.3 Every kitchen shall have facility for washing of utensils.

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

1.17.5 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 1.12.4.4.

1.17.6 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
Dimensions of openings for different uses

Use type	Opening % 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 ceilof a kitchen shall be 450mm above cooking range. Air flow on cooking range shall be restricted.

1.17.6.1 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.

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

1.17.7 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.

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

1.17.7.2 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.

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

1.17.9 The requirements of opening areas specified in Sec 1.17.6 shall suffice for ventilation provided that the windows or ventilators forming the opening are openable. When part of a window area is made of fixed glazing, only the openable portion shall be counted in aggregating the opening area.

1.17.9.1 To achieve the desired indoor air qualityby natural means, an interior space shallhave minimum two openings of equal size; one ispositioned transverse to the direction of outer air flow as an inlet and the other opening as an outlet is positioned opposite or perpendicular to the inlet and the summation of the net opening area onwalls shall not be less than 5% of the net floor area thereof.

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

1.18 AIR-CONDITIONING AND HEATING

When air-conditioning and heating system areinstalled, anindoor air quality shall be maintained as per provisions of Chapter 3 of Part 8.

1.19 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.

1.20 SOUND INSULATION

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

1.21 THERMAL INSULATION

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

1.22 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 of Part 8.

1.23 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.

1.24 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 1.24.1 shall be applicable to areas designated as FPA. There shall be a design flood level in the FPA's 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 1.24.2 shall be applicable to buildings located in the SPA's. There shall be a design surge height in the SPA's which shall be recommended by the Authority to be used in interpreting the provisions of this section.

1.24.1 Flood Prone Areas

1.24.1.1 **Elevation:** The habitable floors of a building located in the flood prone area shall be elevatedabove the design flood level. Buildings up to two storeys high shall haveaccessible 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 1.24.1.3.

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 1.24.1.2.

1.24.1.2 **Enclosures below Design Flood Level:** There shall be no enclosed space below the design flood level except for building access, exits, foyers, storages 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 one opening for each enclosure in a building but the total number of such openings shall be at least two. The total net area of openings for an enclosure shall be at least 0.4 m^2, or 7 per cent of the floor area of the enclosure, whichever is greater.

1.24.1.3 **Flood-resistant Construction:** Floors constructed below the design flood level under the provisions of Exceptions in Sec 1.24.1.1 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.

1.24.2 **Surge Prone Areas**

1.24.2.1 **Elevation:** The habitable floorof 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.

1.24.2.2 **Enclosures below Design Surge Height:**Spaces of a building in the SPA's 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.

1.24.2.3 **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.

1.25 REQUIREMENTS FOR BUILDINGS IN HILLY 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 30^0. 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 roof tops onto the ground.

1.26 Storage of dangerous goods and their classes and divisions:

Any substances including mixtures and solutions shall be assigned to one of the following Classes. 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

Class 2.1: flammable gases
Class 2.2: non-flammable, non-toxic gases
Class 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:

Class 4.1: flammable solids, self-reactive substances and solid
Class 4.2: substances liable to spontaneous combustion
Class 4.3: substances which, in contact with water, emit flammable gases

Class 5: Oxidizing substances and organic peroxides

Class 5.1 oxidizing substances

Class 5.2 organic peroxides

Class 6: Toxic and infectious substances
Class 6.1: toxic substances
Class 6.2: infectious substances
Class 7: Radioactive Material
Class 8: Corrosive substances
Class 9: Miscellaneous dangerous substances and articles

1.25.1 HS code, Proper shipping names and UN Numbers

First Schedule of Bangladesh customstariff that is Harmonized system code shall be used for thedescription of any substancesand its corresponding UN number shall be used for proper shipping name and for the classifications of dangerous goods and shall be controlled for storage and use as per provision of this code and explosive control act.