RNI No. KARBIL/2001/47147

ಕರ್ನಾಟಕ ರಾಜ್ಯಪತ್ರ

ಅಧಿಕೃತವಾಗಿ ಪ್ರಕಟಿಸಲಾದುದು

ವಿಶೇಷ ರಾಜ್ಯ ಪತ್ರಿಕೆ

ಭಾಗ-IVA	ಬೆಂಗಳೂರು, ಸೋಮವಾರ, ಅಕ್ಟೋಬರ್ ೩೦, ೨೦೧೭ (ಕಾರ್ತೀಕ ೮, ಶಕ ವರ್ಷ ೧೯೩೯)	ನಂ. ೯೯೨
Part-IVA	Bengaluru, Monday, October 30, 2017 (Kartika 8, Shaka Varsha 1939)	No. 992

URBAN DEVELOPMENT SECRETARIAT

NOTIFICATION-II

No. UDD 14 TTP 2017 (P-4), Bengaluru, Dated: 28/10/2017

Whereas, the draft of the Karnataka Municipalities Model Building Bye-Laws, 2017 was published as required by sub-section (1) of 325 of the Karnataka Municipalities Act, 1964 (Karnataka Act 22 of 1964) in Notification No. UDD 14 TTP 2017 (P-3), dated: 11.07.2017 in Part-IVA of the Karnataka extra-ordinary Gazette, No. 687, dated: 15.07.2017 inviting objections and suggestions from all the persons likely to be affected thereby within one month from the date of its publication in the official Gazette.

And whereas, the said Gazette was made available to the public on 15.07.2017.

And whereas, objections and suggestions have been received in this behalf and considered by the State Government.

Now, therefore, in exercise of the powers conferred by section 325 of the Karnataka Municipalities Act, 1964 (Karnataka Act 22 of 1964) the Government of Karnataka hereby makes the following building bye-laws namely:-

MODEL BUILDING BYE-LAWS

CHAPTER-1

1. **Title, commencement and application-** (1) These bye laws may be called as the Karnataka Municipalities Model Building Bye-Laws 2017.

(2) They shall come into force from the date of their final publication in the official Gazette.

(3) All mandatory Master Plan or Zonal Regulations regarding use, land use, coverage, FAR, setback or open space, height, number of stories, number of dwelling units, parking standards etc. for various categories of buildings including modification therein made from time to time shall be applicable mutatis mutandis in these Bye-Laws under this clause. All amendments or modifications made in the aforesaid regulations shall automatically stand deemed to have been included as part of these Bye-laws.

CHAPTER-2

2. **Definitions,-** (a) In these Bye-laws unless the context otherwise requires,-

(1) **'Access'** – means a clear approach to a plot or a building.

(2) **'Act'**- means the Karnataka Municipalities Act, 1964 (Karnataka Act 22 of 1964);

(3) **'Addition and/or Alteration'**- means a structural change including an addition to the area or change in height or the removal of part of building, or any change to the structure, such as the construction or removal or cutting of any wall or part of a wall, partition, column, beam, joist, floor including a mezzanine floor or other support, or a change to or closing of any required means of access ingress or egress or a change to fixtures or equipment as provided in these Bye laws.

(4) **'Agriculture'** includes horticulture, farming, growing of crops, fruits, vegetables, flowers, grass, fodder, trees of any kind or any kind of cultivation of soil, breeding and keeping of

livestock including cattle, horses, donkeys, mules, pigs, fish, poultry and bees, the use of land which is ancillary to the farming of land or any purpose aforesaid but shall not include the use of any land attached to a building for the purpose of garden to be used along with such building; and 'agriculture' shall be construed accordingly.

(5) **'Air-conditioning'**- The process of treating air so as to control simultaneously its temperature, humidity, purity, distribution and air movement and pressure to meet the requirements of the conditioned space.

(6) **'Amalgamation'** means clubbing of two or more properties as a single property.

(7) **'Amenity'** includes roads, street, open spaces, parks, recreational grounds, play grounds, gardens, water supply, electric supply, street lighting, sewerage, drainage, public works and other utilities, services and conveniences.

(8) **'Annexure'** means the Annexure appended to these bye-laws;

(9) **'Apartment'** means suite of rooms, which are occupied or which is intended or designed to be occupied by one family for living purpose in an Apartment building. This word is synonymous with residential flat.

(10) **'Apartment Building/Group Housing'** means one or more buildings, each containing more than four Apartments.

(11) **'Appendix'** means Appendix appended to these bye-laws.

(12) **'Application'** means an application made in such form as may be prescribed by the Authority or as notified by the Government from time to time

(13) **'Applicant'** means any person who applies to the Authority with an intention to develop building as per these bye-laws. The Applicant shall be the owner of the property or his authorised representative or a promoter authorised by the owner.

(14) **'Approved'** means as approved/sanctioned by the Authority under applicable Bye-Laws

(15) **'Architect'**- means a person holding a graduate degree in Bachelor of Architecture from any institute recognized by the Council of Architecture (COA) and has his/her name entered in the register of COA for the time being, with a valid COA Registration number

(16) **'Auditorium'** means Premises having an enclosed space to seat audience and stage for various performances such as concerts, plays, music etc.

(17) **'Authority'**- means the Local Authority which has been created by a statute and which, for the purpose of administering / undertaking the various functions specified in these Byelaws, may authorize a committee or the CEO or any other designated officer of Local Body to act on its behalf; hereinafter called the 'Authority'.

(18) **'Balcony'** means a horizontal projection with a handrail or balustrade, to serve as passage or sit out place.

(19) **'Basement storey or cellar'** means any storey, which is partly / wholly below the average ground level contiguous to the building, with one or more than one level. The basement height should not project more than 1.2m above the average ground level.

(20) **'Bifurcation of plot'** means division of a plot into two.

(21) **'Building'**- means a Building defined in clause (3) of section 2 of the Act.

Types of Buildings based on use of premises or activity:

(a) **'Residential Building'**- includes a building in which sleeping and living accommodation is provided for normal residential purposes, with cooking facilities and includes one or more family dwellings, apartments/flats, and private garages of such buildings;

(b) **'Educational Building'**- Includes a building exclusively used for a school or college, recognized by the appropriate Board or University, or any other Competent Authority involving assembly for instruction, education or recreation incidental to educational use, and including a building for such other uses as research institution. It shall also include quarters for essential staff required to reside in the premises, and building used as a hostel captive to an educational institution whether situated in its campus or outside;

(c) **'Institutional Building'**- Includes a building constructed by Government, Semi Government Organizations or Registered Trusts and used for medical or other treatment, or for an auditorium or complex for cultural and allied activities or for an hospice, care of persons suffering from physical or mental illness, handicap, disease or infirmity, care of orphans, abandoned women, children and infants, convalescents, destitute or aged persons and for penal or correctional detention with restricted liberty of the inmates ordinarily providing sleeping accommodation and includes Dharamshalas, hospitals, sanatoria, custodial and penal institutions such as jails, prisons, mental hospitals, houses of correction, detention and reformatories etc;

(d) **'Assembly Building'**- means a building or part thereof, where groups of people (not <50) congregate or gather for amusement, recreation, social, religious, patriotic, civil, travel and similar purposes and this includes buildings of drama and cinemas theatres, drive-in

theatres, assembly halls, city halls, town halls, auditoria, exhibition halls, museums, kalyana mantapas, 'mangal karyalayas', skating rinks, gymnasia, restaurants, eating or boarding houses, places of worship, dance halls, clubs, gymkhanas and road, railways, air, sea or other public transportation stations and recreation piers;

(e) **'Business Building'**- Includes any building or part thereof used principally for transaction of business and/or keeping of accounts and records including offices, banks, professional establishments, court houses etc., if their principal function is transaction of business and/or keeping of books and records;

(f) **'Commercial/Mercantile Building'**- Includes a building or part thereof used as shops, stores or markets for display and sale of wholesale and or retail goods or merchandise, including office, storage and service facilities incidental thereto and located in the same building;

(g) **'Industrial Building'**- Includes a building or part thereof wherein products or material are fabricated, assembled or processed, such as assembly plants, laboratories, power plants, refineries, gas plants, mills, dairies and factories etc.;

(h) **'Storage Building'**- means a building or part thereof used primarily for storage or shelter of goods, wares, merchandise and includes a building used as a warehouse, cold storage, freight depot, transit shed, store house, public garage, hanger, truck terminal, grain elevator, barn and stables;

(i) **'Hazardous Building'**- Includes a building or part thereof used for

(i) Storage, handling, manufacture of processing of radioactive substances or highly combustible or explosive materials or of products which are liable to burn with extreme rapidity and/or producing poisonous fumes or explosive emanations; and

(ii) Storage, handling, manufacture or processing of which involves highly corrosive, toxic or noxious alkalis, acids, or other liquids, gases or chemicals producing flame, fumes and explosive mixtures etc. or which result in division of matter into fine particles capable of spontaneous ignition.

(j) **'Mixed Land Use Building'**- means a building partly used for non-residential activities and partly for residential purpose.

(k) **'Wholesale Establishment'**- means an establishment wholly or partly engaged in wholesale trade and manufacture, wholesale outlets, including related storage facilities, warehouses and establishments engaged in truck transport, including truck transport booking agencies

I. Types of building based on design:

(a) 'Detached Building'- means a building with walls and roofs independent of any other building and with open spaces on all sides within the same plot;

(b) 'Semi-detached Building'- means two buildings, together having not more than 4 dwelling units with a maximum of G+1 floor, attached to each other with a common wall and each building having setbacks only on three sides; and

(c) 'Row Housing' – means two or more dwelling units with a maximum of G+1 floor, in a row attached to each other, where the intermediate dwelling units have only front and rear setbacks and the dwelling units on the extreme ends have setbacks on three sides.

II. Types of building based on height:

(a) B1- means residential buildings of G+1 floors upto 4 dwelling units;

(b) B2- means all buildings upto G+2 floors other than B1 buildings and Industrial buildings;

(c) B3- means all low-rise buildings other than B1 and B2 buildings and Industrial buildings;

(d) B4- means all high-rise buildings (multi storey buildings) other than Industrial buildings; and

(e) B5- means all Industrial buildings

III. Types of building based on other features:

(a) **'Multi-Level Car parking'**- means a building partly below ground level having two or more basements or above ground level with two or more floors, primarily to be used for parking of cars, scooters or any other type of light motorized vehicle.

(b) **'Unsafe Building'**- Includes a building which:

(i) Is structurally unsafe, or

(ii) Is insanitary, or

(iii) Is not provided with adequate means of ingress or egress or

(iv) Constitutes a fire hazard or

(v) Is dangerous to human life or

(vi) In relation to its existing use, constitutes a hazard to safety or health or public welfare by maintenance, dilapidation or abandonment.

Note: All unsafe buildings /structure will require be restoring by repairs, demolition or dealing with as directed by the Authority. The relevant provisions of the Act shall apply for procedure to be followed by the Authority in taking action against such buildings

(22) **'Building line'** means the line upto which the plinth of building may lawfully extend within the plot on a street or an extension of a street and includes the line prescribed, if any in the Master Plan or Town Planning scheme. No portion of the building may extend beyond this line.

(23) **'Building Site'** means a plot held for building purposes, approved as per under the Karnataka Town and Country Planning Act, 1961. (herein after referred to as Karnataka Town and Country Planning Act,1961).

(24) **'Bus Depot'** means a premise used by public transport agency or any other agency for parking, maintenance and repair of buses. These may include the workshop.

(25) **'Bus Terminal'** means a premise used by public transport agency to park the buses for short duration to serve the public. It may include the related facilities for passengers.

(26) **'Canopy'**- shall mean a cantilevered projection from the face of the wall over an entry to the building at the lintel or slab level provided that:

(i) It shall not project beyond the plot line;

(ii) It shall not be lower than 2.3m or 7'- 6' when measured from the ground; and

(iii) There shall be no structure on it and the top shall remain open to sky.

(27) **'Carpet Area'** means the net usable floor area of an apartment or commercial premises, excluding the area covered by the external walls, areas under services shafts, exclusive balcony or verandah area and exclusive open terrace area, but includes the area covered by the internal partition walls of the apartment/ commercial premises. The clear distance between the structure (RCC or Masonry wall) of the external walls shall be considered for calculating Carpet Area, without considering the thickness of wall plastering, skirting, wall cladding etc.

(28) **'Chajja'** means a continuous sloping or horizontal cantilever projection provided over an opening or external wall to provide protection from sun and rain.

(29) **'Chimney'** means a structure usually vertical containing a passage or flue by which the smoke, gas, etc. of a fire or furnace are carried off by means of which a draught is created.

(30) **'Common Wall'** means a wall built on land belonging to adjoining owners, the wall being the joint property of both owners.

(a) If two adjoining owners build a dividing wall on their property, they are not common walls and no part of the footings of either wall shall project on to the land of the adjoining owner, except by legal agreement between the owners; and

(b) Any such 'common' or 'dividing' wall shall be considered for the purpose of these byelaws, as being equivalent to an external wall as far as the thickness and height are concerned.

(31) **'Community Hall'** means congregational place to be developed by government or local bodies, trust, society, etc., having a maximum of 300m^2 carpet area of hall without separate kitchen and dining. No upper floor shall be permitted.

(32) **'Construction'** means; Any erection of a structure or a building, including any addition or extension thereto either vertically or horizontally, but does not include any repair and renovation of an existing structure or building, or, construction, maintenance and cleansing of drains and drainage works and of public latrines, urinals and similar conveniences, or, the construction and maintenance of works meant for providing supply of water for public, or, the construction or maintenance, extension, management for supply and distribution of electricity to the public; or provision for similar facilities for publicity.

(33) **'Contractor'** means the agency executing the works of any of the components of the building or land, on behalf of the owner / Promoter, who is required to be registered under these Byelaws.

(34) **'Conversion of Occupancy'**- means the change from one occupancy to other occupancy or any change in building structure or part thereof resulting in a change of space and use requiring additional occupancy certificate.

(35) **'Corner Plot'** means a plot facing two or more intersecting streets / roads.

(36) **'Corridor'** means a common passage or circulation space connecting separate rooms or different parts of the same building including a common entrance hall.

(37) **'Cornice'**- means a sloping or horizontal structural overhang usually provided over openings or external walls to provide protection from sun and rain.

(38) **'Courtyard'** means a space permanently open to sky, enclosed fully or partially by buildings and maybe at ground level or any other level either in the interior or exterior of a building within the site.

(39) **'Cultural buildings'** means a building built by a Trust, Society, Government or Local body for cultural activities.

(40) **'Damp Proof Course'**- means a course consisting of some appropriate water proofing material provided to prevent penetration of dampness or moisture.

(41) **'Density of Households'** means number of dwelling units per hectare

(42) **'Density of Population'** means concentration of population expressed in terms of number of persons per hectare in a particular area.

(43) **'Development'** with its grammatical variations means the carrying out of building, engineering, mining or other operations in, or over or under land or water, or the making of any material change in any building or land (including compound wall) or in the use of any building or land and includes sub-division of any land.

(44) **'DR/T.D.R.'** – means Development Rights or Transfer of Development Rights available for plots as prescribed under Section 14B of Karnataka Town and Country Planning Act,1961 and the Rules framed thereof.

(45) **'Drains'** means natural valleys intended for flow of storm water /rain water

(46) **'Drainage system'** – means a system or a line of pipes, with their fittings and accessories, such as manholes, inspection chambers, traps, gullies, floor traps used for drainage of building or yards appurtenant to the buildings within the same cartilage for conveying surface water or a system for the removal of any waste water.

(47) **'Duplex'** means a dwelling unit in two levels connected with an internal staircase.

(48) **'Dwelling'**- means a building or a portion thereof which is designed or used wholly or principally for residential purposes for one family.

(49) **'Empanelled Professional'** means professionals such as Architects, Engineers, Structural consultants, MEP consultants, Environment consultants etc., who are empanelled by the Authority as per the provisions of these bye-laws as authorised persons to inspect the plots before, during, and after construction, as the case may be, to certify the constructions made as per the provisions of the approved plans and report to the Authority and also to sanction building plans of certain buildings as notified by the government.

(50) **'Encroachment'**- means an act to enter into the possession or rights either of permanent or temporary nature on a land or built up area of a private property or local body or state/central Government. **'Existing development'** means all developments (including buildings) which existed before coming into force of the Karnataka Municipalities Act, 1964, and all approved developments thereafter (including building) and which are completed or under development at the time of commencement of these bye-laws.

(51) **'Existing development'** means all developments (including buildings) which existed before coming into force of the Karnataka Municipalities Act, 1964, and all approved developments thereafter (including building) and which are completed or under development at the time of commencement of these bye-laws.

(52) **'Existing Use'**- means use of a building or structure existing before the commencement of these Bye-Laws.

(53) **'Exit'** means a passage channel or means of egress from the building, its storey or floor to a street or, other open space of safety; whether horizontal, outside and vertical exits meaning as under: -

(i) Horizontal exit means an exit, which is a protected opening through or around afire well or bridge connecting two or more buildings;

(ii) Outside exit mean an exit from building to a public way to an open area leading to a public way or to an enclosed fire-resistant passage leading to a public way and

(iii) Vertical exit means an exit used for ascending or descending between two or more levels including stairway, fire towers, ramps and fire escapes.

(54) **'External Wall'** means the outer wall of the building not being a partition wall, even though an adjoining wall of another building and also a wall abutting on an interior open space of any building.

External wall of an apartment or commercial premises means the outer wall of the apartment or commercial premises, even though an adjoining wall of another apartment or commercial premises.

(55) **'First floor'** means the floor immediately above the ground floor or stilt, on which second and other floors follow subsequently

(56) **'Flatted factory'** 'means premises having group of non-hazardous small industrial units which are permissible under the Zonal Regulations and these units may be located in multi-storied industrial buildings.

(57) **'Floor'** means the lower surface in a storey on which one normally walks in a building

(58) **'Floor Area'** means the area in each floor considered for calculating the FAR utilised in the building.

(59) **'Floor Area Ratio (FAR)'** means the quotient of the ratio of the combined gross floor area of all the floors, excepting areas specifically, exempted under the Zonal Regulations, to the total area of the plot. Viz.

$$\text{Floor Area Ratio} = \frac{\text{Total floor area of all the floors.}}{\text{Plot Area}}$$

(60) **'Fire and/or Emergency Alarm System'**- means Fire alarm system comprises of components for manually or automatically detecting a fire, initiating an alarm of fire and initiating other actions as appropriate.

(61) **'Fire Hazard Industries'**-

(i) 'Low Fire Hazard Industries' includes engineering industries using/processing or assembling non-combustible materials i.e. lathe machines, steel works, steel components etc.

(ii) Moderate Fire Hazard Industries' includes industries using / processing combustible materials but not flammable liquid etc., plastic industries, rubber, and Polyvinyl Chloride (PVC) industries, textile, paper, furniture, flour mills etc.

(iii) 'High Fire Hazard Industries' includes industries using/processing flammable liquids, gases, chemicals petroleum products, plastic or thermo setting group etc.

(62) **'Fire Lift'**- Means a special lift designed for the use of fire service personnel in the event of fire or any other emergency.

(63) **'Fire Proof Door'**- Means a door or shutter fitted to a wall opening, and constructed and erected with the requirement to check the transmission of heat and fire for a period.

(64) **'Fire Pump'**- Means a machine, driven by external power for transmitting energy to fluids by coupling the pump to a suitable engine or motor, which may have varying outputs/capacity but shall be capable of having a pressure of 3.2 kg/ cm^2 at the topmost level of multi-storey or high-rise building.

(65) **'Fire Pump-Booster Fire Pump'**- Means a mechanical/electrical device that boots up the water pressure at the top level of a multi-storey / high-rise building and which is capable of a pressure of 3.2 kg/cm^2 at the nearest point.

(66) **'Fire Resistance'**-means Fire resistance is a property of an element of building construction and is the measure of its ability to satisfy for a stated period some or all of the following criteria:

(a) resistance to collapse;

(b) resistance to penetration of flame and hot gases; and

(c) Resistance to temperature rise on the unexposed face up to a maximum of 180°C and/or average temperature of 150°C.

(67) **'Fire Resistance Rating'**- The time that a material or construction will withstand the standard fire exposure as determined by fire test done in accordance with the standard methods of fire tests of materials or structures.

(68) **'Fire Separation'**- Means the distance in metres measured from any other building on the site or from another site, or from the opposite side of a street or other public space to the building.

(69) **'Fire Brigade Inlet'**- Means a connection provided at the base of a building for pumping up water through in-built fire-fighting arrangements by fire service pumps in accordance; with the recommendation of the Chief Fire Officer.

(70) **'Fire Tower'**- Means an enclosed staircase that can only be approached from the various floors through landings or lobbies separated from both the floor area and the staircase by fire resistant doors and open to the outer air.

(71) **'Fire Resisting Building'**- means a building in which material, which has, appropriate degree of fire resistance is used.

(72) **'Footing'**- means a foundation unit constructed in stone masonry or concrete under the base of a wall or column for the purpose of distributing the load over a larger area.

(73) **'Form'** means a Form appended these bye-laws;

(74) **'Foundation'** means that part of structure which is below the lowest floor and which provides support for the superstructure and which transmits the load of the superstructure to the bearing strata.

(75) **'Frontage'** means the width of the site/land abutting the access/public road.

(76) **'Gallery'**- means an intermediate floor or platform projecting from a wall of an auditorium or a hall providing extra floor area, and or additional seating accommodation and includes the structures provided for seating in stadia.

(77) **'Garage-Private'**- means a building or a portion thereof designed and used for the parking of vehicle.

(78) **'Garage-Public'** – means a building or portion thereof, designed other than as a private garage, operated for gain, designed and/or used for repairing, servicing, using, selling or storing or parking motor driven or other vehicles.

(79) **'Gas Go down'** means premises where LPG cylinders are stored.

(80) **'Government'** means the Government of Karnataka.

(81) **'Ground Floor'** means the Floor immediately above the level of the adjoining average ground level on all sides having approach directly from the road or above the basement floor.

(82) **'Ground Coverage'** means area covered by the building immediately above the ground level contiguous to the building. Covered area does not include the space covered by ramps around the building, roof of basement floor beyond the plinth of the building projecting above the ground level, structures for services permitted in the setback area, garden, rocky area, well and well structures, plant, nursery, water pool, swimming pool (if uncovered) platform around a tree, tank, fountain, bench with open top and unenclosed sides by walls cut outs and ducts which are open to sky and the like drainage, culvert, conduit, catch-pit, gully-pit, chamber gutter and the like, within the site, compound or boundary wall, gate, unstoreyed porch and portico, Chajja, slide, swing, uncovered staircase, watchman booth, pump house and the like within the site.
Ground Coverage in hilly areas shall be as prescribed in the Zonal Regulations.

(83) **'Habitable Room'** means a room occupied or designed for occupancy by one or more persons for study, living, sleeping, Eating, cooking but does not include bathrooms water closet compartments, laundries serving and storage pantries, corridors, cellars, and spaces that are not used frequently or during extended periods.

(84) **'Head room'** means the clear space between the finished floor level and ceiling/ beam bottom. Minimum headroom shall be 2.4m.

(85) **'Heritage building'** means a building possessing architectural aesthetic, historic cultural values, which are declared as heritage building by the competent authority or government within whose jurisdiction such building is situated.

(86) **'Heritage Precinct'** means an area comprising heritage building or buildings and precincts there of or related places which is declared as such by the competent authority or government within whose jurisdiction such building is situated.

(87) **'High-rise Building'** means a building having height of 15 m and above.

(88) **'Height of Building'** means the vertical distance measured from the average level of the ground around and contiguous to the building to the top of the roof in case of flat roofs and in the case of sloped roofs up to the point where the external surface of the outer wall intersects a finished surface of the sloping roof at the eave level
In hilly areas, if the average level of the ground around and contiguous to the building is below the road level (road for which FAR is considered), then the height of the building shall be measured from such road level and not from the average ground level. The formed level made by filling of natural ground, if considered for the height of the building, shall not be more than 2.0m above the road level.

(89) **'Hilly Area'** for these Byelaws means those Local Planning Areas notified as hilly area by the Government from time to time.

(90) **'Hospital'**: means a premise providing medical facilities of general or specialized nature for treatment of in-patient and out-patients.

(91) **'Hotel':** means Premises used for lodging with payment, with or without boarding facilities.

(92) **'Illuminated Exit Signs'**- means a device for indicating the means of escape during normal circumstances and power failure.

(93) **'Land use'** includes the purpose to which the site or part of the site or the building or part of the building is in use or permitted to be used by the Authority. Land use includes Zoning of land use as stipulated in the Master Plan and the Zonal Regulations.

(94) **'Licence'** means a valid permission or authorization in writing by the Authority to carryout development of building or a work regulated by these Bye- Laws.

(95) **'Licensed Professional"** means Qualified professionals who have been registered with the Urban Local Body as per the Qualification and competence notified by the Government and therefore possess the license to provide professional services in Building construction. Only licensed professionals would be allowed to be professionals on record.

(96) **'Lift'** means an appliance designed to transport persons or materials between two or more levels in a vertical or substantially vertical direction by means of a guided car platform. The word 'elevator' is also synonymously used for 'lift'.

(97) **'Lobby'**- means a covered space in which all the adjoining rooms open.

(98) **'Lodging House'** means a premise used for lodging on payment. This is synonymous to Hotel

(99) **'Loft'** means a residual space above normal floor level which may be constructed or adopted for storage purposes.

(100) **'Market value'** means the guideline value of the land notified under section 45B of the Karnataka Stamp Act, 1957

(101) **'Master Plan'** means Master Plan prepared for the local planning area and approved by the government under the Karnataka Town and Country Planning Act,1961.

(102) **'Means of Escape'**- means an escape route provided in a building for safe evacuation of occupants.

(103) **'Mezzanine Floor'**- means an intermediate floor between Ground floor and First floor only, with area of mezzanine floor restricted to one third of the area of that floor and with a minimum height of 2.20m. Mezzanine floor is permitted for non-residential uses only. Such Mezzanine floor shall be accessible only from the Ground floor.

(104) **'Multilevel Car Parking (MLCP)'** means multilevel structure used for car parking connected to all floors by means of ramps / mechanical elevators. MLCP can be an independent structure or part of a building with other land uses. However, in the portion used for parking, no other land uses shall be permitted.

(105) **'Multiplex complex'** means a building housing an entertainment and cultural centre including cinema theatres, restaurants, food courts and shops as defined in Karnataka Cinema Regulations Act 1964. The development of such buildings shall be governed as per the provisions of Karnataka Cinema Regulations Act 1964.

(106) **'MCB/ELCB'** means Devices for tripping of electrical circuits in event of any fault in the circuit or installation.

(107) **'Non-Combustible Material'**- means a material which is not liable to burn or add heat to a fire when tested for combustibility in accordance with the latest code of Bureau of Indian Standards Method of Test for combustibility of Building Materials.

(108) **'Nursing home'** means A premises having medical facility for in-patients and out patients, having up to 30 beds, it shall be managed by a doctor or a group of doctors.

(109) **'Occupancy or use'**-means the principal occupancy or use for which a building or a part of a building is intended to be used. For the purposes of classification of a building according to occupancy, occupancy shall be deemed to include the subsidiary occupancies which are contingent upon it.

'Mixed occupancy' buildings being those in which more than one occupancy is present in different portions of the buildings.

(110) **'Open space in a plot'** means an area **forming** an integral part of the plot, left open to sky.

(111) **'Owner'** means a person who for the time being is receiving or is entitled to receive, whether on his own account or as agent, trustee, guardian, manager or receiver for another person or for any religious or charitable purpose, the rent or profit of the property in connection with which the word is used and in whose name the approval for development is issued.

(112) **'Parapet'** means a low wall or railing built along the edge of a roof or a balcony.

(113) **'Parking space'** means an area enclosed or unenclosed, covered or open sufficient in size to park vehicles together with a drive-way connecting the parking space with a public street or any public area and permitting the ingress and egress of the vehicles.

(114) **'Partition'** means an interior non-load bearing barrier, one storey or part-storey in height.

(115) **'Partition Wall'** includes (i)A wall forming part of a building and being used or constructed to be used in any part of the height or length of such wall for separation of adjoining buildings belonging to different owners or constructed or adopted to be occupied by different persons; or (ii) A wall forming part of a building and standing in any part of the length of such wall, to a greater extent than the projection of the footing on one side or ground of different owners.

(116) **'Plinth'** means the portion of a structure between the surface of the surrounding ground and surface of the floor immediately above the ground.

(117) **'Plinth Area'** means the built up covered area measured at the floor level of the basement or of any storey including balconies but excluding ducts/ services and lift shaft (except in the lowermost floor of lift shaft) and open cut-out areas.

(118) **'Plinth Level'** means the level of the floor of a building immediately above the surrounding ground.

(119) **'Plot / Site'** means a parcel of land enclosed by definite boundaries having a means of access

(120) **'Porch or Portico'** means a roof cover supported on pillars or cantilevered projection for the purpose of pedestrian or vehicular approach to a building without any structure above.

(121) **'Premium F.A.R'.** means the FAR over and above the permissible FAR allowed, on collection of additional fee as prescribed in the Zonal Regulations

(122) **'Premises'** means any portion of the building used for specific use other than the common areas of the building and includes dwelling units.

(123) **'Professional on record'**- means an Architect/Competent professional who is brought on record to represent his client for a construction project, to act on their behalf regarding building licenses and process of construction (Qualification, experience and competence as notified by the Government). He may be registered with the Authority for the cause (Registration procedure as under **Appendix-I**).

(124) **'Prohibited area'** means any area specified or declared to be a prohibited area under section 20A of the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (Central Act 24 of 1958).

(125) **'Promoter'** means –

(i) A person who constructs or causes to be constructed an independent building or a building consisting of Apartments, or converts an existing building or a part thereof into Apartments, for the purpose of selling all or some of the Apartments to other persons and includes his assignees; or

(ii) A person who develops land into a project, whether or not the person also constructs structures on any of the plots, for the purpose of selling to other persons all or some of the plots in the said project, whether with or without structures thereon; or

(iii) Any development Authority or any other Public body in respect of Allottees of –

(a) Buildings or Apartments, as the case may be, constructed by such Authority or body on lands owned by them or placed at their disposal by the Government; or

(b) plots owned by such Authority or body or placed at their disposal by the Government; for the purpose of selling all or some of the Apartments or plots, or

(i) An Apex State level co-operative housing finance society and a primary co-operative housing society which constructs Apartments or buildings for its members or in respect of the Allottees of such Apartments or buildings; or

(ii) Any other persons who acts himself as a builder, coloniser, contractor, developer, estate developer or by any other name or claims to be acting as the holder of a power of attorney from the owner of the land on which the building or apartment is constructed or plot is developed for sale; or

(iii) such other person who constructs any building or apartment for sale to the general public

Explanation –

(i) For the purpose of this clause, where the person who constructs or converts a building into apartments or develops a plot for sale and the persons who sells apartments or plots are different persons, both of them shall be deemed to be the promoters and shall be jointly liable as such for the functions and responsibilities specified, under this Act or the rules and regulations made there under;

(ii) For the purpose of this clause, Apartment, whether called block, chamber, dwelling unit, flat, office, showroom, shop, go down, premises, suit, tenement, unit or by any other name, means a separate and self-contained part or an immovable property, including one or more rooms or enclosed spaces, located on one or more floors or any part thereof, in a building or on a plot of land, used or intended to be used for any residential or commercial use such as residence, office, shop, showroom or go down or for carrying on any business, occupation, profession or trade or for any other type of use ancillary to the purpose specified;

This is synonymous to Developer.

(126) **'Protected monument'** means an ancient monument which is declared to be of national importance by or under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (Central Act 24 of 1958).

(127) **'Public and semi-public building'** means a building used or intended to be used either ordinarily or occasionally by the public such as offices of state or central government or local authorities, law courts, jails, Police Station, a church, temple, chapel, mosque or any place of public worship, Educational, cultural and religious institutions, medical and health institutions, cultural institutions like theatres, opera houses etc., of a predominantly non-commercial nature.

(128) **'Pump room'** means the room provided below ground level adjacent to the sump tank to house various types of pumps with self-priming mechanism. However, the entrance shaft of the pump room of maximum 2mx2m may be permitted above the ground level.

(129) **'Recreational Club'** means a premise used for assembly of a group of persons for social and recreational purposes with all related facilities.

(130) **'Regulated area'** means any area specified or declared under section 20B under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (Central Act 24 of 1958).

(131) **'Repair Shop'** means a premise similar to retail shop for carrying out repair of house hold goods, electronic gadgets, automobiles, cycles etc.,

(132) **'Restaurant'** means a premise used for serving food items on commercial basis including cooking facilities, with covered or open space or both having seating facilities.

(133) **'Retail Shop'** means a premise for sale of commodities directly to the consumer with necessary storage.

(134) **'Retention Activity'** means an activity or use which is allowed to continue, notwithstanding its non-conforming nature in relation to the use permitted in the adjoining or surrounding area.

(135) **'Road/Street'** means as defined in clause (24) of the section 2 of the Act.

(136) **'Road/Street Level or Grade'** means the officially established elevation or grade of the centreline of street upon which a plot fronts, and if there is no officially established grade, the existing elevation or grade of street at its mid-point, at the centre of the plot.

(137) **'Road/Street Line'** means the line defining the side limits of a road/street, where existing road width is considered and the road widening line where proposed road width is considered.

(138) **'Road Width or Width of Road/Street'** means the right of way/distance between the boundaries of the property on either side of the road including, carriageway, footways, service road at same level or at different level and storm water drains as laid down in the city survey or Master Plan or the prescribed road lines by any act of law and measured at right angles to the course or intended course of direction of such road.

(139) **'Room Height'** means the vertical distance measured from the finished floor surface to the finished ceiling surface. Where a finished ceiling is not provided, the underside of the joists or beams or tie beams shall determine the upper point of measurement.

(140) **'Service Apartments'** means fully furnished room or suite or rooms with kitchen, which is intended to be used on rental basis.

(141) **'Service Road'** means a road / lane provided adjacent to a plot for access or service purposes as the case may be and shall be parallel to the main road and may or may not be at grade with the main road and shall be partly or fully falling within the proposed road width of the main road.

(142) **'Setback'** means the distance prescribed under the Zonal Regulations of respective LPAs between the plot boundary and the plinth of the building or the covered Cantilever projection of the building in any floor. If cantilever projection of the building is proposed, the prescribed setback shall be provided between the plot boundary and such covered cantilever projection.

(143) **'Set-back Line'** means a line drawn at the setback distance, parallel to the plot boundaries or road widening line as prescribed in the Master Plan / Zonal Regulations, or as decided by the Authority (only road widening line), beyond which nothing can be constructed towards the plot boundaries except as prescribed in the Zonal Regulations.

(144) **'Site Plan'** means a detailed Plan showing the proposed placement of structures, parking areas, open space, landscaping, and other development features, on the plot as required by specific sections of these Bye laws.

(145) **'Solar Assisted Water Heating System'** means a device to heat water using solar energy as heat source.

(146) **'Spiral Staircase'** means a staircase forming continuous winding curve round a central point or axis provided in an open space having tread without risers.

(147) **'Staircase room'** means a room accommodating the stair and for purpose of providing protection from weather and not used for human habitation.

(148) **'Stair Cover'** means a structure with a covering roof over a staircase and its landing built to enclose only the stairs for the purpose of providing protection from weather and not used for human habitation.

(149) **'Stilt floor'** means open parking area provided at ground level. The height of the stilt floor shall be a minimum of 2.4m and maximum of 2.7m height (floor to beam bottom or ceiling whichever is less). The height shall be considered for calculating the total height of the building. In case of mechanical or multi-level parking the maximum height of the stilt floor shall be 3.75m.

(150) **'Storey'** means the space between the surface of one floor and the surface of the other floor vertically above or below. The minimum floor to floor height shall not be less than 2.9m.

(151) **'To Erect'-** in relation to a building means:

a) To erect a new building on any plot whether previously built upon or not;

b) To re-erect any building of which portions above the plinth level have been pulled down, burnt or dismantled.

(152) **'TPO'** means an officer from the Department of Town and Country Planning deputed in the respective Authority.

(153) **'Un-authorised Development'**- means the erection or re-erection, addition or alternations which is not approved or sanctioned by the Competent Authority.

(154) **'Underground/Overhead Tank'** means an installation constructed or placed for storage of water.

(155) **'Utility Area'** means a covered area with at least one side open to the outside with the exception of 1m high parapet on the upper floors to be provided on the open side.

(156) **'Ventilation'**- means Supply of outside air into, or the removal of inside air from an enclosed space.

(a) Natural Ventilation – means Supply of outside air into a building through window or other openings due to wind outside and convection effects arising from temperature or vapour pressure differences (or both) between inside and outside of the building.

(b) Positive Ventilation – means the supply of outside air by means of a mechanical device, such as a fan,

(c) Mechanical Ventilation – means supply of outside air either by positive ventilation or by infiltration by reduction of pressure inside due to exhaust of air, or by a combination of positive ventilation and exhaust of air.

(157) **'Water Closet (W.C)'**- means water flushed plumbing fixture designed to receive human excrement directly from the user of the fixture. The term is used sometimes to designate the room or compartment in which the fixture is placed.

(158) **'Window'**- means an opening to the outside other than a door, which provides all or part of the required natural light or ventilation or both to an interior space and not used as a means of egress/ingress.

(159) **'Zonal Regulations'** means the regulations of the Master Plan governing land use and developments.

(c) Words and expressions used in these bye-laws but not defined shall have the same meaning as defined in the Act.

CHAPTER -3

3. JURISDICTION, APPLICABILITY AND PROCEDURAL REQUIREMENTS FOR OBTAINING BUILDING LICENCE

3.1 Jurisdiction of Building Bye Laws.- These Building Bye-Laws shall apply to the building activity in the State for all Municipalities in the State.

3.2 Applicability of Building Bye Laws.- These building byelaws shall be applicable to all building activities undertaken by private or Government agencies and read in conjunction with the Master plan /Metropolitan development plan or any other statutory plan in force, if any, and notifications, if any, with regard to the same and as amended from time to time and these building bye-laws may be reviewed after five years. Till such time the reviewed building byelaws are notified, these building byelaws will continue to be in force.

3.3 Applicability of Bye-Laws for all types of building developments.- Except hereinafter or otherwise provided, these Bye-Laws shall apply to all development, redevelopment, erection and/or re-erection of a building whether temporary or permanent as well as to the design, construction of, or reconstruction and additions and alterations to a building.

3.4 Applicability of Bye-Laws for Part construction.- Where the whole or part of a building is demolished or altered or reconstructed, except where otherwise specifically stipulated, these Building Bye-Laws shall apply only to the extent of the work involved.

3.5 Change of use or occupancy.- Where use of a building is changed, except where otherwise specifically stipulated, these Building Bye-Laws shall apply to all parts of the building affected by the change.

3.6 Requirement in respect of building sites

3.6.1 Damp Site.- Wherever the dampness of a site or the nature of the soil renders such precautions necessary, the ground surface of the site between the walls of any building erected thereon shall be rendered damp-proof to the satisfaction of the Authority

3.6.2 Minimum Size of Site.- The minimum size of sites for the construction of different types of building or different use groups shall be in accordance with provisions of the Zonal Regulations of the Master Plan.

3.6.3 Sanction for Building Sites.- The Building sites shall have sanction under Section 17 of Karnataka Town and Country Planning Act,1961 from the Planning Authority, wherever Local Planning Area is declared and from the jurisdictional officer of the Department of Town and Country

Planning wherever Local Planning Areas not declared, before sanction is accorded under these Bye-laws.

3.6.4 Restrictions on use of land for construction of buildings.- No piece of land shall be used as a site for the construction of buildings under the following circumstances

(a) if the site is not drained properly or is incapable of being well drained;
(b) if the Authority considers that the site is insanitary or it is dangerous to construct a building on it;
(c) if the building is proposed on any area filled up with filthy and offensive matter without a certificate from the Health Officer and Municipal Engineer to the effect that it is fit to be built upon from health and sanitary point of view;
(d) if the owner of the land has not shown to the satisfaction of the Authority that all the measures required to safeguard the construction from constantly getting damp are being taken; and
(e) if it violates any provisions of Section 17 of Karnataka Town and Country Planning Act,1961 or any provisions of Zonal Regulations

Note: *If the proposed use of the building on the plot does not conform to the land use proposals of the Master plan or Zonal Regulations, permission from the Planning Authority for the change of land use has to be furnished.*

3.7 Reconstruction.- Permission under these byelaws shall not be given for reconstruction in whole or part of a building which has ceased to operate due to fire, natural collapse or demolition having been declared unsafe, or which is likely to be demolished by or under an order of the Authority as the case may be and for which the necessary certificate has been given by the Authority.

3.8 Existing approved building.- Nothing in these Bye-Laws shall require the removal, alteration or abandonment nor prevent continuance of the lawfully established use or occupancy of an existing approved building unless, in the opinion of the Authority such a building is unsafe or constitutes a hazard to the safety of adjacent property or to the occupants of the building itself.

3.9 Development of Buildings

3.9.1 Building Licence.- No person shall erect, re-erect or make addition/ alterations in any building or cause the same to be done without, first obtaining a separate building license for each such building from the Authority

3.9.2 Building Licence obtained before these bye-laws.- Where any building licence which has been issued by the Authority before the commencement of these Building Byelaws and where construction is in progress and has not been completed within the specified period from the date of such licence, the said permission shall be deemed to be sanctioned under these Bye-Laws and shall only be eligible for payment of validation extension fee there under. Accordingly, where the validity of sanction has expired and construction has not commenced, construction shall be governed by the provisions of these Building Byelaws and building licence has to be obtained as per these Building Byelaws:

Provided that, if the building construction could not commence due to the orders of any competent court of law, the construction may be permitted to commence as per the licensed plan, within three months of clearance obtained from the court.

3.10 Procedure for obtaining building licence

3.10.1 Registration of Stake Holders .- The following Stake Holders involved in the development activities in the ULB shall register themselves with the Authority, as per the procedure prescribed in **Appendix-I**

(a) Promoters/ Developers who intend to undertake developments within the jurisdiction of the Authority;
(b) Professionals for preparing plans and details for obtaining sanction from the Authority (as detailed in Appendix-II) and NOCs from different departments (as detailed in Appendix-IV), referred as professionals for drawings;
(c) Professionals who intend to supervise the implementation of various components specified in the plans sanctioned by the Authority, referred as professionals for supervision;
(d) Professionals who are empanelled by the Authority (as detailed in Appendix-I) to certify the constructions / implementations as per the provisions of the approved plans and also to sanction building plans as notified by the Government; and
(e) Contractors or Agencies implementing major components of the developments.

3.10.2 Application for building plan approval.- Every person (Owner or his authorised representative, including Promoter / Developer) who intends to erect, re-erect or make alteration in any place in a building or demolish any building, shall apply in **Form-I** along with the required

documents (as detailed in **Appendix-VI**) and payment of necessary fees (as detailed in **Appendix-VII**) along with all the drawings and details for obtaining building licence prepared by the professionals on record for drawings (as detailed in **Appendix- II**). The Applicant shall submit Common application containing details of **Form-I** and**Form-II,** if applicable, for obtaining the required NOCs, along with the drawings and details for obtaining NOCs from other departments as applicable (as detailed in **Appendix-IV**) and payment of necessary fees (as detailed in **Appendix-VII**).

3.10.3 Verification of documents submitted.- The CEO of the Authority shall verify the documents submitted along with the application and if found in order, will accept the application. In case of any discrepancy, an endorsement shall be issued in **Form-III** to the applicant stating the discrepancy and the applicant may rectify the same and resubmit to the Authority.

3.10.4 Evaluation of Technical details submitted:

(1) If the application is accepted after finding that the documents submitted along with the application are in order, the TPO of the Authority or the empanelled professional or the designated officer notified by the Government shall evaluate the Technical drawing and details submitted by the Applicant, for compliance with the provisions of the Master plan, ZR and Bye-laws and compliance of the conditions incorporated for obtaining NOCs from different departments and submit the evaluation report to the CEO of the Authority, with noting of discrepancy, if any. The CEO shall approve the evaluation report with or without accepting the noting of discrepancy.

(2) In case the noting of discrepancy is accepted by the CEO an endorsement shall be issued in **Form-IV** to the applicant stating the discrepancy and the concerned professionals on record for drawings may rectify the same and resubmit to the Authority.

3.10.5 Forwarding details to obtain NOCs and issuing NOCs:

(1) If the Technical drawing and details submitted are complying with the provisions of the Zonal Regulations (ZR) of the Master plan, and the requirements for obtaining NOCs from different departments, the CEO of the Authority shall forward the application, technical drawings and details submitted for NOCs to the concerned departments stating the timelines within which the NOCs have to be issued, (as detailed in **Appendix-VIII**), failing which the NOCs would be deemed to have been issued.

(2) All the respective departments shall verify the drawing and details submitted along with the application of the NOC and if found in order shall issue NOC within the timelines specified in **Appendix-VIII**, with or without site inspection, as required and forward the NOC to the Authority.

(3) In case of any discrepancy, the concerned department shall issue endorsement to the applicant stating the discrepancy and the concerned professionals on record for preparing the plans for NOC may rectify the same and resubmit to the concerned Department.

3.10.6 Submission of Site Inspection Report

(1) If the Technical drawings and details submitted are accepted by the CEO, CEO of the Authority shall select the Empanelled professional (based on the qualification and competence notified by the Government and the procedure specified in **Appendix-V**) and inform the Empanelled professional in **Form-V** to inspect the site and submit Site Inspection Report for approval of site plan.

(2) On receipt of intimation from the Authority, the selected Empanelled professional shall inspect the site and submit site inspection report (as detailed in **Appendix-IX**) in **Form-VI** to the Authority, with noting of discrepancy, if any. The CEO of the Authority shall approve the site inspection report.

3.10.7 Action in case of discrepancy in site inspection report..- If the noting of discrepancy in the Site Inspection Report submitted by the Empanelled professional is accepted by the CEO, an endorsement in **Form-VII** to the applicant stating the discrepancy and the concerned professionals on record for drawings may rectify the same and resubmit to the Authority. The TPO of the Authority shall verify the resubmitted drawings and details for compliance of the noting of discrepancy accepted by the CEO and forward the same to the CEO and the CEO shall accept the same.

3.10.8 Sanctioning of Building Licence

(1) On receipt of all the required NOCs from the concerned departments, or deemed NOCs issued by the Authority (in case NOCs are not issued by the concerned departments within the timelines specified in **Appendix-VIII**) and all the technical drawings and details accepted by the Authority and the Site Inspection Report being consistent with the details submitted by the applicant, the CEO of the Authority shall sanction the Building Licence within the timelines specified in **Appendix-VIII.**

(2) The Authority shall intimate the Applicant to pay the required fees (as specified in **Appendix-VII** for the various NOCs as well as the Building Licence.

(3) The CEO of the Authority shall issue the various NOCs received from the concerned departments and sanction building licence after receiving the required fees from the Applicant.

3.11 Plans for Sanction

(1) All Building plans submitted to the authority shall be prepared as per the Jurisdictional the Zonal Regulations of the Master Jurisdictional Master Plan Section 17 of Karnataka Town and Country Planning Act,1961 , Building Bye-laws and the conditions of the various NOCs required for the building.

(2) The drawings and details have to be submitted for the different types of buildings (B1, B2, B3, B4 and B5 Buildings) as follows;

3.11.1 Key Plan (For all types of Buildings.- The key plan to be submitted along with the application shall be the related portion of the approved road map of the Authority on which the plot (on which Building sanction is applied for) is located **(**As detailed in **Appendix-IIA).**

3.11.2 Site Plan (For all types of Buildings): (As detailed in **Appendix-IIB)**

3.11.3 Floor Plan of parking areas (For all types of Buildings) (As detailed in **Appendix-II C)**

3.11.4 Floor Plan of other uses (For all types of Buildings) (As detailed in **Appendix-II D)**

3.11.5 Sections of buildings (For all types of Buildings) (As detailed in **Appendix-II E)**

3.11.6 Elevations of buildings (For all types of Buildings) (As detailed in **Appendix-II F)**

3.11.7 Drawings for all services provided

(a) Electrical system including energy saving measures and use of renewable energy (For B3, B4 and B5 Buildings) (As detailed in **Appendix II-Ga**)

(b) Water supply system including water conservation measures(For B3, B4 and B5 Buildings) (As detailed in **Appendix II-Gb**)

(c) Rain water harvesting and ground water recharging systems(For all types of Buildings) (As detailed in **Appendix II-Gc**)

(d) Sewerage system including STP and usage of treated water (For all types of Buildings specified in Table11.1) (As detailed in **Appendix II-Gd**)

(e) High Voltage Air Conditioner (HVAC) System (For B2, B3, B4 and B5 Buildings wherever centralised HVAC system are proposed) (As detailed in **Appendix II-Ge**)

3.11.8 Landscape plan (Buildings for which Table 15.1, 15.2 and 15.3 are applicable) (As detailed in **Appendix-II-H)**

3.11.9 Circulation Plan indicating vehicular and pedestrian movement and parking facilities including traffic impact study and report (Buildings for which Table 15.2 and 15.3 are applicable) (As detailed in **Appendix-II-I**)

3.11.10 Structural Drawings and details (For B2, B3, B4 and B5 Buildings) (As detailed in **Appendix-II-J**)

3.11.11 Green Building drawings and details (Buildings for which Table 11.1 is applicable) (As detailed in **Appendix-II-K**)

3.12 Signing of plans

3.12.1 Signing the Building Plans.- All plans for submission to the Authority shall be signed by the owner(s) and by the Competent professionals on record (to prepare the required plans for sanction) for the building

3.12.2 Signing of plans for NOC.- All plans for submission to different departments for NOC shall be signed by the owner(s) and by the competent professionals on record (to prepare the required plans for NOCs) for the construction project.

3.13 Alteration / Modification / Addition in Plans.- The concerned professional on record for preparing the particular plan which has to be altered, modified or added, shall make the necessary changes and submit to the Authority as detailed in **Clause 3.15.5** with joint validation of applicant along with an application in **Form-I** and payment of required fees.

3.13.1 Alterations exempted from obtaining building licence.- No building licence is necessary for the following alterations, which do not otherwise violate any provisions regarding general building requirements, structural stability and fire safety requirements of these Bye-Laws;

(a) Plastering and patch repairs;
(b) Re-roofing or renewals of roof including roof of intermediate floors at the same height;
(c) Flooring and re-flooring;
(d) Opening and closing of windows, ventilators and doors not opening towards other properties and / or public road/property;
(e) Replacing fallen bricks, stones, pillars, beams etc.
(f) Construction or re-construction of sunshade not more than 75cm in width within one's land and not overhanging over a public street;

(g) Construction or re-construction of parapet not more than 1.5m in height and also construction or re-construction of boundary wall as permissible under these Bye-Laws;
(h) White-washing, painting, etc. including erection of false ceiling in any floor at the permissible clear height provided the false ceiling in no way can be put to use as a loft etc.;
(i) Reconstruction of portions of buildings damaged by storm, rains, fire, earthquake or any other natural calamity to the same extent and specification as existed prior to the damage provided the use conforms to provisions of Master Plan/Zonal Regulations;
(j) Erection or re-erection of internal partitions (within the specific premise) provided the same are within the purview of the Bye-Laws.

3.14 Fees for sanction of Building licence.- Every person intending to construct or reconstruct or alter any building shall pay to the Authority fund, the various fees prescribed in **Appendix-VII.** The Authority or the Government shall prescribe the rate of fees, time to time.

3.15 Sanction

3.15.1 Sanction by the Authority.- The Authority shall sanction the building plan by signing the Building Licence in **Form-VIII** and the drawings.

3.15.2 Sanction by Empanelled Professionals.- Competent Professionals empanelled with the Authority, shall be authorized to issue building licence as notified by the Government

3.15.3 Grant of Licence or Refusal

(a) The Authority shall either sanction or refuse sanction to the plans and specifications or may sanction them with such modification or directions as it may deem necessary as per these Byelaws.
(b) In case where the building scheme requires the clearance of an Urban Art Commission, if constituted for the city then the Authority shall issue the building license only after getting the clearance from the Urban Art Commission.
(c) The licence shall be issued by the Authority for the different types of buildings within the timelines prescribed in **Appendix-VIII**, failing which the sanction shall be deemed to have been accorded, provided that the failure to sanction the licence by the Authority within the timelines is immediately brought to the notice of the Authority in writing by the person who has applied for licence. On receiving such intimation from the applicant, if the CEO fails to issue the licence within seven days, the licence shall be deemed to have been sanctioned and issued by the Authority. In such an event, the applicant shall submit an affidavit and undertaking to the Authority stating that drawings and details submitted by him for obtaining licence are prepared as per the provisions of the Zonal Regulations of the jurisdictional Master plan, and these Building Byelaws and all other applicable laws, including those related to NOCs issued for the project and he would execute the works as per such drawings and details submitted and the applicable laws and he shall be responsible for any violations or deviations. Nothing shall be construed to authorize any person to do anything in contravention or against the terms of the lease or title of the land or against any regulations, Bye-Laws or ordinance operating at the time of execution of the work at site.
(d) It is further clarified that:
  (i) The above provision of deemed sanction shall be applicable only in those cases where the building plan are in conformity with the Master Plan/Zonal Regulations/Bye-laws/ Section 17 of Karnataka Town and Country Planning Act,1961 .
  (ii) No application under **Clause3.10.2** shall be valid unless the information required by the Authority under these Bye-Laws or any further information which may be required has been furnished to the satisfaction of the Authority and
  (iii) The Owner/ Competent Professional on record (for drawings and supervision) and the Empanelled professionals certifying the works at site shall be fully responsible for any violation of Master Plan/Zonal Regulations/ Building Bye-Laws/Section 17 of Karnataka Town and Country Planning Act,1961 / Conditions of various NOCs issued, etc. In case of any default they shall be liable for action as per the provisions of Rules framed under Section 73 and Section 76 FFF of Karnataka Town and Country Planning Act,1961. Any construction so raised shall be liable for action as per the provisions of Rules framed under Section 76 F of Karnataka Town and Country Planning Act,1961.

3.15.4 Duration of Sanction, Revalidation and revised Sanction

(1) Once a building license is sanctioned, the duration of Sanction, revalidation and revised sanction shall be as prescribed in **Appendix-X;**

Provided that, if the construction is not completed within the timelines prescribed in **Appendix-X**, the applicant shall pay the required fee as prescribed in **Appendix-VII** for extension of validation of licence.

(2) The project shall be completed within the timelines prescribed in **Appendix-X.** The validity period of sanction shall be extended as specified in **Appendix-X** in case of additions / alterations proposed in the project or for any other reason specifically mentioned. If multiple blocks / buildings are proposed in the sanctioned plan, a schedule of executing the blocks in sequence has to be specified and the timelines for completing each of the multiple blocks shall be permitted accordingly as specified in **Appendix-X**.

(3)If the Applicant intends to avail extension for the validity period of the sanction, he shall make an application stating the reason for not completing the project within the validity period and the validity of sanction shall be extended for one year after paying the fees for extension of validation as prescribed in **Appendix-VII.**

(4) If the building is not completed within the period of revalidation, he may avail further extension of the validity period after repeating the procedure specified in clause **3.15.4(3).**

(5)Revalidation shall not be permitted if the construction has not commenced within period of two years from the date of sanction. In such cases the Applicant has to apply for revised sanction as per the Master Plan / Zonal Regulation and Building Bye-laws as in force at the time of application of revised sanction.

3.15.5 Revised Licence.- The Applicant has to apply for revised building licence if the Applicant intents to make changes resulting in more than 5% deviation from the sanctioned plans in any or all of the following, but within the provisions of the Zonal Regulations, Section 17 of Karnataka Town and Country Planning Act,1961 , and these Byelaws;

(i) Setbacks;
(ii) Coverage;
(iii) FAR; and
(iv) Car parking

If the deviations upto 5% for the above-mentioned parameters is made during the time of construction, the applicant and the professional on record for supervision has to intimate the Authority.

The Authority shall follow the same procedure as that of issuing new licence for issuing revised licence after collecting the fees as prescribed in **Appendix VII**

If the revised licence is applied during the execution of work of the building for which revised licence is applied, then construction of the portion of the building for which revised licence is sought for, shall not be commenced unless the revised licence is issued by the Authority.

3.15.6 Revocation of Licence.- The Authority shall revoke any building licence issued under the provisions of these Bye-Laws, wherever there has been any false statement, misrepresentation of material facts in the application on which the building licence was based or if during construction it is found that the Owner has violated any of the provisions of these Building Bye-Laws or sanctioned plan or compoundable limits. Fresh sanction of building plans and occupancy certificate shall be taken from the Authority after bringing the building within the framework of Master Plan/ Zonal Regulations/Building Bye-Laws.

3.15.7 Qualification and Competence.- Qualification and competence of all professionals registered for preparing the various plans / drawings and details for Sanction and NOC, to supervise the execution of the various components of different types of projects and the professionals empanelled by the Authority to certify the various components of the building executed at site and to sanction licence for buildings shall be as notified by the government.

3.16 Execution of works at site

3.16.1 Construction to be in Conformity with Bye-Laws.- Owners' liability: Neither the granting of the permission nor the approval of the drawing and specification, nor inspection by the Authority or the empanelled professional during erection of the building shall in any way relieve the Owner of the building or the promoter on behalf of the owner, from full responsibility for carrying out work in accordance with these Bye-Laws.

3.16.2 Commencement of work.- The owner, within the validity period of the building plan sanction given, shall start the construction work at the site for which building license has been granted under the supervision of the professionals on record as per the competence given notified by the Government. The owner and the professionals on record for supervising the works at site shall be required to follow the procedure during construction work as prescribed in these bye-laws.

3.16.3 Appointment of professionals on record for supervision.- The owner, to whom a licence is issued, shall appoint the required number of professionals on record as notified by the Government, to supervise the construction of the various components of the building, before the commencement of works at site and also specify the principal professional on record for supervision of works who shall issue the completion certificate.

3.16.4 Intimation of commencement of work at site and issuing commencement certificate

(1) The applicant and the principal professional on record for supervising the works executed at site (and in the absence of appointment of such professional on record, the professional on record for preparing the Architectural drawings for sanction), shall intimate the Authority within the 5th day of every three month from the date of sanctioning the building licence, that the construction work has not commenced at site, along with the letter of undertaking in that the work has not commenced at site.

(2) The Applicant and the principal professional on record for supervising the works, shall intimate the Authority at least one day before the commencement of works at site.

(3) The CEO of the Authority shall issue Commencement Certificate in **Form VIIIA** within seven days of receiving satisfactory inspection report from the Empanelled Professional regarding the commencement of foundation work at site.

3.16.5 Documents at Site:

(1)The person to whom a licence is issued shall, during construction, display in a conspicuous place on the exterior wall / fence near the entrance gate to the site, in **Form-IX**.

(2)The details specified in **Appendix-XI** shall be maintained in the site office throughout the period of construction, until occupation certificate is issued by the Authority and shall be available for verification of the Authority or the empanelled professional appointed by the Authority for certification of works.

3.16.6 Preparatory works at site that need not be intimated.- The following works may be carried out in the site without intimation to the Authority

(a) Temporary fencing of the boundaries of the site with required number of gates;
(b) Temporary site office, stores, toilets, laboratory, medical facilities for workers etc;
(c) Temporary accommodation, dining, kitchen and toilets for workers, Day care facilities for the children of workers, etc;
(d) Day care facilities for the children of workers etc.,;
(e) Foundation and other temporary structures for erecting of plant and machinery, water tanks etc.; and
(f) Advertisement board of the project to be erected.

Such other temporary structures to facilitate the construction of the sanctioned building but not part of the sanctioned building.

3.16.7 Procedure during construction

(1) The Applicant and the principal professional of record for supervision of works shall intimate the Authority in, the completion of various stages of construction prescribed in **Appendix-XII**, for certification by Empanelled professional.

(2)On receiving the intimation from the Applicant**,** the Authority shall inform the selected Empanelled professional to certify the stage of completion of work intimated.

(3) The Empanelled professional shall inspect the site and after checking the work completed as indicated, certify the same in **Form-X** within three days of receiving intimation.

(4) During inspection, according to the Empanelled professional, if the work executed by the Applicant is not as per the approved plans, specifications and other provisions of these Bye-laws, he shall intimate the Authority in **Form-X**, stating the defects in the works executed, along with the photos of such defective works.

(5)On receiving intimation from the Empanelled professional regarding the defects in the works executed at site, the CEO of the Authority shall issue endorsement to the Applicant in **Form-XI**, to rectify the defects, as indicated by the Empanelled professional.

(6) On receiving the endorsement from the Authority, the Applicant shall rectify the defects and intimate the Authority.

(7) According to the Applicant or the concerned professional on record for supervision of work (for which endorsement is received from the Authority), if the defects mentioned in the endorsement is incorrect, the Applicant may file objection, to the Authority, stating the correctness of the works executed, along with the photos to prove the correctness, if required.

(8)If objection is received from the Applicant, the CEO of the Authority shall conduct joint inspection along with the Applicant, the concerned professional on record and the Empanelled professional by giving notice to all, to conduct joint inspection within seven days of receiving objection.

(9)During the joint inspection, the CEO of the Authority, after hearing the views of both the parties, shall either accept or reject the objection raised by the Applicant and instruct the Applicant accordingly after making his inspection report in **Form-XII** and the Applicant shall abide by the decision of the Authority and rectify the defects mentioned in **Form-XII**, if any and intimate the Authority.

(10) On receiving the intimation of defect rectification by the Applicant, the Authority shall inform the Empanelled professional to inspect and certify the rectified work.

(11)The Empanelled professional shall inspect the site and after checking the work rectified as indicated in **Form-XII**, certify the same within three days of receiving intimation and inform the CEO.

3.16.8 Inability of Empanelled professional to certify the works and selection of alternate professional

(1) If the Empanelled professional selected by the Authority, to certify the execution of any component of the building, is unable to inspect the site within 3 days from the date of receiving the intimation, he may request for additional time of maximum 3 days. If the selected empanelled professional is unable to inspect the site and certify the works within 6 days of receiving the intimation, he may intimate the same stating the reason for his inability to inspect the site for certification.

(2) On receiving intimation from the selected empanelled professional, the Authority shall select alternate empanelled professional and inform to inspect the site and certify the work intimated by the applicant.

3.16.9 Action against works executed without intimation and works not rectified

(1) Any works executed in the building without the certification of the preceding works specified in **Appendix-XII** and the works not rectified as intimated n **Form-X,** shall be liable for penalty as per the rules framed under Section 76F of Karnataka Town and Country Planning Act,1961.

(2) In such cases, the owner or the promoter, as the case may be, and the professional on record for supervising such works shall also be liable for action as per the rules framed under Section 73 and Section 76FFF of Karnataka Town and Country Planning Act,1961.

3.16.10 Changes to be made in the approved plans, during the execution of works:

(1) If the Applicant intends to make any changes / deviations in the building from the sanctioned plan, the concerned Professional on record for preparing the particular plan, which has to be altered, modified or added, shall make the necessary changes and submit to the Authority with joint validation of applicant along with an Application in **Form-I** and payment of required fees.

(2) Any such proposed changes from the sanctioned plans shall be as per the provisions of the Master Plan and its Zonal Regulations, these Byelaws or any other relevant laws.

(3)The proposed changes shall be executed at site only after the same is submitted to the Authority.

3.17 Completion of project and issuing Completion Certificate

3.17.1 Issuing completion certificate

(1) On completion of all works at site that have been certified by the empanelled professionals as specified in **Appendix-XII**, as per the specifications and other provisions of these Bye-laws, the principal professional on record for supervising the works(for supervising the major civil works), shall issue Completion Certificate in **Form-XIII**, endorsed by all other concerned professionals on record for supervising various components of the building along with the certification of Structural design and safety in **Form-XV**;

(2) In case of independent residential houses and Industrial buildings, the Professional on record shall issue work completion certificate only if all the works within the building and the yard are completed and the same is certified by the empanelled professionals;

(3) In case of other residential and non-residential buildings, the Professional on record shall issue work completion certificate only if all the works are completed in the common areas of the building, the exterior of the building and services to be provided in the apartments, commercial and other premises of the building are also completed and certified by the Empanelled professional:

Provided that, in case of partial completion of the building, partial work completion certificate may be issued by the professional on record for the number of floors (starting from the lowermost floor moving upwards) upto which all works of the common areas and exterior of the building are completed and services to be provided in the apartments, commercial and other premises of those floors of the building are also completed.

3.17.2 Application for approval of works from other departments

(1) The professional on record for preparing drawings and details for all the applicable NOCs from other departments, for the project, shall submit the required applications in **Form-II (any or all of a, b, c, d, e, f, g, h, i and j, as applicable),** for approvals from other departments for the construction done at site as per the NOCs issued;

(2) On receiving the work Completion Certificate and the application to various departments for approving the works executed at sites as per the NOCs issued, the Authority shall intimate all the concerned departments which have issued NOCs, along with the certification done by the empanelled professional, for issuing the prescribed certificate of approval for the construction done at site, wherever applicable;

(3) On receiving the intimation from the Authority, the concerned departments which had issued NOCs, shall issue the required certificates of approval for the construction done at site, wherever applicable, with or without site inspection;
(4) During the site inspection, according to the designated officer of the concerned department, if any of the works executed at site is not as per the conditions/specifications of the NOC issued, he shall issue endorsement through the Authority, to the applicant, along with the photographs of the defective works, to rectify the defects;
(5) On receiving the endorsement from such departments through the Authority, the applicant shall rectify the defects and intimate the concerned department;
(6) According to the Applicant or the concerned professional on record for supervision of work (for which endorsement is received from the concerned department), if the defects mentioned in the endorsement is incorrect, the Applicant may file objection, to the concerned department and the Authority, stating the correctness of the works executed, along with the photos to prove the correctness, if required;
(7) If objection is received from the Applicant, the CEO of the Authority shall conduct joint inspection along with the Applicant, the concerned professional on record, the Empanelled professional who has certified the work and the designated officer of the concerned Department who has issued the endorsement for defective work, by giving notice to all, to conduct joint inspection within seven days of receiving objection;
(8) During the joint inspection, the CEO of the Authority, after hearing the views of both the parties, shall either accept or reject the objection raised by the applicant and instruct the Applicant accordingly after making his inspection report in **Form-XII** (copy of the same to be sent to the designated officer of the concerned department) and the decision of the CEO shall be final. The Applicant shall abide by the decision of the Authority and rectify the defects mentioned in **Form-XII**, if any and intimate the Authority;
(9) On receiving the intimation of defect rectification by the Applicant, the Authority shall inform the Empanelled professional to inspect and certify the rectified work;
(10) The Empanelled professional shall inspect the site and after checking the work rectified as indicated in **Form- XII,** certify the same in **Form- X** within three days of receiving intimation; and
(11)The Authority shall forward the certification issued in **Form-X** by the empanelled professional, to the concerned department and the concerned shall issue the required certificate of approval for the construction done at site, with or without site inspection

3.18 Occupancy Certificate.- On receiving the completion certificate in **Form-XIII** and certificates of approval from the concerned departments or as certified by the Authority as specified in **Clause 3.17.2 (8), (9) and (11),** the Authority shall issue Occupancy Certificate in **Form-XIV** to the building constructed as per these Bye-laws.

3.18.1 Occupancy or letting of the new buildings.- No person shall occupy or allow any other person to occupy any new building or part of a new building for any purpose whatsoever until Occupancy Certificate to such buildings or part thereof has been granted

3.18.2 Occupancy/ Part Occupancy Certificate for Phased Project.- In such cases where a project has not been completed at one stretch but constructed in different stages, part occupancy certificate for the building otherwise complete in all respects, may be issued subject to the condition that;

(a) part work completion certificate is issued by the professional of record as specified in **clause 3.17.1;** and

(b) The remaining construction of the building is completed within the validity period or the extended validity period.

3.19 Connection to the municipal sewer / water mains and power supply system of the concerned Escom

(1) Temporary connection for water, electricity or sewer, permitted for the purpose of facilitating the construction, shall not be allowed to continue in the premises without obtaining occupancy certificate;
(2) No new connection to the Municipal water mains or to the Municipal sewer line with a building shall be made without obtaining occupancy certificate and any existing connection provided for construction shall be disconnected if the building is occupied without Occupancy Certificate;
(3) Permanent power supply to the building shall also not be provided to any new building unless the building has received Occupancy Certificate / Part Occupancy Certificate; and
(4) In case the use is changed or unauthorized construction is made, the Authority is authorized to discontinue such services or cause discontinuance of such services.

CHAPTER-4

4. DEVELOPMENT REGULATIONS.- The provisions contained in Master Plan/Zonal Regulations shall apply and where these are silent on such issues or which require interpretation the norms as decidedly the Authority, shall apply. The provisions include but are not limited to the use/activity of premises, ground coverage, FAR, setbacks, open space, height and parking standards for Residential premises on plotted development, Group housing, Resettlement colonies, Slums, In-situ up gradation, Non-residential premises. The permission of uses/use activities in use premises shall be permitted in accordance with provisions of Master Plan and Zonal Regulations. The object of these regulations is to provide control for building/buildings within use premises excluding the internal arrangement, which is covered and controlled by Building Bye-Laws.

CHAPTER – 5

5. GENERAL BUILDING REQUIREMENTS AND SERVICES

5.1 Requirements for Parts of Buildings

5.1.1Plinth

5.1.1.1 The plinth or any part of a building or outhouse shall be so located with respect to the surrounding ground level that adequate drainage of the site is assured. The height of the plinth shall be not less than 450 mm from the surrounding ground level, in case of independent houses and not less than 300mm in case of other buildings.

5.1.1.2 Interior Courtyards and Covered Parking: Every interior courtyard shall be raised at least 150 mm above the determining ground level and shall be satisfactorily drained.

5.1.2 Habitable Rooms

5.1.2.1 Height.- The clear height of all rooms for human habitation shall not be less than 2.75 m measured from the surface of the floor to the lowest point of the ceiling (bottom of slab) provided that the minimum clear headway under any beam shall not be less than 2.4m In the case of pitched roof, the average height of rooms shall not be less than 2.75m. The minimum clear head room under a beam, folded plates or eaves shall be 2.4m. In the case of air-conditioned rooms, a height of not less than 2.4m measured from the surface of the floor to the lowest point of air-conditioning duct or the false ceiling shall be provided.

5.1.2.2 The requirements of **clause 5.1.2.1** shall apply to residential, business and mercantile buildings. For educational and industrial buildings, the following minimum requirements apply:

Table 5.1 Minimum height requirement for educational and industrial buildings

Sl. No	Type of Occupancy	Ceiling height
1	Educational Buildings	Ceiling height 3.6m for all regions
2	Industrial Buildings	Ceiling height 3.6m, except when air-conditioned, 3m (Factory Act 1948 and Rules therein shall govern such heights, where applicable)

5.1.2.3 Size.- The area of habitable room shall not be less than 9.5Sqm, where there is only one room with a minimum width of 2.4m. Where there are two rooms, one of these shall not be less than 9.5Sq.m and the other not less than 7.5Sq.m, with a minimum width of 2.1m.

5.1.3 Kitchen

5.1.3.1 Height.- The height of a kitchen measured from the surface of the floor to the lowest point in the ceiling (bottom of slab) shall not be less than 2.75 m, except for the portion to accommodate floor trap of the upper floor.

5.1.3.2 Size.- The area of a kitchen where separate dining area is provided shall be not less than 5.0Sq.m with a minimum width of 1.8m. Where there is a separate store, the area of the kitchen may be reduced to 4.5Sq.m. A kitchen, which is intended for use as a dining area also, shall have a floor area of not less than 7.5 Sq.m with a minimum width of 2.1m.

5.1.3.3 Other Requirements.- Every room to be used as kitchen shall have:

(a) Unless separately provided in a pantry, means for the washing of kitchen utensils which shall lead directly or through a sink to a grated and trapped connection to the waste pipe;

(b) An impermeable floor; and

(c) A flue, if found necessary

5.1.4Bathrooms and Water-Closets

5.1.4.1 Height.- The height of a bathroom or water-closet measured from the surface of the floor to the lowest point in the ceiling (bottom of slab) shall not be less than 2.1m.

5.1.4.2 Size.- The area of a bathroom shall not be less than 1.8 Sq.m with a minimum width of 1.2m. The floor area of water-closet shall be 1.1Sq.m with a minimum width of 0.9m. If

bath and water-closet are combined, its floor area shall not be less than 2.8Sq.m with a minimum width of 1.2m.

5.1.4.3 Other Requirements.- Every bathroom or water-closet shall:

(a) Be so situated that at least one of its walls shall face a shaft or open space
(b) Not be directly over or under any room other than another water-closet, washing place, bath or terrace, unless it has a water-tight floor;
(c) Have the platform or seat made of water-tight non-absorbent material;
(d) be enclosed by walls or partitions and the surface of every such wall or partition shall be finished with a smooth impervious material to a height of not less than 1 m above the floor of such a room;
(e) Be provided with an impervious floor covering, sloping towards the drain with a suitable grade and not towards VERANDAH or any other room; and
(f) Have a window or ventilator, opening to a shaft or open space, of area not less than 0.3Sq.m with side not less than 0.3m.

5.1.4.4 No room containing water closets shall be used for any purpose except as a lavatory and no such room shall open directly into any kitchen or cooking space by a door, window or other opening. Every room containing water-closet shall have a door completely closing the entrance to it.

5.1.5 Loft

5.1.5.1 Height.- The minimum head-room of loft shall be 2.2m.

5.1.5.2 Size.- A loft in a habitable room shall not cover more than 25 percent of the area of the floor on which it is constructed and shall not interfere with the ventilation of the room under any circumstances.

5.1.6 Mezzanine Floor

5.1.6.1 Height.- It shall have a minimum height of 2.2m.

5.1.6.2 Size.- The minimum size of the mezzanine floor, if it is to be used as a living room, shall not be less than 9.5Sq.m. The aggregate area of such mezzanine floor in a building shall in no case exceed one third the plinth area of the building.

5.1.6.3 Other Requirements.- A mezzanine floor may be permitted over a room or a compartment provided:

(a) it conforms to the standard of living rooms as regards lighting and ventilation in case the size of mezzanine floor is 9.5Sq.m or more
(b) It is so constructed as not to interfere under any circumstances with the ventilation of the space over and under it;
(c) Such mezzanine floor is not sub-divided into smaller compartments;
(d)) Such mezzanine floor or any part of it shall not be used as a kitchen; and
(e) In no case shall a mezzanine floor be closed so as to make it liable to be converted into unventilated compartments.

5.1.7 Store Room

5.1.7.1 Height.- The height of a store room shall be not less than 2.1m.

5.1.7.2 Size.- The size of a store room, where provided in a residential building, shall be not less than 3 Sq.m

5.1.8 Garage

5.1.8.1 Height.- The height of a garage shall be not less than 2.4m.

5.1.8.2 Size.- The size of garages shall be as below:

(a) Private Garage - 3.0 m × 6.0 m, minimum; and
(b) Public Garage - Based on the number of vehicles parked by ECS

5.1.9 Basement

5.1.9.1 The Authority in accordance with the land use and other provisions specified under the Zonal Regulations shall allow the construction and usage of the basement

5.1.9.2 The basement shall have the following requirements:

(a) Every basement shall be in every part at least 2.4 m in height from the floor to the underside of the roof slab/beam joists and at any part shall not exceed 4.5m in height;
(b) Adequate ventilation shall be provided for the basement. The ventilation requirements shall be the same as required by the particular occupancy according to byelaws. Any deficiency may be met by providing adequate mechanical ventilation in the form of blowers, exhaust fans, air-conditioning systems, etc.
(c) The maximum height at the top of the roof slab of the basement floor shall not be more than 1.2m above the average surrounding ground level;
(d) Adequate arrangements shall be made such that surface drainage does not enter the basement;

(e) The walls and floors of the basement shall be watertight and be so designed that the effects of the surrounding soil and moisture, if any, are taken into account in design and adequate damp proofing treatment is given; and

(f) The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors.

(g) Where the staircase is continuous in the case of buildings served by more than one staircase, the same shall be of enclosed type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of (d). The exit requirements in basements shall comply with the provisions of these Byelaws.

5.1.10 Chimneys.- The chimneys shall be built at least 0.9 m above flat roofs, provided the top of the chimneys is not below the top of the adjacent parapet wall. In the case of sloping roofs, the chimney top shall not be less than 0.6 m above the ridge of the roof in which the chimney penetrates.

5.1.11 Parapet.- Parapet walls and handrails provided on the edges of roof terraces, balcony, verandah, etc. shall not be less than 1.0 m and not more than 1.2 m in height from the finished floor level.

Note:

(i). The above shall not apply where roof terrace is not accessible by a staircase.

(ii). However on terrace floor in the portion where installations like DG Set, Water Tank and other, screening parapet of a suitable height may be constructed to hide such equipment's etc. and there is no need to have uniform increase in the height of the parapet.

5.1.12 Boundary Wall.- The requirements of the boundary wall shall be as follows:

(a) Except with the special permission of the Authority, the maximum height of the compound wall shall be 1.5 m above the Centre line of the front street. Compound wall up to 2.4 m height may be permitted if the top 0.9 m is of open type construction of a design to be approved by the Authority.

(b) In the case of a corner plot, the boundary wall shall be constructed as specified by the ULB or the Government. and

(c) However, the provisions of (a) and (b) are not applicable to boundary walls of jails. In electric sub-stations, transformer stations, institutional buildings like sanatoria, hospitals, industrial buildings like workshops, factories and educational buildings like schools, colleges, including hostels and other uses of public utility undertakings and strategically sensitive buildings, a height up to 2.4 m may be permitted by the Authority.

5.1.13 Septic Tanks.- Where a septic tank is used for sewage disposal, the location, design and construction of septic tank shall conform to requirements as notified by the Government.

5.1.14 Office-cum-Letter Box Room.- In the case of multi-storeyed multi-family dwelling apartments constructed by existing and proposed Apartment Owners Associations, limited companies and proposed societies, an office-cum-letter box room of 10Sq.m shall be provided on the ground floor. In case the number of flats is more than 20, the minimum size of the office-cum-letter box room shall be 20Sq.m and shall not exceed 40Sq.m. If the area of the office-cum-letter box room exceeds 40Sq.m, the additional area shall be considered for FAR calculation.

In case of **Business buildings** provisions shall be made for letter boxes on the entrance floor as per the requirements of the postal department.

5.1.15 Meter Rooms.- For all buildings above 15m in height and in special occupancies, like educational, assembly, institutional, industrial, storage, hazardous and mixed occupancies with any of the aforesaid occupancies having area more than 500m^2 on each floor, provision shall be made for an independent and ventilated meter (service) room, as per requirements of electric (service) supply undertakings on the ground floor with direct access from outside for the purpose of termination of electric supply from the licensee's service and alternative supply cables. The door/doors provided for the service room shall have fire resistance of not less than two hours.

5.1.16 Roofs

5.1.16.1 The roof of a building shall be so designed and constructed as to effectively drain water by means of sufficient rain-water pipes of adequate size, wherever required, so arranged, jointed and fixed as to ensure that the rain-water is carried away from the building without causing dampness in any part of the walls, roof or foundations of the building or an adjacent building

(1) The Authority may require rain-water pipes to be connected to a drain or sewer to a covered channel formed beneath the public footpath to connect the rainwater pipe to the road gutter or in any other approved manner;

(2) Rain-water pipes shall be affixed to the outside of the external walls of the building or in recesses or chases cut or formed in such external walls or in such other manner as may be approved by the Authority; and

(3) It is desirable to conserve rain water using suitable rain water harvesting techniques including by roof water collection. In this context, reference may be made to Part 9 'Plumbing Services, Section 1 Water Supply, Drainage and Sanitation (Including Solid Waste Management)' of NBC, 2016.

5.2 Other general requirements

5.2.1 Swimming Pool

(1) *Definition:* A constructed pool or a tank indoor or outdoor, used for the purpose of swimming, bathing, aquatic sports or games, training, treatment (Therapy) or recreation, meant exclusively for human being, having a depth of water not less than that 60cm and the surface area exceeding 23.25 Sq.m both for the use of public or the institution concerned.

a. *'Capacity of Pools in Relation to Bathers':* The maximum number of persons in bathing attire within the pool enclosures of the bathing area shall not exceed one person per 20Sft (1.86Sq.m) of pool i.e. the area of the water surface.

(2) *'Hand Rail'*: A side handrail extending up above and returning to the horizontal surface of the pool deck curb or coping shall be provided at each side of each ladder.

(3) *'Depth Markers'*: Depth of water shall be clearly marked at or above the water surface on the vertical pool wall and on the edge of the deck or walk-way next to the pool, at maximum points and at the points of break between the deep and shallow portions and at intermediate increments of depth, spaced at not more than 2.5' (7.62cm) intervals. Depth markers, contrasting with background shall be on both sides of the pool.

(4) *'Lighting and wiring'*: Where submarine lightning is used, not less than 0.5 watts shall be employed per sq. ft. of pool area.

(5) *'Area Lightning'*: Where submarine lightning is employed, area lightning shall be provided for the deck areas and directed towards the deck areas and away from the pool surface so far as practicable, in a total capacity of not less than 0.6 watt per Sft of deck area.

Where submarine lighting is not provided and night swimming is not permitted combined pool lightning shall be provided in an amount of not less than 2 watts per Sft. of total area. All submarine lightning shall be individually earthed and must be water tight and damp proof.

(6) *'Over Head wiring'*: No electrical wiring for electrical or power shall be permitted to pass over within 20 feet of the pool enclosure.

(7) *'Shallow Minimum Depth'*: Every swimming pool shall have a minimum depth in the shallow area of the main swimming area of not less than 0.9m (3 feet), but not more than 1.07m (3'-6') from the overflow level to the floor.

(8) *'Shallow Areas'*: In a swimming pool with a diving area, the shallow area of the pool shall be defined as the portion between the shallow end and the break point between the shallow area and the diving area. The slope of the floor shall be uniform from the break point between the diving area and the shallow portion to the outside edge of the shallow portion and shall not be greater than 1 in 2m.

(9) *'Vertical Wall Depth'*: The pool walls shall be vertical at all points for a depth of not less than 0.76m.

5.2.2 Means of access

5.2.2.1 No Building shall be erected as to deprive any other building of its means of access.

5.2.2.2 Every person who erects a building shall not at any time erect or cause or permit to erect or re- erect any building, which in any way encroaches upon or diminishes the area set apart as means of access.

5.2.2.3 The Means of Access prescribed in the Zonal Regulations shall be considered while sanctioning Building Licence. The portion of the plot required for widening the road to the proposed width shall be relinquished free of cost without claiming any compensation (including DR), before sanctioning Building Licence.

5.2.3 Staircase Requirements

5.2.3.1 The minimum clear width, minimum tread width and maximum riser of staircases for buildings shall be as given as below (*see also* Part 4 'Fire and Life Safety of NBC 2016).

5.2.3.2 Minimum width

Table 5.2 The minimum width of staircase

A	i) Residential buildings (dwellings) ii) Apartment buildings NOTE – For row housing with 2 storeys, the min. width shall be 0.75m	1.0m 1.25m
B	Hotel buildings/Lodging House	1.5m
C	Assembly buildings like auditoria, theatres and cinemas	2.0m
D	Educational building	1.5m
E	Institutional buildings	2.0m
F	All other buildings	1.5m

5.2.3.3 Minimum tread.- The minimum width of tread without nosing shall be 250 mm for residential buildings. The minimum width of tread for other buildings shall be 300mm.

5.2.3.4 Maximum riser

5.3.2.4.1 The maximum height of riser shall be 190mm for residential buildings and 150mm for other buildings and these shall be limited to 12 per flight. The maximum height of riser shall be 190mm for residential buildings and 150mm for other buildings and these shall be limited to 12 per flight.

5.3.2.4.2 The minimum head-room in a passage under the landing of a staircase shall be 2m. The minimum clear head-room in any staircase shall be 2.1m.

5.2.4 Exit Requirements.- All aspects of exit requirements for corridors, doors, stair cases, ramps, etc. in respect of widths, travel distance shall be as prescribed in these Byelaws.

5.2.4.1 Occupant Load.- The following occupant load shall be considered for calculating the exit requirement of the building

Table 5.3 Occupant Load

Sl. No.	Type of Occupancy	Occupant Load per 100Sq.m of Carpet Area (in persons)
1	Residential	8.0
2	Educational	25.0
3	Institutional	6.60
4	Assembly With fixed or loose seats and dance floor without seating facilities including dining rooms	166.6 66.6
5	Mercantile Street floor and sales basement Upper sale floor	33.3 16.6
6	Business and industrial	10.0
7	Storage	3.3
8	Hazardous	10.0

Note: *The occupant load in dormitory potions of homes for the aged, orphanages or mental hospitals etc. where sleeping accommodation is provided shall be calculated at not less than 13.3 persons per 100Sq.m*

(2). In case of assembly occupancy, all rooms, toilets common areas connected to the assembly occupancy shall be included in the carpet area for calculating the occupancy load.

5.2.4.2 Number and size of Exits.- The requisite number and size of various exits shall be provided, based on the occupants in each room and floor based on the occupant load, capacity of exits, travel distance and height of buildings as prescribed in these Byelaws.

At least one primary entrance to each building shall be usable by individuals in wheelchairs and shall be indicated by a sign. At least one entrance usable by individuals in wheelchairs shall be on a level that would make the elevators accessible.

5.2.4.3 Arrangement of Exits

(1) Exits shall be so located so that the travel distance on the floor shall not exceed 30m for residential, educational, institutional assembly, business, mercantile and storage occupancies, 45.0m for industrial occupancy and 22.5m for hazardous building. For fully sprinklered building, the travel distance may be increased by 50 percent of the above values. Whenever more than one exit is required for a floor of a building they shall be placed as remote from each other as possible. All the exits shall be accessible from the entire floor area at all floor levels, where separate fire separation walls are not provided.

(2) The travel distance to an exit from the dead end of the corridor, if applicable, shall not exceed half the distance as stated above except in the case of institutional occupancy in which case it shall not exceed 6.0m.

5.2.4.4 Capacity of Exits.- The capacity of exits (staircase, ramps and doorways) indicating the number of persons that could be safely evacuated through a unit exit width of 50 cm shall be as given below:

Table 5.4 Occupants per unit Exit width

Sl. No.	Group of Occupancy	Number of Occupants		
		Stairways	Ramps	Doors
1	Residential	25	50	75
2	Educational	25	50	75
3	Institutional	25	50	75
4	Assembly	40	50	60
5	Business	50	60	75
6	Mercantile	50	60	75
7	Industrial	50	60	75
8	Storage	50	60	75
9	Hazardous	25	30	40

5.2.4.5 Minimum Width Provisions for Passageway/Corridors

The following minimum width provisions shall be made for each passage way/corridor.

(a) Residential buildings, upto 4 dwelling units 1.00m
(b) Apartment buildings, hostels, etc. 1.25m
(c) Assembly buildings like auditorium theatres and cinemas 2.00m.
(d) All other buildings including hotels 1.50m
(e) Hospital, Nursing Homes, etc. 2.40m

5.2.5Ramps

(1) The ramp to basement and parking floors shall be as prescribed in the Zonal Regulations.

(2)Ramps may also be provided in the setbacks to function as fire drive cum ramp for basements, which can be sloped considering unhindered movement of fire engine and in no case the gradient shall be steeper than 1 in 10 for Plains and steeper than 1 in 8 for Hilly areas.

(3)All structural design/safety aspects as per latest BIS Codes and NBC 2016 shall be complied along with consideration of weight of Fire Engine and its manoeuvrings.

(4) The minimum width of the ramps in hospitals shall be 2.4m for stretcher and not for vehicular movement.

(5) In this case Handrails shall be provided on both sides of the ramp.

(6)Ramps shall lead directly to outside open space at ground level or courtyards or safe place

5.2.6 Doorways

(1) Every doorway shall open into an enclosed stairway, a horizontal exit, on a corridor or passageway providing continuous and protected means of egress

(2) No exit doorways shall be less than 1m in width except assembly and institutional buildings where Doorway shall not be less than 2m.

(3) Exit doorways shall open outwards, that is away from the room but shall not obstruct the travel along any exit. No door when opened shall reduce the required width of stairway or landing to less than 0.90m Overhead or sliding door shall not be installed.

Note: In the case of buildings where there is a central corridor, the doors of rooms shall open inwards to permit smooth flow of traffic in the corridor

(4) Exit door shall not open immediately upon a flight of stairs. A landing equal to at least, the width of the door shall be provided in the stairway at each doorway. Level of landings shall be the same as that of the floor, which it serves.

(5) Exit doorways shall be open-able from the side, which they serve without the use of a key.

(6) Revolving doors shall not to be provided as means of fire exit.

(7) Mirrors shall not be placed in exit ways or exit doors to avoid confusion regarding the direction of exit.

5.2.7 Provision of exterior open spaces and height limitation around the building

5.2.7.1 The open spaces/setbacks, coverage, FAR, parking requirements shall be as per Zonal regulations of the Master Plan

5.2.7.2 Every room that is intended for human habitation shall abut on an interior or exterior open space or on to a verandah open to such interior or exterior open space. In case of High rise the driveway in exterior open spaces around a building shall be of green or hard surface capable of taking load of fire engine weighing up to 45 ton

5.2.7.3 In case, kitchen and toilets do not about either interior or exterior open spaces, mechanical ventilation would be accepted.

5.2.8 Interior Open Space for Light and Ventilation

5.2.8.1 The whole or part of one side of one or more rooms intended for human habitation and not abutting on either the front, rear or side open spaces shall abut on an interior open space whose minimum width in all directions shall be 3m in case of buildings not more than 15m in height, and in case of high-rise buildings it shall have mandatory mechanical ventilation in addition

5.2.8.2 Sunken Courtyard.- Sunken courtyard up to 3m in depth from the ground level as 'light well' within building envelop shall be permitted for light and ventilation for basement area.

5.2.8.3 Skylight.- Skylight in interior open space (courtyard) shall be permitted subject to the fact that it may not act as a covered space on the ground floor and does not violate the maximum/minimum ground coverage rules.

5.2.9 Lighting and ventilation of rooms

5.2.9.1 IS Codes for lighting and ventilation requirements.- Rooms shall have, for the admission of light and air, one or more openings, such as windows and ventilators, opening directly to the external air or into an open *VERANDAH.*

Lighting and ventilation requirements of all types of buildings shall be designed and approved in accordance with the provisions of the following two IS Codes –

(a). SP 32 (1986): Hand book on Functional Requirements of Industrial Buildings (Lighting and Ventilation) [CED 12: Functional Requirements in Buildings] and

(b). SP 41 (1987): Hand book on Functional Requirements of Buildings (Other than Industrial Buildings) [CED 12: Functional Requirements in Buildings]

Lighting loads of various spaces of –

(a). Industrial buildings shall be determined as per Clause 1, Section 1 of SP 32(1986)

(b). Non-Industrial buildings shall be determined as per Clause 2, Part 4 of SP 41(1987)

Thermal comfort levels and design requirement of various spaces of –

(a). Industrial buildings shall be determined as per Section 2 of SP 32 (1986)

(b). Non-Industrial buildings shall be determined as per Part 2 of SP 41 (1987)

Minimum Fresh Air requirement for –

(a). Industrial buildings shall be determined as per Clause 13 of Section 2 of SP 32(1986)

(b). Non-Industrial buildings shall be determined as per Clause 4 of Part 3 of SP 41(1987)

5.2.9.2 The minimum aggregate area of openings.- The minimum aggregate area of such openings, excluding doors inclusive of frames, shall be not less than one-sixth of the floor area. Openable part of French window shall be considered as openings for applying this clause.

Notes:

(i). If a window is partly fixed, the openable area shall be counted

(ii) No portion of a room shall be assumed to be lighted, if it is more than 7.5m away from the opening assumed for lighting that portion.

(iii) *The area of openings as given above shall be increased by 25 percent in the case of a kitchen.*

(2) All habitable rooms shall have for the admission of light and air, one or more apertures, such as window, glazed door, opening directly to the external air or into an open verandah not more than 2.40m in width. In case light and ventilation to habitable space area are through an internal courtyard, the minimum dimensions of such courtyard shall not be less than 3.0m x 3.0m for buildings up to 12.50m in height. For buildings with higher heights, the minimum dimensions of the internal courtyard shall be as given in these Bye-Laws.

(3) Where the lighting and ventilation requirements are not met through day lighting and natural ventilation, the same shall be ensured through artificial lighting and mechanical ventilation as given in part-VII building services Section-1 lighting and Ventilation of National Building Code of India published by the Bureau of Indian Standards. The latest version of the National Building Code of India shall be taken into account at the time of enforcement of the Building Bye-Laws.

5.2.9.3 Ventilation Shaft.- For ventilating the spaces for water closets and bathrooms, if not opening on the front side, rear and interior open spaces, shall open on the ventilation shaft, the size, of which shall not be less than the values given below:

Table 5.5 Size of Ventilation Shaft

Height of Building (m)	Size of ventilation shaft (Sq.m)	Minimum size of shaft (m)
Up to 10.0	1.2	0.9
Up to 12.0	2.8	1.2
Up to 18.0	4.0	1.5
Up to 24.0	5.4	1.8
Up to 30.0	8.0	2.4
Above 30.0	9.0	3.0

Notes:

i. For buildings above 30.0m height, mechanical ventilation system shall be installed besides the provision of minimum ventilation shaft.

(ii) For fully air-conditioned buildings the ventilation shaft need not be insisted upon, provided the air-conditioning system works in an uninterrupted manner, also, provided there is an alternative source of power supply. However, it is not mandatory in case of buildings where ventilation is mechanized

5.3 Building Services

5.3.1. Electrical, Air conditioning, Lift and Escalator installations

5.3.1.1 Planning, design and installations of electrical, air-conditioning and lift installations.- The Planning design and installation of electrical installations, air conditioning installation of lifts and escalators can be carried out in accordance with Part-7 Building Services, section–2 electrical installation, section–3 air conditioning and heating, section-5 installation of lifts and escalators of National Building Code of India. However, deviations from National Building Code may be done as per good Engineering practices.

5.3.1.2 Number and types of lifts

(1) Lift shall have to be provided for buildings with more than ground plus three floors.

(2) The number and type of lifts to be provided in different buildings shall be as given in **Appendix-XIIIA**.

5.3.1.3 Requirements of Electrical substation.- The requirements of electric sub-station are given in **Appendix-XIIIB**. The provision of electric sub-station shall also require approval from Electricity Board concerned.

5.3.2 Plumbing and Sanitary Services

5.3.2.1 Planning, design, construction and installation of Water supply, drainage and sanitation and gas supply system.- The planning, design, construction and installation of water supply, drainage and sanitation and gas supply system shall be in accordance with Part-9: Plumbing Services, Section-1 Water supply, Drainage and sanitation (including Solid Waste Management) and Section-2 Gas supply of NBC, 2016.

5.3.2.2 Norms for differently-abled within segregated toilets

(i). One special W.C. in a set of toilet shall be provided for the use of differently abled persons, with essential provision of wash basin near the entrance.

(ii). Minimum clear opening of the door shall be 900mm and the door shall swing out.

(iii). Minimum clear opening of the door shall be 900mm and the door shall swing out.

(iv). Suitable arrangement of vertical/horizontal handrails with 50mm clearance from wall shall be made in the toilet.

(v). The W.C. seat shall be 500mm from the floor.

5.3.2.3 Water requirement and facilities.- Water requirement for the facility may be worked out and enough storage for ½ day operation is to be kept in storage. If municipal water supply is reliable, the toilet blocks may have underground sump that can store half a day requirement and overhead tanks for another half. If municipal water supply is not available, toilet block may have its own water source and pump with or without underground sump.

Alternatively, a hand tube well can be used for storing water in an elevated (not overhead) tank. To minimize the wastage of water, self-closing water taps should be used. The pans must be of Pour Flush (PF) design i.e. with a steep slope. Traps should be of a 20mm water seal. (Use of 50mm water seal traps will require more water for flushing.) If toilet is to be linked to city sewer, a master trap has to be provided at the sewer connection for waste water line (excluding soil line).

Table 5.6 Water Requirements for Various Occupancies / Uses (Ref. NBC 2016 Part 9, Section 1, Clause 4.1.1, 4.1.2 and Table 1)

Sl. No.	Type of Building	Domestic Per day litre	Flushing Per Day litre	Total Consumption Per Day litre
i)	Residences a) For communities with population up to 20,000 1) Water supply through stand post 2) Water supply through house service connection (70 to 100 lphd)			 40 lphd (Min) 100 lphd
	b) For communities with Population 20 000 to 100 000 (100 to 135 lphd)	95 lphd	45 lphd	135 lphd
	c) For communities with Population above 100 000 (150 to 200 lphd)	155 lphd	45 lphd	200 lphd
	NOTE: The value of water supply given as 150 to 200 litre per head per day may be reduced to 135 lphd for houses for Medium Income Group (MIG) and Lower Income Groups (LIG) and Economically Weaker Section (EWS), depending upon prevailing conditions and availability of water.			
ii)	Factories including canteen where bath rooms are required to be provided	30 per head	15 per head	45 per head
iii)	Factories including canteen where no bath rooms are required to be provided	20 per head	10 per head	30 per head
iv)	Hospital (excluding laundry and kitchen (see Note 2): a) Number of beds not exceeding 100	230 per head	110 per head	340 per head
	b) Number of beds exceeding 100	300 per head	150 per head	450 per head
	c) Outpatient department (ODP)	10 per head	5 per head	15 per head
v)	Nurses homes and medical quarters	90 per head	45 per head	135 per head
vi)	Hostels	90 per head	45 per head	135 per head
vii)	Hotel (up to 3 start) excluding laundry, kitchen, staff and water bodies	120 per head	60 per head	180 per head
viii)	Hotel (4 star and above) excluding laundry, kitchen, staff and water bodies.	260 per head	60 per head	320 per head
ix)	Offices (including canteen)	25 per head	20 per head	45 per head
x)	Restaurants and food court including water requirement for kitchen: a) Restaurants	55 per head	15 per head	70 per head
	b) Food court	25 per head	10 per head	35 per head
xi)	Clubhouse	25 per head	20 Per head	45 per head
xii)	Stadiums	4 per head	6per head	10 per head
xiii)	Cinemas, Concert halls and theatres and multiplex	5 per head	10 per head	15 per head
xiv)	Schools/Educational institutions: a) Without boarding facilities	25 per head	20 per head	45 per head
	b) With boarding facilities	90 per head	45 per head	135 per head

Sl. No.	Type of Building	Domestic Per day litre	Flushing Per Day litre	Total Consumption Per Day litre
xv)	Shopping and retail (mall) a) Staff	25 per head	20 per head	45 per head
	b) Visitors	5 per head	10 per head	15 per head
xvi)	Traffic terminal stations (see Notes 3 and 4) a) Airports	40 per head	30 Per head	70 per head
	b) Railway stations (Junctions) with bathing facility	40 per head	30 per head	70 per head
	c) Railway stations (Junctions) without bathing facility	30 per head	15 per head	45 per head
	d) Railway stations (Intermediate) with bathing facility	25per head	20 per head	45 per head
	e) Railway stations (Intermediate) without bathing facility	15 per head	10 per head	25 per head
	f) Interstate bus terminals	25 per head	20 per head	45 per head
	g) Interstate Bus Terminals/ Metro Stations	10 per head	5 per head	15 per head

NOTES:

(1) For Calculating water demand for visitors, consumption of 15 litre per head per day may be taken.

(2) The Water demand includes requirement of patients, attendants, visitors and staff. Additional water demand for kitchen, laundry and clinical water shall be computed as per actual requirements.

(3) The number of persons shall be determined by average number of passengers handled by stations, with due considerations given to the staff and vendors who are using these facilities.

(4) Consideration should be given for seasonal average peak requirements.

(5) The hospitals may be categorized as Category A (25 to 50 beds), Category B (51 to 100 beds), Category C (101 to 300 beds), Category D (301 to 500) and Category E (501 to 750 beds),

Table 5.7 Water Storage Capacities (Ref. NBC 2016 Part 9, Section 1, Clause 4.4.10)

Sl. No.	Description	Storage Capacity
1	In case only OHT is provided,	33.33 to 50 percent of one day's requirement
2	In case only UGT is provided,	50 to 150 percent of one day's requirement
3	In case combined storage is provided, a) For UGT b) For OHT	 66.6 percent of one day's requirement 33.3 percent of one day's requirement

Table 5.8 Sanitation Requirements for Office Building
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 1)

Sl. No.	Fixtures	Public Toilets		Staff Toilets	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
	Executive Rooms and Conference Halls in Office Buildings				
i)	Toilet suite comprising one WC, one wash basin (with optional shower stall if building is used round the clock at user's option) Pantry optional as per user requirement **Main Office Toilets for Staff and Visitors**	Unit could be common for male / female or separate depending on the number of user of each facility		For individual officer rooms	

Sl. No.	Fixtures	Public Toilets		Staff Toilets	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
ii)	Water closets	See Note		1 per 25	1 per 15
iii)	Ablution tap with each water closet	← 1 in each water closet →			
iv)	Urinals	See Note	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100 From 101 to 200, add @ 3% For over 200, Add @ 2.5%	-
v)	Wash basins		See Note	1 per 25	1 per 25
vi)	Drinking water fountain		See Note	1 per 100	1 per 100
vii)	Cleaner's sink	← 1 per floor →			
NOTE: Staff and public toilet utilities are generally common in office buildings. Where public toilets are to be provided independently, similar requirements as that of staff toilet may be provided.					

Table 5.9 Sanitation Requirements for Factories
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 2)

Sl. No.	Fixtures	Offices / Visitors		Workers	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
i)	Water closets (Workers and Staff	1 for up to 25	1 for up to 15	1 for up to 15	1 for up to 12
		2 for 26 to 35	2 for 16 to 25	2 for 16 to 35	2 for 13 to 25
		3 for 36 to 65	3 for 26 to 40	3 for 36 to 65	3 for 26 to 40
		4 for 66 to 100	4 for 41 to 57	4 for 66 to 100	4 for 41 to 57
			5 for 58 to 77		5 for 58 to 57
			6 for 78 to 100		6 for 78 to 100
	For persons 101 – 200 add	3%	5%	3%	5%
	For persons over 200 add	2.5%	4%	2.50%	4%
ii)	Ablution tap	1 in each water closet	1 in each water closet	1 in each water closet	1 in each water closet
iii)	Urinals	Nil up to 6	-	Nil up to 6	-
		1 for 7 to 20		1 for 7 to 20	
		2 for 21 to 45		2 for 21 to 45	
		3 for 46 to 70		3 for 46 to 70	
		4 for 71 to 100		4 for 71 to 100	
		From 101 to 200, add		From 101 to 200, add	
		@ 3%		@ 3%	
		For over 200,		For over 200,	
		add @ 2.5%		add @ 2.5%	
iv)	Wash basins Wash basins in rows or troughs and taps spaced 750 mm c/c	1 per 25 or part thereof	1 per 25 or part thereof	1 per 25 or part thereof	1 per 25 or part thereof
v)	Drinking water fountain	1 per every 100 or part thereof with minimum one on each floor		1 per every 100 or part thereof with minimum one on each floor	
vi)	Cleaner's sink	1 on each floor	1 on each floor	1 on each floor	1 on each floor
vii)	Showers / bathing rooms	← 1 in each water closet →			

Sl. No.	Fixtures	Offices / Visitors		Workers	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
viii)	Emergency shower and eye wash fountain	-	-	1 per every shop floor per 500 persons	

NOTES:
1. For factories requiring workers to be engaged in dirty and dangerous operations or requiring them to being extremely clean and sanitized conditions additional and separate (if required so) toilet facilities and if required by applicable Industrial and safety laws and the Factories Act shall be provided in consultation with the user.
2. Depending on the type of disability of a person and the hazard posed by the type of activities in the factory for a person with disabilities, if a person with disabilities is decided to be engaged for a particular activity, the requirements of accessibility shall be guided by the provisions given in 13 of Part 3 'Development Control Rules and General Building Requirements' of the Code.

Table 5.10 Sanitation Requirements for Cinema, Multiplex Cinema, Concert and Convention Halls, Theatres and Stadia
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 3)

Sl. No.	Fixtures	Offices / Visitors		Workers	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
i)	Water closets	1 per 100 up to 400 Over 400 add at 1 per 250 or part thereof	3 per 100 up to 200 Over 200 add at 2 per 100 or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
ii)	Ablution tap	1 in each water closet	1 in each water closet	1 in each water closet	1 in each water closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals			
iii)	Urinals	1 per 25 or part thereof	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45	-
iv)	Wash basins	1 per 200 or part thereof		1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
v)	Drinking water fountain	← 1 per 100 persons or part thereof →			
vi)	Cleaner's sink	← 1 per floor →			
vii)	Showers / bathing rooms	← As per trade requirements →			

NOTES
1. Some WCs may be Indian style, if desired
2. Male population may be assumed a two – third and female population as one-third

Table 5.11 Sanitation Requirements for Art Galleries, Libraries and Museums
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 4)

Sl. No.	Fixtures	Public		Staff	
		Males	Females	Males	Females
1	2	3	4	5	6
i)	Water Closets	1 per 200 upto 400 over 400 add at 1 per 250 or part thereof	1 per 100 up to 200 Over 200 add at 1 per 150 or part thereof	1 for upto 15 2 for 16 to 35	1 for upto 12 2 for 13 to 25
ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
One water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.					

Sl. No.	Fixtures	Public		Staff	
		Males	Females	Males	Females
1	2	3	4	5	6
iii)	Urinals	1 per 50	-	Nil up to 6 1 per 7 to 20 2 per 21 to 45	-
iv)	Wash basins	1 for every 200 or part thereof. For over 400, add at 1 per 250 persons or part thereof	1 for every 200 or part thereof. For over 200, add at 1 per 150 persons or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
v)	Drinking water fountain	← 1 per 100 persons or part thereof →			
vi)	Cleaner's sink	← 1 per floor (Minimum) →			
vii)	Showers/ bathing rooms	← As per requirements →			

NOTES:

1. Some WCs may be Indian style, if desired.
2. Male population may be assumed as two-third and female populations as one-third.

Table 5.12 Sanitation Requirements for Hospitals with Indoor Patient Wards (Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 5)

Sl. No.	Fixtures	Public		Staff	
		Males	Females	Males	Females
1	2	3	4	5	6
i)	Toilet suit comprising one WC and one wash basin and shower stall	Private room with up to 4 patients		For individual doctor's / officer's rooms	
For General Wards, Hospital Staff and Visitors					
ii)	Water Closets	1 per 5 beds or part thereof	1 per 5 beds or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
iii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.			
iv)	Urinals	1 per 15 beds	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45	-
v)	Wash basins	2 for every 30 beds or part thereof. Add 1 per additional 30 beds or part thereof		1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
vi)	Drinking water fountain	1 per ward		1 per 100 persons or part thereof	
vii)	Cleaner's sink	1 per ward		-	
viii)	Bed pan sink	1 per ward		-	
ix)	Kitchen sink	1 per ward		-	

NOTES:

1. Some WCs may be of Indian style, if desired.
2. Male population may be assumed as two-third and female population as one-third.
3. Provision for additional and special hospital fittings where required shall be made.
4. Drinking water fountains are not recommended for hospitals for reasons of infection control. This is to be decided by the health authority recommendations.

Table 5.13 Sanitation Requirements for Hospitals with Outdoor Patient Department (Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 6)

Sl. No.	Fixtures	Patient Toilets		Staff Toilets	
		Males	Females	Males	Females
1	2	3	4	5	6
i)	Toilet suit comprising one WC and one wash basin (with optional shower stall if building used for 24 h)	For up to 4 patients		For individual doctor's / officer's rooms	
ii)	Water Closets	1 per 100 persons or part thereof	2 per 100 persons or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
iii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals			
iv)	Urinals	1 per 50 persons or part thereof	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45	-
v)	Wash basins	2 per 100 persons of part thereof	2 per 100 persons or part thereof	1 for up to 15 2 for 16 to 35	1 for up to 12 2 for 13 to 25
vi)	Drinking water fountain	See Note 2		1 per 100 persons or part thereof	

NOTES:

(1) Some WCs may be of Indian style, if desired.
(2) Drinking water fountains are not recommended for hospitals for reasons of infection control. This to be decided by the health authority recommendation.
(3) The WCs shall be provided keeping in view the location of main OPD waiting hall and sub-waiting hall and sub-waiting halls, floor wise, so as to serve the people effectively. The number of patients shall be calculated floor wise. The OPD population shall include patient attendants @ least 1 per patient.
(4) Male population may be assumed as two-third and female population as one-third.
(5) Provision for additional and special hospital fittings where required shall be made.

Table 5.14 Sanitation Requirements for Hospitals, administrative Buildings (Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 7)

Sl. No.	Fixtures	Staff Toilets	
		Males	Females
1	2	3	4
i)	Toilet suite comprising one WC, one urinal and one wash basin (with optional shower stall if building used for 24 h)	For individual doctor's / officer's rooms	
ii)	Water Closets	1 per 25 persons or part thereof	1 per 15 persons or part thereof
iii)	Ablution tap	One in each water closet	One in each water closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.	
iv)	Urinals	1 for 6 to 15 2 for 16 to 50	-
v)	Wash basins	1 per 25 persons or part thereof	1 per 25 persons or part thereof
vi)	Drinking water fountain	1 per 100 persons or part thereof (See Note 2)	
vii)	Cleaner's sink	1 per floor, Min.	
viii)	Kitchen sink	1 per floor, Min.	

NOTES:

1. Some WCs may be of Indian style, if desired.
2. Drinking water fountains to be provided only when it is a separate block and patients will not use it.

Table 5.15 Sanitation Requirements for Hospitals Staff Quarters and Nurses Homes
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 8)

Sl. No	Fixtures	Staff Quarters		Nurses	
(1)	(2)	Males	Females	Males	Females
		(3)	(4)	(5)	(6)
(i)	Water closets	1 per 4 persons or part thereof	1 per 4 persons or part thereof	1 per 4 persons or part thereof 2 for 5 to 35	1 per 4 persons or part thereof 2 for 5 to 25
(ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		I water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.			
(iii)	Wash basins	1 per 8 persons or part thereof		1 per 8 persons or part thereof	
(iv)	Bath (showers)	1 per 4 persons or part thereof		1 per 4 persons or part thereof	
(v)	Drinking water fountain	1 per 100 persons or part thereof, Min 1 per floor		1 per 100 persons or part thereof, Min 1 per floor	
(vi)	Cleaner's sink	1 per floor		1 per floor	
NOTES: (1) Some WCs may be Indian style, if desired (2) For independent housing units, fixtures shall be provided as for residences					

Table 5.16 Sanitation Requirements for Hotels
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 9)

Sl. No	Fixtures	Public Rooms		Non-Residential staff	
(1)	(2)	Males	Females	Males	Females
		(3)	(4)	(5)	(6)
(i)	Toilet suite comprising one WC wash basin with shower or a bath tub	Individual guest rooms with attached toilets		-	
(ii)	Water closets	1 per 100 persons up to 400 Over 400 add at 1 per 250 or part thereof	2 per 100 persons up to 200 Over 200 add at 1 per 100 or part thereof	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100
(iii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		I water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.			
(iv)	Urinals	1 per 50 persons or part thereof	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100	-
(v)	Wash basins	1 per WC/Urinal	1 per WC	1 for up to 15	
(vi)	Bath (showers)	1 per 10 persons or part thereof		-	-
(vii)	Cleaner's sink	1 per 30 rooms, Min 1 per floor			
(viii)	Kitchen sink	1 per Kitchen			

NOTES:

(1) Some WCs may be Indian style, if desired
(2) Male population may be assumed as two-third and female populations one-third.
(3) Provision for additional and special fitting where required shall be made.

Table 5.17 Sanitation Requirements for Restaurants
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 10)

Sl. No	Fixtures	Public Rooms		Non-Residential staff	
(1)	(2)	Males	Females	Males	Females
		(3)	(4)	(5)	(6)
i.	Water closets	1 per 50 seats up to 200 Over 200 add at 1 per 100 or part thereof	2 per 50 seats up to 200 Over 200 add at 1 per 100 or part thereof	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100
ii.	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		I water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.			
iii.	Urinals	1 per 50 persons or part thereof	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100	-
iv.	Wash basins	1 per WC	1 per WC	1 per WC	1 per WC
v.	Cleaner's sink	1 per each restaurant			
vi.	Kitchen sink/dish washer	1 per Kitchen			

NOTES:

(1) Some WCs may be Indian style, if desired
(2) Male population may be assumed as two-third and female populations one-third.
(3) Provision for additional and special fitting where required shall be made.

Table 5.18 Sanitation Requirements for Schools and Educational Institutions
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 11)

Sl. No	Fixtures	Nursery School	Public Rooms		Non-Residential staff	
(1)	(2)	(3)	Boys	Girls	Boys	Girls
			(4)	(5)	(6)	(7)
(i)	Water closets	1 per 15 pupils or part thereof	1 per 40 pupils or part thereof	1 per 25 pupils or part thereof	1 per 8 pupils or part thereof	1 per 6 pupils or part thereof
(ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		I water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals.				
(iii)	Urinals	-	1 per 20 pupils or part thereof	-	1 per 25 pupils or part thereof	-
(iv)	Wash basins	1 per 15 pupils or part thereof	1 per 60 pupils or part thereof	1 per 40 pupils or part thereof	1 per 8 pupils or part thereof	1 per 6 pupils or part thereof
(v)	Bath/showers	1 per 40 pupils or part thereof	-	-	1 per 8 pupils or part thereof	1 per 6 pupils or part thereof

Sl. No	Fixtures	Nursery School	Public Rooms		Non-Residential staff	
(1)	(2)	(3)	Boys (4)	Girls (5)	Boys (6)	Girls (7)
(vi)	Drinking water fountain or taps	1 per 50 pupils or part thereof	1 per 50 pupils or part thereof	1 per 50 pupils or part thereof	1 per 50 pupils or part thereof	1 per 50 pupils or part thereof
(vii)	Cleaner's sink	1 per each floor				

NOTES:

(1) Some WCs may be Indian style, if desired

(2) For teaching staff, the schedule of fixtures to be provided shall be the same as in case of office building.

Table 5.19 Sanitation Requirements for Hostels
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 12)

Sl. No.	Fixtures	Resident		Non-Resident		Visitors/Common Rooms	
		Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Water Closets	1 per 8 or part thereof	1 per 6 or part thereof	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100	1 per 100 Up to 400 Over 400 add at 1 per 250	2 per 100 Up to 200 Over 200 add at 1 per 100
ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 Water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals					
iii)	Urinals	1 per 25 or part thereof	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100	-	1 per 50 or part thereof	
iv)	Wash basins	1 per 8 persons or part thereof	1 per 6 persons or part thereof	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100	1 per WC/Urinal	1 per WC
v)	Bath/showers	1 per 8 persons or part thereof	1 per 6 persons or part thereof	-	-	-	-
vi)	Cleaner's sink	----------1 per each floor ----------					

NOTE- Some WCs may be Indian style, if desired.

Table 5.20 Sanitation Requirements for Fruit and Vegetable Markets
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 13)

Sl. No.	Fixtures	Shop Owners		Common Toilets Market Building		Public Toilet for Floating Population	
		Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Water Closets	1 per 8 or part thereof		1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100	1 per 50 (Min 2) Over 400 add at 1 per 250	1 per 50 (Min 2) Over 200 add at 1 per 100
ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 Water tap with draining arrangements shall be provided in receiving/ sale area of each shop and for every 50 persons or part thereof in the vicinity of water closets and urinals					
iii)	Urinals	-	-	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100	-	1 per 50	-
iv)	Wash basins	1 per 8 or part thereof		1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57	-	-
v)	Bath/showers	1 per 8 persons or part thereof	1 per 6 persons or part thereof	-	-	1 per 50 persons	1 per 50 persons

NOTE-

1) Toilet facilities for individual buildings in a market should be taken same as that for office buildings.
2) Common toilets in the market buildings provide facilities for persons working in shops and their regular visitors.
3) Special toilet facilities for a large floating population of out of town buyers/sellers, labourers, drivers of vehicles for whom special toilet (public toilets).

Table 5.21 Sanitation Requirements for Bus Stations, Airports and Railway Stations
(Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 14)

Sl. No.	Fixtures	Junction Stations, Intermediate Stations and Bus Stations		Terminal Railway and Bus Stations		Domestic and International Airports	
		Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Water Closets	3 for up to 1000 Add 1 per additional 1000 or part thereof	4 for up to 1000 Add 1 per additional 1000 or part thereof	4 for up to 1000 Add 1 per additional 1000 or part thereof	5 for up to 1000 Add 1 per additional 1000 or part thereof	For 200: 5 For 400: 9 For 600: 12 For 800: 16 For 1000: 18	For 200: 8 For 400: 15 For 600: 20 For 800: 26 For 1000: 29

Sl. No.	Fixtures	Junction Stations, Intermediate Stations and Bus Stations		Terminal Railway and Bus Stations		Domestic and International Airports	
		Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ii)	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet	One in each water closet
		1 Water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals					
iii)	Urinals	4 for up to 1000 Add 1 per additional 1000	-	6 for up to 1000 Add 1 per additional 1000	-	1 per 40 or part thereof	-
iv)	Wash basins	1 per WC/Urinal	1 per WC	1 per WC/Urinal	1 per WC	1 per WC/Urinal	1 per WC
v)	Bath/showers	2 per 1000		3 per 1000		4 per 1000	
vi)	Drinking water fountain or taps (in common lobby for male/female)	2 per 1000 or part thereof		3 per 1000 or part thereof		4 per 1000 or part thereof	
vii)	Cleaner's sink	1 per toilet compartment with 3 WCs	1 per toilet compartment with 3 WCs	1 per toilet compartment with 3 WCs	1 per toilet compartment with 3 WCs	1 per toilet compartment with 3 WCs	1 per toilet compartment with 3 WCs

NOTE-

1) Some WCs may be Indian style, if desired.
2) Male population may be assumed as three-fifth and female populations two-fifth
3) Separate provision shall be made for staff and workers.

Table 5.22 Sanitation Requirements for Shopping Mall and Retail Buildings (Ref. NBC 2016 Part 9, Section 2, Clause 4.2.5.1, Table 15)

Sl. No	Fixtures	Staff Toilets in Shopping Building		Public Toilet for Floating Population	
(1)	(2)	Males	Females	Males	Females
		(5)	(6)	(7)	(8)
i.	Water closets	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100	1 per 50 (Min 2)	1 per 50 (Min 2)
ii.	Ablution tap	One in each water closet	One in each water closet	One in each water closet	One in each water closet
iii.	Urinals	Nil up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 4 for 71 to 100	-	1 per 50	-

Sl. No	Fixtures	Staff Toilets in Shopping Building		Public Toilet for Floating Population	
(1)	(2)	Males	Females	Males	Females
		(5)	(6)	(7)	(8)
iv.	Wash basins	1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100	1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57	1 per 50 (Min 2)	1 per 50 (Min 2)
v.	Bath/showers	1 per 100 persons	1 per 100 persons	-	-

NOTES:

(1) Toilet facilities for individual facilities in a shopping building should be taken same as that for office buildings.

(2) Staff toilets in the shopping buildings provide facilities for persons working in shops and buildings, as well as for maintenance staff.

(3) The number of persons against the fixture bath/showers represents the maintenance staff requiring such facility.

(4) Public toilet facilities are provided for a large floating population for buyers and visitors.

5.3.2.4 Construction Site

(1). At construction sites, one toilet must be provided per 20 employees. In a work zone with between 21 and 199 employees, a toilet seat and one urinal must be provided for every 40 employees. For 200 or more workers, regulations call for a toilet seat and a urinal per 50 workers. The toilet must be located within 200 m or 5-minute walk.

(2). Job sites that are not equipped with a sanitary sewer must, unless prohibited by local codes, provide privies, in locations where their use will not contaminate either ground or surface water. Other alternatives to a privy could be chemical toilets, re-circulating toilets, or combustion toilets.

(3). Toilets should be cleaned regularly and maintained in good order, running water, must be provided along with soap and individual hand towels.

5.3.2.5 Temporary Camp Toilets.- Toilet facilities shall be provided within 60 m of the, site, which shall not be closer than 15 m of dining area or kitchen. Make sure that toilet area is cleaned at least once per day, it is sanitary, adequately lighted and is employee safe.

5.3.2.6 Special / Contingency Toilets

(1) For Special events like open air theatre, religious/political gatherings, mela, etc. for which there are no permanent toilet facilities, contingency toilets/PSUs shall be provided. The following considerations shall determine the number of toilets to be provided for particular event:

(a) Duration of the event;

(b) Type of crowd;

(c) Weather conditions; and

(d) Whether finishing times are staggered if the event has multi-functions and the following guidelines shall be applied with minimum 50 per cent female toilets.

Table 5.23 Contingency Toilets facilities for Special Events

Sl.No.	Patrons	For Males			For Females	
		Toilets	Urinals	Sinks	Toilets	Sinks
1	<500	1	2	2	6	2
2	<1000	2	4	4	9	4
3	<2000	4	8	6	12	6
4	<3000	6	15	10	18	10
5	<5000	8	25	17	30	17

(3) ***Special Purpose Toilets:*** *Special toilet facilities shall be adequately provided in public projects (transport terminals/ healthcare and other public spaces) in million plus cities for the Third gender with appropriate cleanliness arrangements.*

5.3.2.7 General guidance for water supply arrangements

(1). For new construction: Provision shall be made for underground tank for the storage of water, having capacity at 200 l. per person with adequate pumping arrangements to supply water to upper floors. Water connection from the Water Supply system of the Authority will be allowed only for use of drinking and bathing. For other purposes i.e. flushing and gardening etc., the individual shall be required to have own arrangements of open well, tube well (with the permission of Ground Water Authority), rain water or recycled water, within the premises. While according sanction to Layout Plan, the Authority shall make a special mention that provision for space shall be kept for the construction of underground reservoir of adequate capacity along with booster pumping station

(2).The plumbing arrangement in case of new constructions shall be made in a way that the potable water shall be used for drinking, cooking and bathing only and for rest of the uses, provision for dual piping system shall be made for the buildings specified in **chapter 11**.

(3). Low capacity cistern should preferably be provided instead of normal 12.5 L capacity.

(4). Provisions for sustainable methods of Water and Wastewater management and Water harvesting may be referred from **Chapter 10** and **Chapter 11** of these Bye-Laws.

CHAPTER 6

6. PROVISIONS FOR HIGH RISE DEVELOPMENT

6.1 General.- Buildings of height 15m and above shall be considered as high-rise building.

*Note: These provisions shall be in addition to the **Chapter 4** for plan sanction procedure, general building requirements (low/high) given in **Chapter 5** of this document and structural safety given in **Chapter7***

6.2 Means of access

(1) A building shall abut on a street or streets or upon spaces directly connected from the street by a hard surface approach road. The width of approach road shall be as prescribed in the Zonal Regulations.

(2) The approach road to the building and open spaces on its all sides shall be as prescribed in the Zonal regulations and wherever vehicular driveways are required to be provided, the same shall be reinforced to ensure safety of the fire equipment and capable of taking the weight of Fire engine, weighing up to 45 ton

(3) The said driveway shall be kept free of obstructions and shall be motorable.

(4) Main entrances to the premises shall be of adequate width to allow easy access to the fire engine and in no case, it shall measure less than 6.0m. The entrance gate shall fold back against the compound wall of the premises, thus leaving the exterior access way within the plot free for movement of fire service vehicles. If archway is provided over the main entrance the height of the archway shall not be at a height less than 4.5m.

6.3 Parking Spaces

(1) The parking spaces shall be provided as per the provisions of Master Plan and Zonal Regulations as prevalent. The location of parking spaces shall be well ventilated.

(2) In case of high-rise buildings parking will be permitted at any/all of the following:

(a). Basements;

(b). Stilt floor; and

(c). Stacked/ Multi-level/ Automated parking.

6.4 Building components

6.4.1 Doorways.- The doorway requirements shall be as prescribed in **Clause no.5.2.6**

6.4.2 Revolving Doors.-Revolving door shall not be provided as a means of fire exit

6.4.3 Stairways

(1) A staircase shall not be arranged round a lift shaft.

(2) The staircase shall be ventilated to the atmosphere at each landing and a vent at the top; the vent openings shall be of 0.5Sq.m in the external wall at the top. If the staircase cannot be ventilated, because of location or other reasons, a positive pressure 50 Pa shall be maintained inside. The mechanism for pressurizing the staircase shall operate automatically with the fire alarm. The roof of the shaft shall be 1m above the surrounding roof. Glazing or glass bricks if used in staircase, shall have fire resistance rating of minimum 2 hours.

(3) The minimum width of staircase shall be as per **Table 5.2**:

(4) Handrails shall be provided with a minimum height of 1.0m from the centre of the tread.

(5) Access to main staircase shall be gained through adequate fire resistance rating specified in **Chapter12** Automatic closing doors shall be placed in the enclosing walls of the staircases. It shall be a swing type door opening in the direction of the escape.

(6). No living space, store or other fire risk shall open directly into the staircase or staircases.

(7). External exit door of staircase enclosure at ground level shall open directly to the open spaces or can be reached without passing through any door other than a door provided to form a draught lobby

(8). The exit sign with arrow indicating the way to the escape route shall be provided at a height of 0.5m from the floor level on the wall and shall be illuminated by electric light connected to corridor circuits. All exit way marking signs should be flushed with the wall and so designed that no mechanical damage shall occur to them due to moving of furniture or other heavy equipment's. Further all landings of floor shall have floor indication boards indicating the number of floor. The floor indication board shall be placed on the wall immediately facing the flight of stairs and nearest to the landing. It shall be of size not less than 0.5x 0.5m and it shall be prominently on the wall facing the staircase.

(9). In case of single staircase, it shall terminate at the ground floor level and the access to the basement shall be by a separate staircase. However, the second staircase may lead to basement levels provided the same is separated at ground level by either a ventilated lobby with discharge points at two different ends or through enclosures with fire resistance rating door specified in **Chapter12** or through a fire protected corridor.

6.4.4 Lifts.- General requirements of lifts shall be as follows:

(1) All the floors shall be accessible for 24 hours by the lifts. The lifts provided in the buildings shall not be considered as a means of escape in case of emergency. In a dual line arrangement (lifts opposite to each other) the lobby may be between 1.5 times to 2.5 times the depth of one car. For in-line (single line) arrangements the lobby may be typically half of the above recommendations.

(2) Grounding switch, at ground floor level, to enable the fire service to ground the lift shall also be provided.

(3) The lift machine room shall be separate and no other machinery shall be installed therein.

(4) Walls of lift enclosures and lift lobby shall have fire rating of 2 hour; as specified in **Chapter12** lifts shall have a vent at the top of area not less than 0.2Sq.m

(5) Lift car door shall have a fire resistance rating of 1 hour.

(6) Lift lobby doors in lift enclosures shall have fire resistance as specified in **Chapter12**.

(7) Collapsible gates shall not be permitted for lifts and shall have solid doors with fire resistance of at least 1 hour.

(8) If the fire man lift shaft and lobby is in the core of the building, a positive pressure between 25 and 30 Pa shall be maintained in the lobby and a positive pressure of 50 Pa shall be maintained in the lift shaft. The mechanism for pressurization shall act automatically with the fire alarm; it shall be possible to operate this mechanically also.

(9) Lifts if communicating with the basement, the lift lobby of the basements shall be pressurized as suggested in **clause 12.9.1(g)** and **12.9.1(h)** with self-closing door with fire resistance rating as specified in **Chapter 12**. Telephone or other communication facilities shall be provided in lift cars and to be connected to fire control room for the building.

(10) Exit from the fire man lift lobby, if located in the core of the building, shall be through a self-closing fire door of half an hour fire resistance.

(11) Suitable arrangements such as providing slope in the floor of lift lobby shall be made to prevent water used during fire-fighting, etc., at any landing from entering the lift shafts.

(12) A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the locations of the stairways. Alternate source of power supply shall be provided for all the lifts through a manually operated changeover switch.

(13) For Pressurization Specifications of various building components refer NBC Part-4 Fire and Life Safety Pressurization of Staircases (Protected Escape Routes)

6.4.5 Basements

6.4.5.1 General requirements.- Basement floors shall be permitted as prescribed in the Zonal Regulations

6.4.5.2 Requirements for High rise development

(1) Each basement shall be separately ventilated. Vents with cross-sectional area (aggregate) not less than 2.5 percent of the floor area spread evenly round the perimeter of the basement shall be provided in the form of grills or breakable stall board lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and extracts may be terminated at ground level with stall board or pavement lights, but ducts to convey fresh air to the basement floor level have to be laid. Stall board and pavement lights should be in positions easily accessible to the fire brigade and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening

(2) The staircase of basements shall be of enclosed type having fire resistance rating as specified in **Chapter 12**. The staircase shall be situated at the periphery of the basement to be entered at ground level only, from outside open air. The staircase shall communicate with basement through a lobby with self-closing doors with fire resistance rating as per relevant NBC code mentioned above.

(3)In multi-storey basements, intake ducts may serve all basement levels, but each basement level and basement compartment shall have separate smoke outlet duct or ducts. Ducts so provided shall have the same fire resistance rating as the compartment itself. Fire rating may be taken as the required smoke extraction time for smoke extraction ducts.

(4)Mechanical extractors for smoke venting system from lower basement levels shall also be provided. The system shall be of such design as to operate on actuation of heat / smoke sensitive detectors or sprinklers, if installed, and shall have a considerably superior performance compared to the standard units. It shall also have an arrangement to start it manually.

(5)Mechanical extractors shall have an internal locking arrangement, so that extractors shall continue to operate and supply fans for HVAC shall stop automatically with the actuation of fire detectors.

(6).Mechanical extractors shall be designated to permit 30 air changes per hour in case of fire or distress call. However, for normal operation, air changes schedule shall be as given in Part 8, Building Services, Section 3, Air-conditioning, Heating and Mechanical Ventilation of National Building Code, 2016.

(7)Mechanical extractors shall have an alternative source of supply.

(h). Ventilating ducts shall be integrated with the structure and made out of brick masonry or reinforced cement concrete and when this duct crosses the transformer area or electrical switchboard, fire dampers shall be provided.

(8) Use of basements for kitchens working on gas fuel shall not be permitted, unless air conditioned. The basement shall not be permitted below the ward block of a hospital/nursing home unless it is fully sprinkled. Building services such as electrical sub-stations, boiler rooms in basements shall comply with the provisions of the Indian Electricity Act / Rules. Boiler room shall be provided at the first basement along the periphery wall with fire resistance rating as specified in **Chapter 12** or shall be separated with the blast wall.

(9) If cut-outs are provided from basements to the upper floors or to the atmospheres, all sides' cut-out openings in the basements shall be protected by sprinkler head at close spacing so as to form a water curtain in the event of a fire.

(10) It is essential to make provisions for drainage of any such water on all floors to prevent or minimize water damage of the contents. The drain pipes should be provided on the external wall for drainage of water from all floors. On large area floors, several such pipes may be necessary which should be spaced 30 m apart. Care shall be taken to ensure that the construction of the drain pipe does not allow spread fire / smoke from floor to floor.

6.4.6Compartmentation.- The building shall be suitably compartmentalized so that fire/smoke remains confined to the area where fire incident has occurred and does not spread to the remaining part of the building. Compartmentation and Pressurization method shall be adopted (as per Part 4 of NBC 2016) to protect escape routes against ingress of smoke, or toxic gases into the escape routes will be prevented. Pressurization shall be adopted for high rise buildings and building having mixed occupancy/multiplexes having covered area more than 500Sq.m

6.4.7Ramps.- Ramps shall be provided as prescribed in **Clause 5.2.5**

6.4.8 Corridors

(1) Exit corridors and passageways shall be of width not less than the aggregate required width of exit doorways leading from them in the direction of travel to the exterior

(2) The minimum width of a corridor in a residential building shall be 1.0m for single loaded and 1.8m for double loaded and in all other buildings shall be 1.5m.

(3) Where stairways discharge through corridors and passageways, the height of corridors and passageways shall be not less than 2.4m.

(4) All means of exit including staircases lifts lobbies and corridors shall be ventilated.

6.4.9 Glass Façade/ Service Ducts/Shafts/ Refuge Area/ Vents

(1) An Opening to the glass façade of min. width 1.5m and height 1.5m shall be provided at every floor at a level of 1.2m from the flooring facing compulsory open space as well as on road side. Construction that complies with the fire rating of the horizontal segregation and has any gap packed with a non-combustible material to withstand thermal expansion and structural movement of the walling without the loss of seal against fire and smoke..

(2) (2) Mechanism of Opening: The openable glass panel shall be either left or right shall have manual opening mechanism from inside as well as outside. Such openable panels shall be marked conspicuously so as to easily identify the openable panel from outside.

(3) Fire seal to be provided at every floor level between the external glazing and building structure.

(4) The glazing used for the façade shall be of toughened (tempered) safety glass as per I.S.2553.

(5) To avoid fire propagation vertically from one floor to another floor, a continuous glass I must be separated internally by a smoke/ fire seal which is of non-combustible material having a fire resistance rating of not less than 2 hours.

(6) Service ducts and shafts shall be enclosed by walls and doors with fire resistance rating (Refer **Clause 12.7.1** of Chapter 12). All such ducts/shafts shall be properly sealed and stopped fire ingress at all floor levels.

(7) A vent opening at the top of the service shaft shall be provided having an area between one- fourth and one-half of the area of the shaft.

(8) The openable vent of minimum 2.5% of the floor area shall be provided. The openable vent can be pop out type or bottom hinged provided with fusible link opening mechanism and shall also be integrated with automatic Smoke Detection System.

(a) Alternate vertical glass panels of the façade shall be openable type with the mechanism mentioned above in order to ventilate the smoke.

(b) Refuge areas covered with the glass façade shall have all the panels fully openable (either left or right hinged) both from inside as well as outside. Glass quality and Practice of use of Glass in buildings shall have to be in conformity with the **BIS codes** as given in **Table 6.1** below:

Table 6.1

IS Code	Specifications
2553(Part 1):1990	Specification for safety glass: Part 1 General purpose *(third revision)*
2835:1987	Specification for flat transparent sheet glass *(third revision)*
438:1994	Specification for silvered glass mirrors for general purpose *(second revision)*
5437:1994	Specification for figured rolled and wired glass *(first revision).*
14900:2000	Specification for transparent float glass.
16231 Part 1	General methodology for selection
16231 Part 2	Energy and Light
16231 Part 3	Fire and Loading
16231 Part 4	Safety related to Human Impact

6.5 Building Services

6.5.1 Staircase and Corridor Lighting

(1) The staircase and corridor lighting shall be on separate service and shall be independently connected so as it could be operated by one switch installation on the ground floor, easily accessible to fire-fighting staff at any time irrespective of the position of the individuate control of the light points, if any.

(2) Staircase and corridor lighting shall also be connected to alternate supply from parallel high-tension supply or to the supply from the stand-by generator.

(3) Emergency lights shall be provided in staircase and corridor/ passageway, horizontal exits, refuge area; and all wires and other accessories used for emergency light shall have fire retardant property

6.5.2 Electrical Services

(1) The electric distribution cables/wiring shall be laid in separate duct the duct shall be sealed at every floor with non-combustible materials having the same fire resistance as that of the duct. Low and medium voltage wiring running in shaft and in false ceiling shall run in separate conduits.

(2) Water mains, telephone cables, intercom cables, gas pipes or any other service line shall not be laid in the duct for electric cables. Use of bus ducts/solid rising mains instead of cables is preferred.

(3) The provision of dedicated telecommunication ducts for all new building proposals is mandatory for conveyance of telecommunication and other data cables.

(4) Separate circuits for water pumps lifts, staircases and corridor lighting and blowers for pressurizing system shall be provided directly from the main switchgear panel (for detailed specifications refer NBC 2005, Part-4 Fire and Life Safety).

6.5.3 Alternate Source of Electric Supply.- A stand-by electric generator shall be installed to supply power to staircase and corridor lighting circuits, fire lifts, the stand-by fire pumps, pressurization fans and blowers, smoke extraction and damper system in case of failure of normal

electric supply. The generator shall be capable of taking starting current of all the machines and circuits stated above simultaneously. If the stand-by pump is driven by diesel engine, the generator supply need not be connected to the stand-by pump.

6.5.4Air-conditioning.- Air-conditioning shall conform to the following:

(a). Escape routes like staircases, common corridors, lift lobbies, etc. shall not be used as return air passage.

(b). The ducting shall be constructed of substantial gauge metal in accordance with good practice.

(c). Wherever the ducts pass through fire walls or floors, the opening around the ducts shall be sealed with materials having fire resistance rating of the compartment.

(d). Where duct crosses a compartment which is fire rated, the ducts shall be fire rated for same fire rating. Further depending on services passing around the duct work, which may get affected in case of fire temperature rising, the ducts shall be insulated.

(e). ceiling Metallic ducts shall be used even for the return air instead of space above the false.

(f). Where plenum is used for return air passage, ceiling and its fixtures shall be of non-combustible material.

(g). The materials used for insulating the duct system (inside or outside) shall be of non-combustible material; glass wool shall not be wrapped or secured by any material of combustible nature.

(h). Air ducts serving main floor areas, corridors, etc. shall not pass through the staircase enclosure.

(i). The air-handling units shall be separate for each floor and air ducts for every floor shall be separated and in no way inter-connected with the ducting of any other floor.

(j). If the air-handling unit serves more than one floor, the recommendations given above shall be compiled with in addition to the conditions given below:

(i). Proper arrangements by way of automatic fire dampers working on smoke detector / or fusible link for isolating all ducting at every floor from the main riser shall be made.

(ii). When the automatic fire alarm operates, the respective air-handling units of the air conditioning system shall automatically be switched off.

(iii). The vertical shaft for treated fresh air shall be of masonry construction.

(iv). The air filters of the air-handling units shall be of non-combustible materials or fire rated (Refer **Clause 12.7.1** of Chapter 12)

(v). The air-handling unit room shall not be used for storage of any combustible materials.

(vi). Inspection panels shall be provided in the main trunk line to facilitate the cleaning of ducts of accumulated dust and to obtain access for maintenance of fire dampers.

(vii). No combustible material shall be fixed nearer than 150 mm to any duct unless such duct is properly enclosed and protected with non-combustible material (glass wool or spyglass with neoprene facing enclosed and wrapped with aluminium sheeting) at least 3.2 mm thick and which would not readily conduct heat.

6.5.5 Transformers

(1) If transformers are housed in the building below the ground level it shall be necessarily in the first basement in separate fire resistance room of 4 hours rating. Transformer shall be dry type and shall be kept in an enclosure with walls, doors and cut-outs having fire resistance rating of 4 hour. The room shall necessarily be at the periphery of the basement having separate and direct access from open area at ground floor through a fire escape staircase. The entrance to the room shall be provided with a steel door of 2 hours fire rating. A curb of a suitable height shall be provided at the entrance in order to prevent the flow of oil from ruptured, transformer into other parts of the basement. The switchgears shall be housed in a separate room separated from the transformer bays by a fire-resisting wall with fire resistance not less than 4 hours.

(2) The transformer shall be protected by an automatic foam sprinkler system. When housed at ground floor level it/they shall be cut-off from the other portion of premises by Fire Resisting Walls of 4 hours rating.

(3) A tank of RCC construction of adequate capacity shall be provided at lower basement level, to collect the oil from the catch pit in case of emergency. The pipe connecting the catch-pit to the tank shall be of non-combustible construction and shall be provided with a flame-arrester.

(4) The electric sub-station shall be located in a separate building in accordance to I.E. Rules 68(I) and 64(I) (a).

(5) If this is not possible due to site conditions, the sub-station shall be located on the ground floor. As far as possible sub-station shall not be installed in a basement, for such situations special provisions like mechanical ventilation, wherever required, cable ducting, cable trays, top/bottom entry of HV/LV cable, hooks on Transformer(s) and HV panels, adequate fire detection

and fire-fighting arrangement, adequate drainage, effective measures to prevent flooding etc. shall be provided. Adequate precautions shall also be taken for water proofing to prevent seepage of water. A ramp shall also be provided with a slope, not steeper than 1 in 7, for easy movement of equipment's to and from sub-station.

(6) Fire regulations – The installations shall be carried out in conformity with the local regulations and rules there under wherever they are in force. At other places NBC guidelines shall be followed.

6.5.6Gas supply

(1) Town Gas / L.P. Gas Supply Pipes – Where gas pipes are run in buildings, the same shall be run in separate shafts exclusively for this purpose and these shall be on external walls, away from the staircases. There shall be no interconnection of this shaft with the rest of the floors.

(2) LPG distribution pipes shall always be below the false ceiling. The length of these pipes shall be as short as possible. In the case of kitchen cooking range area, apart from providing hood, covering the entire cooking range, the exhaust system should be designed to take care of 30 cum per minute per Sq.m of hood protected area. It should have grease filters using metallic grill to trip oil vapours escaping into the fume hood.

Note: For detailed information on gas pipe installations, reference may be made to Part.9 'Plumbing Services, Section 3 Gas Supply', of National Building Code of India.

(3) For large/commercial kitchens all wiring in fume hoods shall be of fiber glass insulation. Thermal detectors shall be installed into fume hoods of large kitchens for hotels, hospitals and similar areas located in high rise buildings. Arrangements shall be made for automatic tripping of the exhaust fan in case of fire.

(4) If LPG is used, the same shall be shut off. The voltage shall be of 24 V or 100V DC operated with the external rectifier. The valve shall be of the hand re-set type and shall be located in an area segregated from cooking ranges. Valves shall be easily accessible. The hood shall have manual facility for steam or carbon dioxide gas injection, depending on duty condition; and Gas meters shall be housed in a suitably constructed metal cupboard located in a well-ventilated space, keeping in view the fact that LPG is heavier than air and town gas is lighter than air

6.5.7 Boiler Room.- Further, the following additional aspects may be taken into account in the location of Boiler/Boiler Room:

(a). The boiler shall not be allowed in sub-basement but be allowed in the first basements away from the escape routes.

(b). The boilers shall be installed in a fire resisting room of 4 hours fire resistance rating, and this room shall be situated on the periphery of the basement. Catch pit shall be provided at the low level. Entry to this room may be provided with a composite door of two-hour fire resistance

(c). The boiler room shall be provided with fresh air inlets and smoke exhausts directly to the atmosphere.

(d). Foam inlets shall be provided on the external walls of the building at the ground floor level to enable the fire services to use foam in case of fire.

(e). The furnace oil tank for the boiler, if located in the adjoining room shall be separated by fire resisting wall of 4-hour rating. Entry to this room shall be provided with a composite door of 2-hour fire resistance. A curb of suitable height shall be provided at the entrance in order to prevent the flow of oil into the boiler room in case of tank rupture.

6.5.8 Helipad.- Buildings above 200 m in height, helipad shall be provided.

6.5.9 Disaster Management / Fire Safety.- Refer **Chapter 12** of this document.

6.5.10 Sustainable Environment and Buildings.- Refer **Chapter 11 and Chapter 15** of this document

6.5.11 Structural Safety.- As per provisions made for Structural Safety in **Chapter 7**

CHAPTER 7

PROVISIONS FOR STRUCTURAL SAFETY

7.1 Structural design and safety.- For any building under the jurisdiction of these bye-laws structural/retrofitting design shall only be carried out by a registered Structural Engineer on Record (SER). Proof checking of various designs/ reports shall be carried out by competent authority as per **Table 7.1**wherever applicable.

7.1.1 Additional Provisions for natural hazard prone areas.- Generally, the structural design of foundations, elements of masonry, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall conform to the provisions of Part 6: Structural Design –

Section– 1 Loads, Forces and Effects

Section– 2 Soils and Foundations,

Section– 3 Timber and Bamboo,

Section– 4 Masonry,

Section– 5 Concrete

Section– 6 Steel

Section– 7 Prefabrication Systems, Building and Mixed /Composite Construction of National Building Code of India (NBC), taking into consideration the Indian Standards as given below.

For General Structural Safety

(1) IS: 456:2000 'Code of Practice for Plain and Reinforced Concrete';

(2) IS: 800-2007 'Code of Practice for General Construction in Steel';

(3) IS: 801-1975 'Code of Practice for Use of Cold Formal Light Gauge Steel Structural Members in General Building Construction';

(4) IS 875 (Part 2):1987 Design loads (other than earthquake) for buildings and structures Part2 Imposed Loads;

(5) IS 875 (Part 3):1987 Design loads (other than earthquake) for buildings and structures Part 3 Wind Loads;

6) IS 875 (Part 4):1987 Design loads (other than earthquake) for buildings and structures Part 4 Snow Loads;

7) IS 875 (Part 5):1987 Design loads (other than earthquake) for buildings and structures Part 5 special loads and load combination;

8) IS: 883:1994 'Code of Practice for Design of Structural Timber in Building;

9) IS: 1904:1986 (R 2005) 'Code of Practice for Structural Safety of Buildings: Foundation';

10) IS 1905:1987 'Code of Practice for Structural Safety of Buildings: Masonry Walls; and

11) IS 2911(Part 1): Section 1: 2010 'Code of Practice for Design and Construction of Pile Foundation Section 1

Part 1: Section 2 Bored Cast-in-situ Piles

Part 1: Section 3 Driven Precast Concrete Piles

Part 1: Section 4 Bored Precast Concrete Piles

Part 2: Timber Piles

Part 3: Under Reamed Piles

Part 4: Load Test on Piles

For Cyclone/Wind Storm Protection

(12) IS 875 (3):1987 'Code of Practice for Design Loads (other than Earthquake) for Buildings and Structures, Part 3, Wind Loads'

(13) Guidelines (Based on IS 875 (3)-1987) for improving the Cyclonic Resistance of Low rise houses and other building.

For Earthquake Protection

(14) IS: 1893 (Part 1)-2002 'Criteria for Earthquake Resistant Design of Structures (Fifth Revision)'

15) IS: 13920-1993 'Ductile Detailing of reinforced Concrete structures subjected to Seismic Forces-Code of Practice

(16) IS: 4326-2013 'Earthquake Resistant Design and construction of buildings code of practice (second revision)'

(17) IS: 13828-1993 'Improving earthquake resistance of low strength masonry buildings-guidelines

(18) IS: 13827:1993 'Improving Earthquake Resistance of Earthen Buildings-Guidelines

(19) IS: 13935-2009 'Seismic Evaluation, Repair and Seismic Strengthening of Buildings - Guidelines'

For Protection of Landslide Hazard

(20) IS 14458 (Part 1): 1998 Guidelines for retaining wall for hill area: Part1Selection of type of wall.

(21) IS 14458 (Part 2): 1997 Guidelines for retaining wall for hill area: Part 2 Design of retaining/breast walls

(22) IS 14458 (Part 3): 1998 Guidelines for retaining wall for hill area: Part 3Construction of dry stone walls

(23) IS 14496 (Part 2): 1998 Guidelines for preparation of landslide – Hazard zonation maps in mountainous terrains: Part 2 Macro-zonation.

Note: Whenever an Indian Standard including those referred in the National Building Code or the National Building Code is referred, the latest revision of the same shall be followed except specific criteria, if any, mentioned above against that code.

7.1.2 Structural Design Basis Report (SDBR).- In compliance of the design with the above Indian Standard, the Structural Engineer on Record will submit a structural design basis report in the Performa attached herewith covering the essential safety requirements specified in the Standard.

The 'Structural Design Basis Report (SDBR)'consists of four parts

Part 1: General Information/ Data

Part 2: Load Bearing Masonry Buildings

Part 3: Reinforced Concrete Buildings

Part 4: Steel Buildings

(a) Drawings and Documents to be submitted for approval of appropriate authorities shall include SDBR as detailed below:

Part 1: Completed

Part 2: (if applicable) – completed

Part 3: (if applicable) – undertaking that completed Part 3 will be submitted before commencement of construction.

Part 4: (if applicable) – undertaking that completed Part 4 will be submitted before commencement of construction.

(b) SDBR as detailed below shall be submitted to the appropriate authority as soon as design of foundation is completed, but not later than one month prior to commencement of construction.

Part 1: Completed

Part-2, Part-3 or Part-4: (if applicable) Completed

7.1.3 Seismic strengthening/retrofitting.- Prior to seismic strengthening/retrofitting of any existing structure, evaluation of the existing structure as regards structural vulnerability in the specified wind/seismic hazard zone shall be carried out by the SER. If as per the evaluation of the SER the seismic resistance is assessed to be less than the specified minimum seismic resistance as given in the note below, action will be initiated to carry out the upgrading of the seismic resistance of the building as per applicable standard guidelines.

Note:

(1). For masonry buildings reference shall be made to IS 4326 and IS 13935

(2). For concrete buildings and structures reference shall be made to IS15988: 2013 Seismic evaluation and strengthening of existing RCC buildings.

7.1.4 Buildings with Soft Storey.- In case buildings with a flexible storeys, such as the ground storey consisting of open spaces for parking that is 'Stilt buildings' or any other storey with open halls, special arrangements are to be made to increase the lateral strength and stiffness of the soft/open storey such as Steel bracing / Shear walls / Brick infill's between columns. Dynamic analysis of building is to be carried out including the strength and stiffness effects of infills and inelastic deformations in the members, particularly, those in the soft storey, and the structural members are to be designed accordingly.

Alternatively, the following design criteria are to be adopted after carrying out the earthquake analysis, neglecting the effect of infill walls in other storeys:

(a). The columns and beams of the soft storey shall be designed for 2.5 times the storey shears and moments, calculated under seismic loads specified in the other relevant clauses; or,

(b). Besides the columns designed and detailed for the calculated storey shears and moments, shear walls shall be placed symmetrically in both directions of the building as far away from the Centre of the building as feasible; to be designed exclusively for 1.5 times the lateral storey shear force calculated as before. For details of design and provisions, IS 1893, Part 1 shall be referred.

7.1.5Review of structural design

(1) The Authority shall create a Structural Design Review Panel (SDRP) consisting of senior SERs whose task will be to review and certify the design prepared by SER whenever referred by the competent authority.

(2) The Reviewing Agency shall submit addendum to the certificate or a new certificate in case of subsequent changes in structural design.

(3) Table-7.1 gives requirements of SDRP for different seismic zones namely III, IV and V and for structures of different complexities.

(4) In seismic Zone II, buildings and structures greater than 40m in height will require proof checking by SDRP as per detail at Sl. no.3 of **Table 7.1**

Table 7.1 Proof Checking Requirements for Structural Design

Sl. No	Type of Structure	Submission from SER	To be Proof Checked
1.	Load Bearing Buildings up to three storeys	SDBR*	Not to be checked
2.	Buildings up to seven storeys (R.C.C/Steel framed structure)	SDBR	To be checked
		Preliminary design	To be checked
3.	Building greater than seven storeys (R.C.C/Steel framed structure)	SDBR	To be checked
		Preliminary design	To be checked
		Detailed structural design and structural drawing	To be checked
4.	Non-Residential Buildings	SDBR	To be checked
		Preliminary design	To be checked
		Detailed structural design and structural drawing	To be checked

** SDBR – Structural Design Basis Report*

Notes:

1. Table 5.3may be referred for occupant load/live loads for different building types.

2.At the preliminary proposal stage of a project, the objective is to undertake feasibility study/comparison of a number of possible alternatives of structural schemes and determine the most cost effective one, detailed structural calculations are not necessary for each alternative scheme. However, it is necessary to determine the member sizes and reinforcement content in order to determine the cost. By making conservative assumptions it is possible to derive simplified calculations for both analysis and design. ***This is called 'Preliminary or approximate analysis, and design'.***

After the most cost-effective scheme is selected and signed-off by the Client, the detailed calculations are performed on the selected scheme to determine the precise structural members and composition (size, dimension and stress behaviour), and this is called the ***'Detailed structural design'.***

In the aforesaid, the design of structural members is typically assumed to account for all the stress loads identified from section xx to be applicable in the given project.

3. Special structure means large span structures such as stadium, assembly halls, or tall structures such as water tanks, TV tower, chimney, etc.

It will be seen from the **Table 7.1** above that there is a wide range of structure typology, and the requirement by the Competent Authority for third party verification will depend on the type of structure.

4. *SER may adopt suitable structural design software for designing the buildings.*

7.1.6 Certification regarding structural safety in design.- Structural Engineer on Record (SER) shall give a certificate of structural safety of design as per **Form-XV** at the time of completion, stating that the structure of the building has been designed as per the relevant standards satisfying the soil investigation report submitted by GER and for the loads expected on the building and that the building will be structurally safe if constructed accordingly. (as per **Clause 3.17)**

7.1.7Constructional safety

7.1.7.1 Supervision.- All construction except load bearing buildings up to 3 storeys shall be carried out under supervision of the Construction Engineer on Record (CER) or Construction Management Agency on Record (CMAR) for various seismic zones.

7.1.7.2 Certification of structural safety in construction.- CMR shall give a certificate of structural safety of construction as per Performa given **in Form- XVA** at the time of completion, stating that the building is structurally safe and the construction is in accordance with the specified designs and drawings provided by SER (as per **Clause 3.17)**.

7.1.8Quality control and inspection.- All material and workmanship shall be of good quality conforming generally to accepted standards of Public Works Department and Indian standard specification and codes as included in Part-V Building Materials and Part-VII Construction management, practices and safety of National Building Code of India.

7.1.8.1 Inspection.- All the construction for high-rise buildings higher than seven storeys, public buildings and special structures shall be carried out under quality inspection program prepared and implemented under the Building Quality Auditor (BQA) in seismic zones IV and V (as notified by the Government).

7.1.8.2 Certification of quality of construction.- Empanelled Quality Auditor on Record (QAR) shall give a certificate of quality control as per Performa given in Form- XVI

Quality Inspection Program to be carried on the site shall be worked out by BQA in consultation with the owner, builder and CMR.

Note: **Clause 7.1.7 and 7.1.8** shall not be applicable for Government buildings that are designed and constructed under the supervision of in-house architects/engineers.

7.1.9Control of signage and outdoor display structures, cell phone towers and telephone Towers.- Following provisions shall apply for telecommunication infrastructure

(a) Location: The Telecommunication Infrastructure shall be either placed on the building roof tops or on the ground or open space within the premises subject to other regulations;

(b) Type of structure;

(i). Steel fabricated tower or antennae on M.S. pole;

(ii). Pre-fabricated shelters of fibre glass or P.V.C. on the building roof top /terrace for equipment;

(iii). Masonry Structure/ Shelter on the ground for equipment; and

(iv). D.G. set with sound proof cover to reduce the noise level.

(c) Requirement:

(i). Every applicant has to obtain/ procure the necessary permission from the 'Standing Advisory Committee on Radio Frequency Allocation' (SACFA)issued by Ministry of Telecommunications;

(ii).Every applicant will have to produce the structural safety and stability certificate for the tower as well as the building from the Structural Engineer on Record (SER) which shall be the liability of both owner and SER.; and

(iii). Applicant has to produce / submit plans of structure to be erected

(d). Projection: No Pager and/or Telephone Tower shall project beyond the existing building line of the building on which it is erected in any direction.

7.2 Inspection.- The general requirement for inspection and certification of the development shall be as prescribed in **Clause no.3.10.6**

7.2.1 Maintenance of Buildings.- In case of building older than fifty years, it shall be the duty of the owner of a building, to get his building inspected by a Structural Engineer on Record (SER) within a year from the date of coming into force of these regulations. The Structural Inspection Report (Form No.16, of the MHA Expert Committee Report) shall be produced by the Owner to the Appropriate Authority. If any action, for ensuring the structural safety and stability of the building is to be taken, as recommended by SER, it shall be completed within five years. For other buildings, the owner shall get his building inspected after the age of building has crossed forty years. The procedure shall be followed as per above regulation.

7.2.2Protective Measures in Natural Hazard Prone areas.- In natural hazard, prone areas identified under the land use Zonal Regulations, structures buildings and installations which cannot be avoided, protective measures for such construction/development should be properly safeguarded based on the suggestion given in the Report of the MHA Expert Committee - Volume I.

7.3 Registration.- Registration of the required Professionals on Record (for drawings and supervision) has to be done as per the provisions of **Appendix I** and **Appendix IA**

7.4 Appointment of Professionals on Record.- The owner/promoter shall appoint the required Professionals on Record (for drawings and supervision) as per **Appendix IA** for the building licence and construction of the respective building.

7.5 Alternative Materials, Methods of Design and Construction and Tests.- The provision of the Bye-Laws is not intended to prevent the use of any material or method of design or construction not specifically prescribed by the bye-law provided any such alternative has been approved. The building materials approved by B.I.S. or any statutory body will form part of the approved building material and technology as part of the Bye-Laws.

The Authority shall promote and encourage use of Pre-fabricated factory-made building components for medium to large scale projects that have significant impact. The use of ready mix concrete (RMC) shall also be encouraged for in-situ concrete constructions.

Clause 11.2.6 may be referred for further aspects of Sustainability and incentivized promotion of alternative materials, methods in construction.

CHAPTER 8

8. LAND USE ZONES.- In order to promote public health, safety and the general social welfare of the community, it is necessary to apply control and reasonable limitation on the development of land and buildings. This is to ensure that most appropriate, economical and healthy development of the Town/City takes place in accordance with the land use plan, and its continued maintenance over the years. For this purpose, the city is divided into number of use zones, such as residential, commercial, industrial, public and semi-public etc. Each zone has its own regulations, as the same set of regulations cannot be applied to the entire Town. Zonal Regulations protects

residential areas from the harmful invasions of commercial and industrial uses and at the same time promotes the orderly development of industrial and commercial areas, by suitable regulations on spacing of buildings to provide adequate light, air, protection from fire, etc. It prevents overcrowding in buildings and on land to ensure adequate facilities and services.

Zonal Regulations are not retrospective. It does not prohibit the uses of land and buildings that are lawfully established prior to the coming into effect of the Zonal Regulations.

If the uses are contrary to the newly proposed uses, they are termed non-conforming uses and are gradually eliminated over years without inflicting unreasonable hardship upon the property owner.

The Zonal Regulations and its enforcement ensure proper land use and development and form an integral part of the Master Plan. It also ensures solutions to problems of development under local conditions.

The Master Plan along with the Zonal Regulations approved under sub section (3) of section 13 of the Karnataka Town and Country Planning Act,1961 approved by the Government, time to time shall be applicable.

CHAPTER 9

9. PROVISIONS FOR DIFFERENTLY-ABLED, ELDERLY PERSONS AND CHILDREN

9.1 Applicability.- These regulations shall be applicable to all buildings and facilities used by the public such as educational, institutional, assembly, commercial, business, mercantile buildings and group housing constructed on plots having an area of more than2000Sq.m. It shall not apply to private residential buildings.

9.2 Guidelines and Provisions

(1). Provisions in the following guidelines shall apply:

(2). 'Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons', (1998), Central Public Works Department, GoI

(3). 'Manual on Barrier Free Environment', (2002), O/o the Chief Commissioner for Persons with Disabilities, Ministry of Urban Development, GoI.

(4). 'National Building Code', (2005), Bureau of Indian Standards,

(5). 'National Policy for Persons with Disabilities', (2006), Ministry of Social Justice and Empowerment, GoI.

(6). 'Harmonized Guidelines and Space Standards for Barrier Free Built Environment for Persons with Disabilities and Elderly Persons', (Draft 2014), Ministry of urban Development, GoI.

***9.3* Types of buildings to adopt barrier free guidelines as notified by the State Government**

9.3.1Buildings to be designed for Ambulant Disabled People.- Higher Secondary School, Conference Hall, Dance Halls, Youth Centres, Youth Clubs, Sport Centres, Sport Pavilions, Boat Club Houses, Ice Rinks, Bowling Centres, Swimming Pools, Police Stations, Law Courts, Courts Houses, Sport Stadiums, Theatres, Concert Halls, Cinemas, Auditoria, Small Offices (the maximum plinth area 1400 Sq.m) Snack Bars, Cafes and banqueting rooms (for capacity above 50 dinners).

Note:

a. In sport stadiums provisions shall be made for non-ambulant spectators (small wheel chair)

b. @ 1:1000 up to 10,000 spectators and @ 1:2000 for spectators above 10,000.

c. In Theatres, Concert Halls, Cinemas and Auditoria provisions shall be made for non-ambulant spectators (Small Wheel Chairs) @ 1/250 up to 1000 spectators and 1/500 for spectators above1000.

9.3.2Buildings to be designed for Non-Ambulant Disabled People.- Schools for differently abled, Botanical Gardens, Religious Buildings, Elderly People Clubs, Village Halls, Day Centres, Junior Training Centres, Post Offices, Banks, Dispensaries, Railway Stations, Shops, Super Markets, and Departmental Stores.

Note: *Large wheel chair criteria shall be applicable on ground floors of the following building, post offices, banks, dispensaries, railway station, shops, supermarkets, and departmental stores.*

9.3.3Buildings to be designed for Non-Ambulant People (using small wheel chairs).- Public lavatories in Tourist Spots, Clubs, Motels, Professional and Scientific Institution, Museum, Art Galleries, Public Libraries, Laboratories, Universities, College for further Education, Teachers Training Colleges, Technical College, Exhibition Halls, Dentist Surgeries, Administrative Department of the Hospitals, Service Stations, Car Parking Buildings, Airports Terminals, Bus Terminals, Factories Employing differently-abled for sedentary works, Large Offices, (with plinth area above 1400 Sq.mt.), Tax Offices, Passport Offices, Pension Offices, and Labour Offices, Cafes, Banqueting Rooms and Snack Bars (For capacity above 100dinners).

9.3.4Site development.- Level of the roads, access paths and parking areas shall be described in the plan along with specification of the materials.

9.3.4.1 Access Path / Walk Way.- Access path from plot entry and surface parking to building entrance shall be minimum of 1800mm wide having even surface without any steps. Slope, if any, shall not have gradient greater than 5%. Selection of floor material shall be made suitably to attract or to guide visually impaired persons (limited to coloured floor material whose colour and brightness is conspicuously different from that of the surrounding floor material or the material that emits different sound to guide visually impaired persons; hereinafter referred 'o as 'guiding floor material'. Finishes shall have a non- slip surface with a texture traversable by a wheel chair. Kerbs wherever provided should blend to a common level.

9.3.4.2 Parking.- For parking of vehicles of differently-abled people, the following provisions shall apply:

(a) Surface parking for two car spaces shall be provided near entrance for the physically differently-abled persons with maximum travel distance of 30.0m from building entrance.

(b) The width of parking bay shall be minimum 3.6 metre.

(c) The information stating that the space is reserved for wheel chair users shall be conspicuously displayed.

d) Guiding floor materials shall be provided or a device, which guides visually impaired persons with audible signals, or other devices, which serves the same purpose, shall be provided.

9.4 Building requirements.- The specified facilities in buildings for differently abled persons shall be as follows:

9.4.1 Approach to plinth level.- Every building should have at least one entrance accessible to the differently able and shall be indicated by proper signage. This entrance shall be approached through ramp together with the stepped entry.

(1) **Ramped Approach**: Ramp shall be finished with non-slip material to enter the building. Minimum width of ramp shall be 1800mm with maximum gradient 1:12.

Length of ramp shall not exceed 9.0 metre having 800mm high hand rail on both sides extending 300mm beyond top and bottom of the ramp. Minimum gap from the adjacent wall to the hand rail shall be 50mm.

(2) **Stepped Approach**: For stepped approach size of tread shall not be less than 300mm and maximum riser shall be 150mm. Provision of 800mm high hand rail on both sides of the stepped approach similar to the ramped approach.

(3) **Exit/Entrance Door:** Minimum and clear opening of the entrance door shall be 900mm and it shall not be provided with a step that obstructs the passage of a wheelchair user. Threshold shall not be raised more than 12mm.

(4) **Entrance Landing:** Entrance landing shall be provided adjacent to ramp with the minimum dimension 1800mmx2000mm The entrance landing that adjoins the toped of a slope shall be provided with floor materials to attract the attention of visually impaired person's (limited to coloured floor material whose colour and brightness is conspicuously different from that of the surrounding floor material or the material that emits different sound to guide visually impaired persons. Finishes shall have a non-slip surface with a texture traversable by a wheel chair. Kerbs wherever provided should blend to a common level.

9.4.2 Corridor connecting the entrance/ exit for the differently abled.- The corridor connecting the entrance / exit for differently abled leading directly outdoors to a place where information concerning the overall use of the specified building can be provided to visually impaired persons either by a person or by signs, shall be provided as follows:

(a) Guiding floor materials shall be provided or device that emits sound to guide visually impaired persons;

(b) The minimum width shall be 1500mm;

(c) In case there is a difference of level, slope ways shall be provided with a slope of 1:12; and

(d) Handrails shall be provided for ramps/slope ways.

9.5 Stair-ways.- One of the stair–ways near the entrance / exit for the differently abled shall have the following provisions:

(a) The minimum width shall be 1350mm;

(b) Height of the riser shall not be more than 150 mm and width of the tread 300mm. The steps shall not have abrupt (square) nosing;

(c) Maximum number of risers on a flight shall be limited to 12; and

(d) Handrails shall be provided on both sides and shall extend 300 mm on the top and bottom of each flight of steps.

9.6 Lifts.- Wherever lift is required as per bye-laws, provision of at least one lift shall be made for the wheel chair user with the following cage dimensions of lift recommended for passenger lift of 13 person's capacity of NBC 2016, BIS. Section 4.9.3 Table no1-Desirable Lift size

Clear internal width 1100 mm
Clear internal depth 2000 mm
Entrance door width 900 mm

(a) A hand rail not less than 600mm long at 1000mm above floor level shall be fixed adjacent to the control panel;

(b) The lift lobby shall be of an inside measurement of 1800 mm x 2000 mm or more;

(c) The time of an automatically closing door should be minimum 5 seconds and the closing speed should not exceed 0.25 m/ sec;

(d) The interior of the cage shall be provided with a device that audibly indicates the floor, the cage has reached indicates that the door of the cage of entrance/exit is either open or closed; and

(e) Graphic/Braille signage, as per the Harmonized Guidelines, shall be provided in the lift lobby.

9.7 Toilets.- One special W.C. in a set of toilets shall be provided for the use of differently able with essential provision of washbasin near the entrance for the differently abled.

(a) The minimum size shall be 1500 mm x 1750 mm;

(b) Minimum clear opening of the door shall be 900mm and the door shall swing out;

(c) Suitable arrangement of vertical/horizontal handrails with 50mm clearance from wall shall be made in the toilet; and

(d) The W.C. seat shall be 500mm from the floor.

9.7.1 Provision of WCs in buildings without lift.- Provision of special W.C. shall be made on all floors for buildings designed for ambulant disabled persons. For buildings designed for non-ambulant disabled special W.C. shall be provided at Ground Floor. Size of W.C. shall depend on the type of wheel chair used by the disabled.

9.7.2 Provisions of WCs in buildings with lift.- Provision of Special W.C. shall be made on all floors. Size will depend on the category of disabled for whom it has been provided.

9.7.3 Toilet Details: For Toilets Designed for Ambulant Disabled

(1) The minimum size of W.C. shall be 1075mm x 1650mm with a minimum depth of 1450mm from entry door 900mm.

(2) Long handrail on the side closer to W.C. with a clear width between the handrails shall be 900mm and height of handrails shall be 800mm from floor level.

(3) Minimum size of the clear door opening shall be 780mm.

9.7.4 For Toilets Designed for Non-Ambulant Disabled Small Wheel Chair.- The minimum size of W.C. shall be 1350mm x 1500mm with a minimum depth of 1500 mm from entry door. 900mm long handrail on the side closer to W.C. shall be provided. To provide movement space for wheel chair, W.C. seat shall be fixed towards one side to the opposite adjacent wall. The centerline of W.C. from the adjacent wall shall be 400mm and minimum 950mm from the other wall.

Minimum size of the clear door opening shall be 780mm.

9.7.5 For Toilets Designed for Non-Ambulant Disabled Using Large Wheel Chair.- The minimum size of W.C. shall be 1500mm X 1750 mm with a minimum depth of 1750mm for entry door. 900mm long handrail on the side wall closer to W.C. shall be provided. To provide movement space for wheel chair, W.C. seat shall be fixed towards one side of the opposite wall. The centerline of the W.C. from the adjacent wall shall be 400mm and a minimum of 1100mm from the other wall. Min. size of clear door opening shall be 860mm.

9.8 Designing for Children.- In the buildings meant for the pre-dominant use of the children, it will be necessary to suitably alter the height of the handrail and other fittings and fixtures etc.

Note: Guiding / Warning Floor Material: The floor material to guide or to warn the visually impaired persons with a change of colour or material texture and easily distinguishable from the rest of the surrounding floor materials. The material with different texture gives audible signals with sensory warning when a person moves on this surface with walking stick. The guiding/warning floor material is meant to give the directional effect or warn a person at critical places. It should be provided in the following areas:

(a). The access path to the building and to the parking area.

(b). The landing lobby towards the information board, reception, lifts, staircases and toilets

(c). Immediately at the beginning/end of walkway where there is a vehicular traffic.

(d). At the location abruptly changing in level or beginning/end of a ramp.

(e). Immediately in front of an entrance/exit and the landing.

9.9 Drinking Water.- Suitable provision of drinking water shall be made for the differently abled near the special toilet provided for them.

9.10 Refuge.- An alternative to immediate evacuation of a building via staircases and/ or lifts is the movement of disabled persons to areas of safety within a building. If possible, they could remain there until the fire is controlled and extinguished or until rescued by the fire fighters.

(a) It is useful to have the provisions of a refuge area, usually at the fire protected stair landing on each floor that can safely hold one or two wheelchairs;

(b) Hand Doorways with clear opening width of 900 mm and regular compliance; and

(c) Have an alarm switch installed between 900 mm and 1200 mm from floor level.

9.11 Proper signage

(1) Appropriate identification of specific facilities within a building for the differently abled persons should be done with proper signals;

(2) Visually impaired persons make use of other senses such as hearing and touch to compensate for the lack of vision, whereas visual signals benefit those with hearing disabilities. Signs shall be designed and located so that they are easily legible by using suitable letter size (not less than 20mm high);

(3) For visually impaired persons, information board in brail should be installed on the wall at a suitable height and it should be possible to approach them closely;

(4) To ensure safe walking, there should not be any protruding sign which creates obstruction in walking;

(5) Public Address System may also be provided in busy public areas;

(6) The symbols/information should be in contrasting colour and properly illuminated because people with limited vision may be able to differentiate amongst primary colours; and

(7) International Symbol Mark for wheel chair be installed in a lift, toilet, staircase, parking areas, etc., that have been provided for the differently abled.

9.12 Public Building regulations.- In case of design regulations in ***Public buildings*** (excluding domestic buildings), provisions for differently abled shall be adopted as per **Appendix-XIV** of the byelaws and according to the ***Annex 'D' of Part 3, NBC 2016.***

CHAPTER 10

10. RAIN WATER HARVESTING

10.1 Rainwater harvesting principle.- The harvesting of rainwater simply involves the collection of water from surfaces on which rain falls, and subsequently storing this water for use. The rainwater collected can be stored for direct use or can be recharged into the underground aquifers. In scientific terms water harvesting (broadly) refers to collection and storage of rainwater from the rooftops. This also restricts evaporation and seepage into building foundations. All buildings having a plot size of 100 Sq.m or more, while submitting the building plans for sanction, shall mandatorily include the complete proposal of rainwater harvesting.

A rainwater harvesting system consists of:

(i) Roof catchment;
(ii) Gutters;
(iii) Down pipes;
(iv) Rain water/ Storm water drains;
(v) Filter chamber;
(vi) Storage Tanks/ Pits/ Sumps; and
(vii) Ground Water recharge structures like pit, trench, tube well or combination of above structure.

Rainwater Harvesting is a way to capture the rain runoff, store that water above ground or charge the underground aquifers and use it later. This happens naturally in open rural areas. But in congested, over-paved metropolitan cities, there is a need to devise methods to capture the rain water. The rainwater that is incident on the surface/ roof top is guided to bore wells or pits or new/old/ abandoned wells through Small diameter pipes to recharge the underground water which can be used later whenever required.

Rainwater can be harvested to the extent of 55,000 litres per 100Sq.m area per year from rooftops.

10.2 Rainwater harvesting techniques.- There are two main techniques of rain water harvestings.

(a). Storage of rainwater on surface for future use; and

(b). Recharge to ground water.

10.3 Harvesting provisions in various Building categories.-All buildings in a city contribute to the rainwater runoff during the monsoon and hence such runoff can be harvested for water reuse/recharge.

Rainwater harvesting in a building site includes storage or recharging into ground of rainwater falling on the terrace or on any paved or unpaved surface within the building site.

The following systems may be adopted for harvesting the rainwater drawn from terrace and the paved surface.

(a) Open well of a minimum of 1.00m dia. and 6.00m in depth into which rainwater may be channelled and allowed after filtration for removing silt and floating material. The well shall be provided with ventilating covers. The water from the open well may be used for non-potable domestic purposes such as washing, flushing and for watering the garden, etc.

(b) Rainwater harvesting for recharge of ground water may be done through a bore well around which a pit of one metre width may be excavated up to a depth of at least 3.00m and refilled with stone aggregate and sand. The filter drain water may be channelled to the refilled pit for recharging the bore well.

(c) An impervious storage tank of required capacity may be constructed in the setback or any other space and the rainwater may be channelled to the storage tank. The storage tank may be raised to a convenient height above the surface and shall always be provided with ventilating the surface and shall always be provided with ventilating covers and shall have draw off taps suitably place so that the rain water may be drawn off for domestic, washing, gardening and such other purposes. The storage tanks shall be provided with an overflow.

(d) The surplus rainwater after storage may be recharged into ground through percolation pits, trenches, or combination of pits and trenches. Depending on the geomorphologic and topographical condition, the pits may be of the size of1.20m width x 1.20m length x 2.00m to 2.50m depth. The trenches can be or0.60 m width x 2.00m to 6.00m length x 1.50m to 2.00m depth. Terrace water shall be channelled to pits or trenches. Such pits or trenches shall be back filled with filter media comprising the following materials. –

(i) 40mm stone aggregate as bottom layer up to 50% of the depth;
(ii) 20mm stone aggregate as lower middle layer up to 20% of the depth;
(iii) Course sand as upper middle layer up to 20% of the depth;
(iv) A thin layer of fine sand as top layer;
(v) Top 10% of the pits / trenches will be empty and a splash is to be provided in this portion in such a way that roof top water falls on the splash pad;
(vi) Brick masonry wall is to be constructed on the exposed surface of pits /trenches and the cement mortar plastered;
(vii)The depth of wall below ground shall be such that the wall prevents lose soil entering into pits / trenches. The projection of the wall above ground shall at least be 15 cm; and
(viii) Perforated concrete slabs shall be provided on the pits / trenches.

(e) If the open space surrounding the building is not paved, the top layer up to a sufficient depth shall be removed land refilled with course sand to allow percolation of rainwater into ground.

The terrace shall be connected to the open well / bore well / storage tank /recharge pit /trench by means of H.D.P.E. / P.V.C. pipes through filter media. A valve system shall be provided to enable the first washings from roof or terrace catchments, as they would contain undesirable dirt. The mouths of all pipes and opening shall be covered with mosquito (insect) proof wire net

For the efficient discharge of rainwater, there shall be at least two rain water pipes of 100mm dia. for a roof area of 100Sq.m Rainwater harvesting structures shall be sited as not to endanger the stability of building or earthwork. The structures shall be designed such that no dampness is caused in any part of the walls or foundation of the building or those of an adjacent building.

10.4 Rain Water Harvesting Provisions for Open spaces in cities.- The open spaces/recreational land use generally constitute regional parks, district parks, playground and stadium, sports complex, monument zones, public parking, Plaza and other public open space. This may be as high as 30% to 50% of the city's geographic area. All such public open spaces above the size of 500Sq.m shall have arrangements for complete utilization and capture of storm water with scientific rain water harvesting arrangements.

Following ideas may also be included:

(i). Well cum Channel cum Percolation pits;
(ii). Use of abandoned bore wells for recharging of ground water; and
(iii). Artificial or natural Storage of storm water runoff from larger sites.

10.5 Ground Water Recharge.- Recharging of ground water shall be made mandatory not only for residential buildings but for all types of buildings, including Group Housing Societies having a plot area more than 500 Sq.m and above. The Ground Water Recharge shall also be mandatory for

open spaces like parks, parking, plazas and playgrounds. The harvesting and recharge structures could be constructed by the Authority with the involvement of community based organizations like Resident Welfare Associations.

10.6 Enforcement and Monitoring

(1). The Authority shall constitute a Rain water Harvesting Cell which will be responsible for enforcement and monitoring of the provisions of Rain water Harvesting. The cell shall employ qualified persons who are well versed with the interpretation of Building Bye Laws and responsible for enforcement as well as monitoring the functioning of the Rainwater Harvesting System.

(2). The Authority shall include inspection of Rain water Harvesting Structures before issuing Completion Certificates or NOCs for service connections to the property.

(3). Set an example in the city by ensuring that Rain water is harvested in the properties assets owned by them including public buildings, markets, centres, parking spaces, roads and parks etc.

(4).The Authority shall also establish a mechanism to monitor 100% of RWH provisions in all the buildings above 1000Sq.m with annual physical verification, while buildings less than 1000Sq.m can be monitored on the basis of 10% random survey by competent authority

(5). With regard to open public spaces viz., Parks, playgrounds etc. the implementation of provision rainwater harvesting may be done with the help of Residents Welfare Associations, Community Building Organization and Non- Governmental Organizations.

(6). The Authority shall ensure earmarking budgetary provision for the creation and maintenance of rain water harvesting structures in public spaces owned and maintained by them, like parking spaces, parks, plazas etc.

(7). The practice of incentives and penalties to promote rain water harvesting shall be shall be as notified by the government, considering the water level and scarcity.

CHAPTER 11

11. GREEN BUILDINGS AND SUSTAINABILITY PROVISIONS.- Modern buildings consume about 25 to 30 % of total energy, and up to 30 % of fresh potable water, and generate approximately 40 % of total waste. Sustainable buildings have demonstrated reduction in energy and water consumption to less than half of the present consumption in conventional buildings, and complete elimination of the construction and operational waste through recycling.

Thus, all buildings on various plot sizes shall comply with the green norms and conform to the requirements mandatory for sanction as mentioned in this chapter.

These provisions are not specific to any rating system and are not intended to provide single metric indication of overall building performance. These provisions allow the practitioners to easily exercise their engineering judgment in holistically and objectively applying the underlying principles of sustainability to a development or building facility, considering its functionality and required comfort level.

11.1 Provision for Applicability.- The green building provisions are categorised as Mandatory provisions and Optional provisions.

The mandatory provisions shall be applicable to new buildings and existing buildings as follows;

(a) New Buildings – The provisions of this Chapter and elsewhere in these Byelaws shall be applicable.

(b) Existing Buildings

(i) Buildings for which condition for making green building provisions, in the building licence or in the NOC / Clearance given by MOEF / KSPCB were imposed-

All such provisions imposed shall be made within 6 months from the date of coming into force of these Bye-laws.

The optional provisions are additional provisions over and above the mandatory provisions to achieve better green rating for the buildings, both existing and new.

In case owners of properties desire to procure green building ratings from one or more rating bodies, they may suitably incorporate the additional provisions as notified by the Government for the additional incentives offered therein.

The green building mandatory provisions for new buildings on various plot sizes and construction areas are indicated in the **table 11.1**

Table 11.1 Provisions and applicability for various plot sizes (Residential and Non-Residential)

Plot Category	Applicable plot area (Sq.m)	Applicable construction area (Sq.m)	Provisions for Residential	Provisions for Non-Residential
I	Upto 100	Any extent	4(a)	4(a)
II	Above 100 upto 250	Above 100	1(a), 4(a)	1(a), 4(a)
III	251 to 500	101 to 250	1(a), 4(a)	1(a), 4(a)
		251 to 500	1(a),1(b), 2(a),4(a)	1(a), 4(a)
		Above 500	1(a), 1(b),2(a),4(a)	1(a),1(b),2(a), 4(a)
II	501 to 1000	101 to 250	1(a), 4(a)	1(a),4(a)
		251 to 500	1(a),1(b), 1(d),2(a), 4(a)	1(a),1(d),2(a), 4(a)
		501 to 1000	1(a),1(b), 1(d),2(a), 4(a)	1(a), 1(b), 1(d), 2(a), 4(a)
		Above 1000	1(a), 1(b), 1(d), 2(a),3(a), 3(c),4(a)	1(a),1(b),1(d), 2(a),3(a), 3(c), 4(a)
III	Above 1000	101 to 250	1(a), 4(a)	1(a), 4(a)
		251 to 500	1(a), 1(b), 1(d), 2(a), 4(a)	1(a),1(d), 2(a), 4(a)
		501 to 1000	1(a), 1(b), 1(d), 2(a), 4(a)	1(a),1(b), 1(d), 2(a), 4(a)
		1001 to 2000	1(a), 1(b), 1(d), 2(a),3(a), 3(c),4(a),4(b), 4(c)	1(a),1(b), 1(d), 2(a),3(a),3(c),4(a), 4(b), 4(c)
		2001 to 5000	1(a), 1(b), 1(d), 2(a), 2(b), 3(a), 3(b),3(c),4(a), 4(b), 4(c)	1(a),1(b), 1(d), 2(a),2(b), 3(a), 3(b), 3(c),4(a), 4(b), 4(c)
		Above 5000	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3(a),3(b), 3(c),4(a), 4(b),4(c)	1(a),1(b), 1(c), 1(d),2(a),2(b), 3(a),3(b),3(c),4(a), 4(b),4(c)

Note: (1)provisions marked 1(a), 2(b) etc. are as per* ***Clause 11.2*

(2) Area mentioned above is the total construction area including the car parking area in the building.

(3) In case the service provider has any additional conditions, the same shall be complied with respect to STP.

The schemes/ projects formulated on the basis of provisions given in Master plan/ Zonal Regulations will require approval as indicated:

EIA/ ECC (as per MoEF), NBC (latest), ECBC 2007 or latest, BEE Star rating/ LEED / IGBC/ GRIHA of TERI Certification;

EIA- Environmental Impact Assessment Study Report,
ECC- Environmental Clearance Certificate,
MoEFCC – Ministry of Environment Forest and Climate Change.
NBC – National Building Code,
ECBC – Energy Conservation Building Code,
BEE – Bureau of Energy Efficiency,
LEED – Leadership in Energy and Environment Design,
IGBC –Indian Green Building Council,
GRIHA – Green Rating for Integrated Habitat Assessment,
TERI – The Energy and Resources Institute.
The prevailing provisions of the above shall be applicable. However, if there are any modifications in the same, the modified provisions shall become automatically applicable

11.2 Provisions for Sanction of new buildings

1. Water Conservation and Management

(a) Rain Water Harvesting (as detailed in Chapter 10 and as notified by the Government);
(b) Low Water Consumption Plumbing Fixtures (as notified by the Government);
(c) Waste Water Recycle and Reuse (as notified by the Government); and
(d) Reduction of Hardscape (detailed at **Clause 11.2.1**)

2. Solar Energy Utilization

(a) Installation of Solar Assisted Water Heating Systems (detailed at **Clause 11.2.4**); and
(b) Installation of Solar Photovoltaic Panels (detailed at **Clause 11.2.3**);

3. Energy Efficiency (Concept of passive solar design of buildings

(a) Low Energy Consumption Electrical Fixtures (Electrical Appliances – BEE Star and Energy Efficient Appliances) (as notified by the Government);
(b) Energy Efficiency in HVAC systems. (as notified by the Government); and
(c) Lighting of Common areas by LED devices. (as notified by the Government)

4. Waste Management

(a) Segregation of Waste (as notified by the Government);

(b) Organic Waste Management (as notified by the Government); and

(c) Construction and demolition waste management (as notified by the Government)

11.2.1 Provision for Site level greening.- In alignment with National Sustainable Habitat Mission, the Authority shall encourage augmentation of green cover in the plot, by following:

The Urban Greening Guidelines, 2014 and other provisions as given below –

(a) Provision of minimum 1 tree / every 80S.qm of plot area for plot sizes >100 Sq.m and planted within the setback of the plot;

(b) Compensatory Plantation for felled/transplanted tress in the ratio 1:3 within the premises under consideration;

(c) Choice of species for plantation in site and abutting the road to be adopted as per Section 8 of the Urban Green Guidelines, 2014; and

(d) The unpaved area shall be more than or equal to 20% of the open spaces provided.

11.2.2 Water Re-use and Recycling.- The recycled water should be used for flushing, HVAC, cleaning of non-living areas and horticultural purposes.

11.2.3 Roof Top Solar Energy Installations.- Roof top photovoltaic power station, or rooftop PV system, is a photovoltaic system that has its electricity-generating solar panels mounted on the rooftop of residential or commercial buildings. The various components of such a system include photovoltaic modules, mounting systems, cables, solar inverters and other electrical accessories. Rooftop PV systems are faster than other types of renewable power plants. They're clean, quiet, and visually unobtrusive.

The norms for Roof Top Solar PV Installation and Generation for residential and non-residential buildings as per the area standards mentioned in **Table 11.1** shall be as follows and in compliance with the requirements as notified by the Government.

Minimum 5% of the consumed electrical load (excluding the electrical load required for hot water generation, if applicable) or 7.75 W/Sft (derived @ 12Sqm per 1 KWP as suggested by the Ministry of New and Renewable energy) for 'available roof space', whichever is less.

The estimated consumed power load (at the time of applying for building sanction), to derive the required Roof Top Solar PV Installation, may be calculated as notified by the government, provided that the Owner / Promoter submits an affidavit / undertaking that if the actual consumed load during operation is more than the estimated power load, the owner / promoter shall provide the required additional roof top Solar PV installation as mentioned above. The promoter shall be responsible for the initial five years of operation and the owner/s shall be responsible for the remaining period of operation of the building.

Note: 'Available roof space' = 70% of total area of roof / terrace, considering 30% area reserved for residents' amenities.

If solar heating panels are erected on the roof, the same shall be part of the Available roof space and the balance area (after deducting the area covered by solar water heating panels) shall only be considered for Solar PV panels.

11.2.4 Installation of Solar Assisted Water Heating System in Building.- No new building in the categories mentioned in **Table 11.1** in which there is a system of installation for supplying hot water shall be built unless the system of the installation is having an auxiliary solar assisted water heating system. Wherever hot water requirement is continuous, auxiliary heating arrangement either with electric elements or oil of adequate capacity can be provided.

Clearance of plan for the construction of new buildings of the aforesaid categories shall only be given if they have a provision in the building design itself for an insulated pipeline from the rooftop in the building to various distribution points where hot water is required. The building must have a provision for continuous water supply to the solar water heating system. The building should also have open space on the rooftop, which receives direct sunlight. The load bearing capacity of the roof should at least be 50 kg/Sq. All new buildings of above said categories must complete installation of solar water heating systems before obtaining necessary licence to commence their business.

The capacity and specifications of the Solar Assisted Water Heating Systems shall be as notified by the Government.

Energy efficient alternate heating systems involving heat pumps etc. or normal electric geysers may also be permitted for hot water generation, provided that additional Solar PV Installation is done in the building for the additional power consumed for operating such energy efficient hot water generating system / electric geysers, over and above the Solar PV installation required to be provided as per **clause 11.2.3**. If the available roof space is not sufficient to provide the additional Roof top solar PV installation equivalent to the additional power consumed for hot

water generation, the shortfall shall be substituted through solar PV installations elsewhere in the plot or through 'Off site solar power generation'.

Note: 'Off site solar power generation' means the solar power generated outside the plot by the owner / promoter or purchase of Solar power from third party Solar power generators through a power purchase agreement made between such agency and the owner / promoter to purchase solar power equivalent to the shortfall of solar power generation within the plot (required for the additional electric power consumed for hot water generation).

11.2.5 Sustainable Solid Waste Management.- ***Zero Waste*** is a concept of waste management and planning approaches that emphasize waste prevention as opposed to end waste management. This means restructuring production and distribution systems, designing and managing products and processes to systematically follow the 3R rule of Reduce, Re-use and Re-cycle the volume of waste, to conserve and recover all used resources, and therefore eliminating all discharges to landfills, and prevent air, water and land pollution.

Zero Waste/ land- fill can be achieved by adopting systematic approach of segregation at source by planning, by collection facilitation and most importantly by creating public awareness.

The green waste can be converted into fuel cakes, kitchen waste into manure, construction and demolition waste into bricks, plastic waste into oil, paper, glass and steel back into the same and all residual inert materials can also be converted into bricks.

The process to be adopted by the Authority and the Owner / Promoter of the buildings categorised in T**able 11.1** for Solid waste management shall be as notified by the Government.

11.2.6 Sustainability of Building Materials.- Sustainability of natural resources for building materials shall be ensured through conservation of available natural resources and use of supplementary materials such as industrial/agricultural by-products, renewable resources, factory-made building components and recycled construction and demolition waste. Supplementary building materials (derived or processed waste) shall be suitably used in combination with conventional resources offers dual advantages in purview of health and environmental benefits.

Use of Factory made pre-fab/pre-cast and recycled components with Green benefits:

(a) Panels, hollow slabs, hollow blocks–etc. - conservation of materials, less water requirement;
(b) Fly Ash bricks, Portland Pozzolana cement, Fly ash concrete, phosphor gypsum based walling and roofing panels, particle wood – recycled use of industrial/agricultural by-products.
(c) Fly ash/ AAC (Autoclaved aerated light weight concrete) panels/ CLC (Cellular light weight concrete) panels- ensures thermal comfort (significant reduction in air conditioning requirement); and
(d) Use of bamboo and rapidly growing plantation timbers- environmental benefits. Local materials are generally suitable for prevailing geo-climatic conditions and have advantage of low transportation cost and time. Sustainable use of building materials shall be encouraged which may combine certain mandatory provisions and incentives.

The above provision is not included in the mandatory provisions but to avail additional incentives the above provision may be adopted.

11.2.7 Sustainable Construction and Demolition (C&D) Waste Management.- The process to be adopted by the ULBs and the owner / promoter of the buildings for C&D waste management shall be as notified by the Government.

11.3 Various Guidelines for Green Rating System.- The Government shall notify separate **Green Rating** systems for buildings by selectively combining/adopting/amending the provisions between the following guidelines:

(1). IGBC guidelines by the Confederation of Indian Industries.
(2). GRIHA guidelines by the Ministry of New and Renewable Energy, GoI. In pursuance of the **National Sustainable Habitat Mission** on Energy Efficiency in Buildings, the Authority shall encourage the provisions of the following Energy efficiency guidelines by certain mandatory provisions and incentives-
(3). ECBC guidelines prepared by Bureau of Energy Efficiency, Ministry of Power GoI
(4). Model Energy Efficiency guidelines. (NSMH Sub report by Bureau of Energy Efficiency)

CHAPTER 12

12. FIRE PROTECTION AND FIRE SAFETY REQUIREMENTS

12.1 Scope.-This part covers the requirements of the fire protection for the multi-storeyed buildings (high rise buildings) and the buildings, which are of 15m and above in height and low occupancies of categories such as Assembly, Institutional, Educational (more than two storeyed and built-up area exceeds 1000Sq.m), Business (where plot area exceeds 500Sq.m), Mercantile (where aggregate covered area exceeds 750Sq.m), Hotel, Hospital, Nursing Homes, Underground Complexes, Industrial Storage, Meeting/Banquet Halls, Hazardous Occupancies.

12.2 Procedure for obtaining NOC and Clearance Certificate from DFES.- The procedure of obtaining NOC from Department of Fire and Emergency Services (DFES) is detailed in **clause no. 3.10.5** and the procedure of obtaining Clearance Certificate is detailed in **Clause no. 3.17**

12.3 Renewal of fire clearance.- On the basis of undertaking given by the Applicant and the professional on record, the Chief Fire Officer shall renew the fire clearance in respect of all High-Rise buildings on annual Basis

12.4 Fee.- For augmentation of fire service facilities for effecting rescue/fire fighting operation in high rise building, fee payable to Chief Fire Officer by the applicant(s) along with sets of plans for obtaining the No Objection Certificate shall be as notified by the Government.

12.5 Responsibility of providing Fire Protection and Fire Fighting Measures.- The engaged Competent Professional on record for preparation of plans for NOC and the professional on record for supervising the works (as per **Appendix-I)** of the project shall be responsible for making provisions for fire protection and fire fighting measure as provided in this Chapter.

12.6 Terminology.- For the purpose of this Chapter all the technical terms shall have the meaning as defined in National Building Code of India, Part-IV, Fire Protection as amended from time to time but for the terms which are defined otherwise in these bye-Laws.

12.7 General .- The DFES may insist on suitable provisions in the buildings from fire safety and means of escape point of view depending on the occupancy, height or on account of new developments creating special fire hazard, in addition to the provision of these building bye laws and part IV (Fire Protection) of National Building Code of India, which are not contradicting to the provision of the Zonal Regulations.

12.7.1 Fire Resistance of Types of Constructions / Building Components.- The fire resistance ratings for various types of construction for structural and non-structural members shall be as given in Table 1 of Part-4 of the NBC, 2005.Building elements/components such as walls, columns, beams and floors shall have the requisite fire resistance rating in accordance with the accepted standards as specified in Part-4 of the NBC 2016.

12.7.2 Means of Access .- As provided in Zonal Regulations.

12.7.3 Provisions of Exterior Open Spaces around the building.- As provided in Zonal Regulations

12.7.4 Exit Requirement

As provided in Section 4.2 of Part 4, NBC 2016

As provided in Section 4.2 of Part 4, NBC 2016

Type of Exits: As provided in Section 4.2 of Part 4, NBC 2016

Number of Size of Exits: As provided in Section 4.4.2.1 of Part 4, NBC 2016.

Arrangements of Exits: As provided in Section4.4.2.2 of Part 4, NBC 2016

Occupant Load: As provided in Section 4.3 of Part 4, NBC 2016.

Capacity of Exit: As provided in Section4.4.2.3 of Part 4, NBC 2016

Staircase Requirements: As provided in Section 4.4.2.4.3 of Part 4, NBC 2016.

Minimum Width Provision for Stairways: As provided in Section 4.4.2.4.3.2 of Part 4, NBC 2016

Minimum Width Provision for Passageway/Corridors: As provided in Section 4.4.2.4.2 of Part 4, NBC 2016

Doorways: As provided in Section 4.4.2.4.1of Part 4, NBC 2016

Stairways: As provided in Section 4.4.2.4.3.2 of Part 4, NBC 2016

12.8 Fire Escapes or External Stairs:

(1) Fire escape including Occupant load and Travel distance shall not be taken into account while calculating the number of staircases for a building.
(2) All fire escapes shall be directly connected to the ground.
(3) Entrance to the fire escape shall be separate and remote from internal staircase.
(4) The route to fire escape shall be free of obstructions at all times except the doorway leading to the fire escape which shall have the required fire resistance.
(5) Fire escape shall be constructed of non-combustible materials.
(6) Fire escape stairs shall have straight flight not less than 125cm wide with 25cm treads and risers not more than 19cm.
(7) Handrails shall be at a height not less than 100cm.
(8) Fire escape staircase in the mercantile, business, assembly, hotel buildings above 24m height shall be a fire tower and in such a case width of the same shall not be less than the width of the main staircase. No combustible material shall be allowed in the fire tower.

12.8.1 Spiral Stairs

(1) The use of spiral staircase shall be limited to low occupant load and to building height of 9m.; and

(2) A spiral stair shall not be less than 150cm in diameter and shall be designed to give the adequate headroom.

12.8.2 Staircase Enclosures

(1) The external enclosing walls of the staircase shall be of the brick or the R.C.C. Construction having fire resistance of not less than two hours. All enclosed staircases shall have access through self-closing door of one-hour fire resistance. These shall be single swing doors opening in the direction of the escape. The door shall be fitted with the check action door closers;

(2) The staircase enclosures on the external wall of the building shall be ventilated to the atmosphere at each landing;

(3) Permanent vent at the top equal to the 5% of the cross-sectional area of the enclosure and openable sashes at each floor level with area equal to 1 to 15% of the cross-sectional area of the enclosure on external shall be provided. The roof of the shaft shall be at least 1m above the surrounding roof. There shall be no glazing or the glass bricks in any internal closing wall of staircase. If the staircase is in the core of the building and cannot be ventilated at each landing, a positive of 5-mm e.g. by electrically operated blower/blowers shall be maintained.; and

(4) The mechanism for pressurizing the staircase shaft shall be so installed that the same shall operate automatically on fire alarm system/sprinkler system and be provided with manual operation facilities.

12.8.3 Ramps

(1) Ramps of slope of not more than 1 in 8 may be substituted for and shall comply with all the applicable requirements of all required stairways as to enclosure capacity and limiting dimensions. Larger slopes shall be provided for special uses but in no case greater than 1 in 8. For all slopes exceeding 1 in 10and where the use is such as to involve danger of slipping, the ramp shall be surfaced with approved non-slipping material;

(2) The minimum width of the ramps in the Hospitals shall be 2.4m and in the basement using car parking shall be 6.0m or as specified in the Zonal Regulations.;

(3) Handrails shall be provided on both sides of the ramp;

(4) Ramp shall lead directly to outside open space at ground level or courtyards of safe place;

(5) For building above 24.0m in height, access to ramps from any floor of the building shall be through smoke fire check door.

(6) In case of nursing homes, hospitals etc. area exceeding 300Sq.m at each floor one of the exit facility shall be a ramp of not less than 2.4 m in width.

12.9 Provision of lifts

(1) Provision of the lifts shall be made for all multi-storeyed building having a height of 15.0 m and above;

(2) All the floors shall be accessible for 24 hours by the lift. The lift provided in the buildings shall not be considered as a means of escape in case of emergency;

(3) Grounding switch at ground floor level to enable the fire service to ground the fire man lift car in case of emergency shall also be provided; and

(4) The lift machine room shall be separate and no other machinery be installed in it.

(5) The Karnataka Lifts Escalators and Passenger Conveyors Act, 2012 shall also be complied with.

12.9.1 Lift Enclosure / Lift.- General requirements shall be as follows

(a) Walls of lift enclosures shall have a fire rating of two hours. Lift shafts shall have a vent at the top of area not less than 0.2Sq.m

(b) Lift motor room shall be located preferably on top of the shaft and separated from the shaft by the floor of the room (not applicable for machine room less lifts);

(c) Landing door in lift enclosures shall have a fire resistance of not less than one hour;

(d) The number of lifts in one lift bank shall not exceed four. A wall of two hours fire rating shall separate individual shafts in a bank;

(e) Lift car door shall have a fire resistance rating of 1 hour;

(f) For buildings 15.0m and above in height, collapsible gates shall not be permitted for lifts and solid doors with fire resistance of at least one hour shall be provided.

(g) If the lift shaft and lobby is in the core of the building a positive pressure between 25 and 30 pa shall be maintained in the lobby and a possible pressure of 50 pa shall be maintained in the lift shaft. The mechanism for the pressurization shall act automatically with the fire alarm/sprinkler system and it shall be possible to operate this mechanically also;

(h) Exit from the lift lobby, if located in the core of the building, shall be through a self-closing fire smoke check door of one-hour fire resistance;

(i) Lift shall not normally communicate with the basement. If, however, lifts are in communication, the lift lobby of the basement shall be pressurized as in (g) with self-closing door as in (h);

(j) Grounding switch (es), at ground floor level shall be provided to enable the fire service to ground the lifts;

(k) Telephone/talk back communication facilities may be provided in lift cars for communication system and lifts shall be connected to the fire control room of the building;

(l) Suitable arrangements such as providing slope in the floor of the lift lobby shall be made to prevent water used during fire fighting, etc. at any landing from entering the lift shafts;

(m) A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the location of the stairways. Floor marking shall be done at each floor on the wall in front of the lift-landing door; and

(n) Alternate power supply shall be provided in all the lifts.

12.9.2 Fire Lift.- Following details shall apply for a fire lift in addition to above requirements:

(a) To enable fire service personnel to reach the upper floors with the minimum delay, one or more of the lifts shall be so designed so as to be available for the exclusive use of the fireman in an emergency and be directly accessible to every dwelling/lettable floor space on each floor;

(b) The lift shall have a floor area of not less than 1.4Sq.m It shall have a loading capacity of not less than 545kg. (8 persons lift) with automatic closing doors.

(c) The electric supply shall be on a separate service from electric supply mains in a building and the cables run in a route safe from fire that is within a lift shaft. Lights and fans in the elevator having wooden panelling or sheet steel construction shall be operated on 24-volt supply;

(d) In case of failure of normal electric supply, it shall automatically switch over to the alternate supply. For apartment houses, this changeover of supply could be done through manually operated changeover switch. Alternatively, the lift should be so wired that in case of power failure, it comes down at the ground level and comes to stand still with door open;

(e) The operation of a fire lift shall by a single toggle of two-button switch situated in a glass-fronted box adjacent to the lift at the entrance level. When the switches on landing; call points will become inoperative and the lift will be on car control only or on a priority control device. When the switch is off, the lift will return to normal working. This lift can be used by the occupants in normal times;

(f) The words 'F1RE LIFT' shall be conspicuously displayed in fluorescent paint on the lift landing doors at each floor level; and

(g) The speed of the fire lift shall be such that it can reach to the top floor from ground level within one minute.

12.10 Basement.- As provided in **Clause 5.1.9 and 6.4.5** of these Building Bye-Laws.

12.10.1 Requirements

(1) The access to the basement shall be either from the main or alternate staircase providing access and exit from higher floors. Where the staircase is continuing, the same shall be enclosed type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of the (4).

(2) In case of basement for office, sufficient number of exit ways and access ways shall be provided with a travel distance not more than 15.0m The travel distance in case of dead-end shall be 7.5m.

(3) The basement shall be partitioned and in no case compartment shall be more than 500Sq.m and less than 50Sq.m area except parking. Each compartment shall have ventilation standards as laid down in Bye-Laws separately and independently. The partition shall be made in consultation with Chief Fire Officer.

(4) The first basement (fully below ground level) can be used or services/parking/other permissible services. Lower basements, if provided, shall exclusively be used for the uses permitted in the Zonal Regulations only.

(5) Each basement shall be separately ventilated. Vents with cross-sectional area (aggregate) not less than 2.5 percent of the floor area spread evenly round the perimeter of the basement shall be provided in the form of grills or breakable starboard lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and extracts may be terminated at ground level with starboard or pavement lights as before. But ducts to convey fresh air to the basement floor level have to be laid. Starboard and pavement lights shall be in positions easily accessible to the firemen and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.

(6) The staircase of basement shall be of enclosed type having fire resistance of not less than two hours and shall be situated at the periphery of the basement to be entered at ground level only

from the open air and in such positions that smoke from any fire in the basement shall not obstruct any exit serving the ground and upper stories of the building and shall communicate with basement through a lobby provided with fire resisting self-closing door of one hour rating. In case of basement being used as car parking only, the travel distance shall be 45m.

(7) In multi-storeyed basements, intake duct may serve all basements levels, but each basement and basement compartment shall have separate smoke outlet duct or ducts. Mechanical extractors for smoke venting system from lower basement levels shall also be provided. The system shall be of such design as to operate on actuation of smoke, heat sensitive detectors/sprinklers, if installed, and shall have a considerably superior performance compared to the standard units. It shall also have an arrangement to start it manually.

(8) Mechanical extractors shall have an internal locking arrangement so that extractors shall continue to operate and supply fans shall stop automatically with the actuation of fire detectors. Mechanical extractors shall be designed to permit 30 air changes per hour in case of fire or distress call. However, for normal operation, only 30 air changes or any other convenient factor can be maintained.

(9) Mechanical extractors shall have an alternate source of power supply.

(10) Ventilating ducts shall be integrated with the structure and made out of brick masonry or RCC as far as possible and when this duct crosses the transformer area of electrical switchboard, fire dampers shall be provided.

(11) Kitchens working on gas fuel shall not be permitted in basement/sub-basement.

(12) If cut-outs are provided from basement to the upper floors or to the atmosphere, all side cut-out openings in the basements shall be protected by sprinkler headset closed spacing so as to form a water curtain in the event of a fire.

(13) Dewatering pump shall be provided in all bases.

12.11 Provision of helipad.- All high-rise buildings of height 200 m and above shall have provision for a Helipad as per **clause no 6.5.8** of the Bye-Laws. The same shall be approved by the Authority.

12.12 Service ducts/refuge chute

(a) Service duct shall be enclosed by walls and door, if any, of 2 hours fire rating. If ducts are larger than 10Sq.m the floor shall seal them, but provide suitable opening for the pipes to pass through, with the gaps sealed.

(b) A vent opening at the top of the service shaft shall be provided between one fourth and one-half of the area of the shaft. Refuge chutes shall have an outlet at least of wall of non-combustible material with fire resistance of not less than two hours. They shall not be located within the staircase enclosure or service shafts or air-conditioning shafts. Inspection panel and door shall be tight fitting with 1 hour fire resistance; the chutes should be as far away as possible form exits.

(c) Refuge chutes shall not be provided in staircase walls and A/C shafts etc.

12.12.1 Electrical services.- Electrical Services shall conform to the following:

a) The electric distribution cables/wiring shall be laid in a separate duct shall be sealed at every floor with non-combustible material having the same fire resistance as that of the duct. Low and medium voltage wiring running in shaft and in false ceiling shall run in separate conduits;

b) Water mains, telephone wires, inter-com lines, gas pipes or any other service lines shall not be laid in ducts for electric cables;

c) Separate conduits for water pumps, lifts, staircases and corridor lighting and blowers for pressuring system shall be directly from the main switch panel and these circuits shall be laid in separate conduit pipes, so that fire in one circuit will not affect the others. Master switches controlling essential service circuits shall be clearly labelled;

d) The inspection panel doors and any other opening in the shaft shall be provided with airtight fire doors having fire resistance of not less than 1 hour;

e) Medium and low voltage wiring running in shafts and within false ceiling shall run in metal conduits. Any 230-voltage wiring for lighting or other services, above false ceiling should have 660V grade insulation. The false ceiling including all fixtures used for its suspension shall be of non-combustible material;

f) An independent and well-ventilated service room shall be provided on the ground floor with direct access from outside or from the corridor for the purpose of termination of electrical supply from the licenses service and alternative supply cables. The doors provided for the service room shall have fire resistance of not less than 1 hour; and

g) Miniature circuit breakers (MCB) and Earth leakage circuit breaker (ELCB)shall be provided for electrical circuit.

12.13 Staircase and corridor lights.-The staircase and corridor lighting shall be on separate circuits and shall be independently connected so that it could be operated by one switch installation on the ground floor easily accessible to fire fighting staff at any time irrespective of the position of the individual control of the light points, if any. It shall be of miniature circuit breaker type of switch so as to avoid replacement of fuse in case of crisis.

(a) Staircase and corridor lighting shall also be connected to alternate source of power supply;

(b) Suitable arrangement shall be made by installing double throw switches tonsure that the lighting installed in the staircase and the corridor does not get connected to two sources of supply simultaneously. Double throw switch shall be installed in the service room for terminating the stand by supply; and

(c) Emergency lights shall be provided in the staircase and corridor.

12.14 Air-conditioning

(1) Air- conditioning system should be installed and maintained so as to minimize the danger of spread of fire, smoke or fumes thereby from one floor of fire area to another or from outside into any occupied building or structure. –

(2) Air -Conditioning systems circulating air to more than one floor area should be provided with dampers designed to close automatically in case of fire and thereby prevent spread of fire or smoke. Such a system should also be provided with automatic controls to stop fans in case of fire, unless arranged to remove smoke from a fire, in which case these should be designed to remain in operation.

(3) Air- conditioning system serving large places of assembly (over one thousand persons), large departmental stores, or hostels with over 100 rooms in a single block should be provided with effective means for preventing circulation of smoke through the system in the case of fire in air filters or from other sources drawn into the system even though there is insufficient heat to actuate heat smoke sensitive devices controlling fans or dampers. Such means shall consist of approved effective smoke sensitive controls.

12.15.1 Details of Air- Conditioning

Air-conditioning shall conform to the following:

(a) Escape routes like staircase, common corridors, lift lobbies; etc. should not be used as return air passage;

(b) The ducting shall be constructed of metal in accordance with BIS 655:1963;

(c) Wherever the ducts pass through fire walls or floor, the opening around the ducts should be sealed with fire resisting material of same rating as of walls/floors;

(d) Metallic ducts should be used even for the return air instead of space above the false ceiling;

(e) The material used for insulating the duct system (inside or outside) should be of flame resistant (IS 4355: 1977) and non- conductor of heat;

(f) Area more than 750Sq.m on individual floor shall be segregated by a firewall and automatic fire dampers for isolation shall be provided.

(g) In case of more than one floor, arrangement by way of automatic fire dampers for isolating the ducting at every floor from the floor shall be made. Where plenums used for return air passage, ceiling and its features and air filters of the air handling units, these shall be flame resistant. Inspection panels shall be provided in the main trenching. No combustible material shall be fixed nearer than 15cm to any duct unless such ducting is properly enclosed and protected with flame resistant material; and

(h) In case of buildings more than 24m in height, in non-ventilated lobbies, corridors, smoke extraction shaft shall be provided.

12.15.2 Fire Dampers

(1) These shall be located in air ducts and return air ducts/passages at the following points:

(a) At the fire separation wall;

(b) Where ducts/passages enter the central vertical shaft;

(c) Where the ducts pass through floors;

(d) At the inlet of supply air duct and the return air duct of each compartment on every floor.

(2) The dampers shall operate automatically and shall simultaneously switch off the air-handling fans. Manual operation facilities shall also be provided.

Note: *For blowers, where extraction system and dust accumulators are used, dampers shall be provided.*

(3) Fire/smoke dampers (for smoke extraction shafts) for building more than 24m height.

For apartment houses in non-ventilated lobbies/corridor operated by detection system and manual control sprinkler system. For other buildings, on operation of smoke/heat detection system and manual control/sprinkler system.

(4) Automatic fire dampers shall be so arranged so as to close by gravity in the direction of air movement and to remain tightly closed on operation of a fusible link.

12.16 Boiler Room.- Provisions of boiler and boiler rooms shall conform to Indian Boiler Act, 2007.

Further, the following additional aspects may be taken into account in the location of boiler/ boiler room –

(a) The boiler shall not be allowed in sub-basement, but may be allowed in the basement away from the escape routes;
(b) The boilers shall be installed in a fire resisting room of 4 hours' fire resistance rating, and this room shall be situated on the periphery of the basement. Catch pits shall be provided at the low level;
(c) Entry to this room shall be provided with a composite door of 2 hours' fire resistance;
(d) The boiler room shall be provided with fresh air inlets and smoke exhaust directly to the atmosphere;
(e) The furnace oil tank for the boiler if located in the adjoining room shall be separated by fire resisting wall of 4 hours rating. The entrance to this room shall be provided with double composite doors. A curb of suitable height shall be provided at the entrance in order to prevent the flow of oil into boiler room in case of tank rupture; and
(f) Foam inlets shall be provided on the external walls of the building near the ground level to enable the fire services to use foam in case of fire.

12.17 Alternate source of electric supply.- A stand by electric generator shall be installed to supply power to staircase and corridor lighting circuits, lifts detection system, fire pumps, pressurization fans and bowlers, Public Address (PA) system, exit sign, smoke extraction system, in case of failure of normal electric supply. The generator shall be capable of taking starting current of all the machines and circuits stated above simultaneously. If the standby pump is driven by diesel engine; the generator supply need not be connected to the standby pump. The generator shall be automatic in operation.

12.18 Safety measures in electric sub-station

(1) Clear independent approach to the sub-station from outside the building shall be made available round the clock;

(2) The approaches/corridors to the sub-station area shall be kept clear for movement of men and material at all times;

(3) The sub-station space is required to be provided with proper internal lighting arrangements.

(4) In addition to natural ventilation proper ventilation to the sub-station area is to be provided by grill shutters and exhaust fans at suitable places so as to discharge all smoke from the sub-station without delay in case of fire so that sub-station operations can be carried out expeditiously;

(5) Cable trenches of 0.6m X 0.6m dummy floor of 0.6m depth shall be provided to facilitate laying of cable inside the building for connecting to the equipment.

(6) Steel shutters of 8'X 8' with suitable grills shall be provided for transformers and sub-station room;

(7) The floor of the sub-station should be capable of carrying 10 tons of transformer weight on wheels;

(8) Built up substation space is to be provided free of cost;

(9) Sub-station space should be clear from any water, sewer, air conditioning, and gas pipe or telephone services. No other service should pass through the sub-station space or the cable trenches;

(10) Proper ramp with suitable slope may be provided for loading and unloading of the equipment and proper approach will be provided;

(11) RCC pipes at suitable places as required will be provided for the cable entries to the sub-station space and making suitable arrangement for non-ingress of water through these pipes;

(12) The sub-station space is to be provided in the approved/sanctioned covered area of the building;

(13) Any other alteration /modification required while erection of the equipment will be made by the Owner / builder at site as per requirement;

(14) Adequate arrangement for fixing chain pulley block above the fixing is available for load of 15 tons;

(15) Provision shall be kept for the sumps so as to accommodate complete volume of transformer oil, which can spill over in the event of explosion of the transformer in the basement of the building. Sufficient arrangement should exist to avoid fire in the sub-station building from spread of the oil from the sumps;

(16) Arrangement shall be made for the provision of fire retardant cables so as to avoid chances of spread of fire in the sub-station building;

(17) Sufficient pumping arrangement should exist for pumping the water out, in case of fire so as to ensure minimum loss to the switchgear and transformer;

(18) No combustible material shall be stacked inside the substation premises or in the vicinity to avoid chances of fire;

(19) It should be made mandatory that the promoters of the multi-storeyed building shall get substation premises inspected once a year to get their license revalidated for the provision of electric supply from Electricity Board so that suitable action can be taken against the Owner / Builder in case of non- implementation of Bye-Laws;

(20) The sub-station must not be located below the 1st basement and above the ground floor;

(21) The sub-station space should be totally segregated from the other areas of the basement by fire resisting wall. The ramp should have a slope of 1:10 with entry room ground level. The entire Sub-station space including the entrance in ground floor is handed over to the licensee of electricity free of cost and rent;

(22) The sub-station area shall have a clear height of 15feet (4.5m) below beams. Further the Sub-station area will have level above the rest of basement level by 2feet

(23) It is to be ensured that the Sub-station area is free of seepage / leakage of water;

(24) The licensee of electricity will have the power to disconnect the supply of the building in case of violation of any of the above points. However, provision of emergency lights has to be made in the sub-station for emergency operations;

(25) Electric sub-station enclosure must be completely segregated with 4-hoursfire rating wall from remaining part of basement;

(26) The sub-station should be located on periphery /sub-basement and (not aboveground floor);

(27) Additional exit shall be provided if travel distance from farthest corner tramp is more than 15m.

(28) Perfect independent vent system 30 air changes per hour linked with detection as well as automatic high velocity water spray system shall be provided;

(29) All the transformers shall be protected with Nitrogen Injection System Carbon Dioxide total flooding system in case of oil filled transformer. In addition to this, manual control of auto high velocity spray system for individual transformers shall be located outside the building at ground floor;

(30) Suitable arrangement for pump house, water storage tanks with main electrical pump and a diesel-operated pump shall be made if no such arrangement is provided in the building. In case the water pumping facilities are existing in the building for sprinkler system, the same should however be utilized for high velocity water spray system. Alternatively, automatic CO2 total flooding system shall be provided with manual controls outside the electric sub-station;

(31) System shall have facility to give an audio alarm in the basement as well as at the control room;

(32) Fire control room shall be manned round the clock;

(33) The electric sub-station shall have electric supply from alternate source for operation of vent System lighting arrangements;

(34) Cable trenches shall be filled with sand;

(35) Partition walls shall be provided between two transformers as per the rules;

(36) Electric control panels shall be segregated;

(37) Exits from basement electric substation shall have self-closing fire smoke check doors of 2-hours fire rating near entry to ramp;

(38) All openings to lower basement or to ground floor shall be sealed properly;

(39) Yearly inspection shall be carried out by electrical load sanctioning Authority;

(40) Ramp to be designed in a manner that in case of fire no smoke should enter the main building;

(41) Electric sub-station transformer shall have clearance on all sides as per BBL/relevant electric rules;

(42) Other facility will be as per Building Bye-Laws and relevant electric rules;

(43) Rising electrical mains shall consist of metal bus bars suitably protected from safety point of view; and

(44) Oil less transformer shall be preferred. If the sub-station is located in basement / ground floor of the main building, the transformers shall be essentially of dry type. In case of dry type transformer room with wall enclosure is not essential.

Note: The sub-station installations shall be carried out in conformity with the local fire regulations and rules there under wherever they are in force. At other places NBC guidelines shall be followed.

12.19 Fire protection requirements.-Buildings shall be planned, designed and constructed to ensure fire safety and thissha11 be done in accordance with part 4 Fire Protection of NBC, 2016 of India, unless otherwise specified in the Zonal Regulations and these Bye-Laws. In the case of High Rise buildings NOC and Clearance Certificate has to be obtained from DFES.

12.19.1 First Aid /Fixed Fire Fighting /Fire Detection Systems and other Facilities.-Provision of fire safety arrangement for different occupancy from Sl. No. 1 to 23 as indicated below shall be as per **Annexure 'B-I' 'B-II' and 'B-III'**.

(1) Access;
(2) Wet Riser;
(3) Down Comer;
(4) Hose Reel;
(5) Automatic Sprinkler System;
(6) Yard Hydrant;
(7) U.G. Tank with Draw off Connection;
(8) Terrace Tanks;
(9) Fire Pump;
(10) Terrace Pump;
(11) First Aid Fire Fighting Appliances;
(12) Auto Detection System;
(13) Manual operated Electrical Fire Alarm System;
(14) P.A System with talk back facility;
(15) Emergency Light;
(16) Auto D.G. Set;
(17) Illuminated Exit Sign;
(18) Means of Escape;
(19) Compartmentation;
(20) MCB /ELCB;
(21) Fire Man Switch in Lift;
(22) Hose Boxes with Delivery Hoses and Branch; and
(23) Pipes Refuge Area

12.19.1.1 Note for Annexure 'B-I' 'B-II' and 'B-III'

(1) Where more than one riser is required because of large floor area, the quantity of water and pump capacity recommended in these Annexure should be finalized in consultation with Chief Fire Officer;

(2) The above quantities of water shall be exclusively for fire fighting and shall note utilized for domestic or other use;

(3) A facility to boost up water pressure in the riser directly from the mobile pump shall be provided in the wet riser, down comer system with suitable fire service inlets (collecting head) with 2 to 4 numbers of 63mm inlets for 100-200mm dia. main, with check valve and a gate valve.

(4) Internal diameter of rubber hose for reel shall be minimum 20mm. A shut off branch with nozzle of 5mm size shall be provided;

(5) Fire pumps shall have positive suctions. The pump house shall be adequately ventilated by using normal/mechanical means. A clear space of 1.0m shall be kept in between the pumps and enclosure for easy movement/maintenance. Proper testing facilities and control panel etc. shall be provided;

(6) Unless otherwise specified in Bye-Laws, the fire-fighting equipment's/ installation shall conform to relevant Indian Standard Specification;

(7) In case of mixed occupancy, the fire-fighting arrangement shall be made as per the highest class of occupancy, unless fire separation walls are provided between different occupancies; and

(8) Requirement of water based first aid fire extinguishers shall be reduced to half if hose reel is provided in the Building.

12.20 Static water storage tank

(a) A satisfactory supply of water exclusively for the purpose of fire fighting shall always be available in the form of underground static storage tank/ Overhead tank with capacity specified in NBC 2016 with arrangements of replenishment by town's main or alternative source of supply @

1000 litres per minute. The static storage water supply required for the above-mentioned purpose shall entirely be accessible to the fire tenders of the local fire service. Provision of suitable number of manholes shall be made available for inspection repairs and insertion of suction hose etc. The covering slab shall be able to withstand the vehicular load of 45 tons in case of high rise and 22 tons in case of low rise buildings. A draw off connection shall be provided. The slab need not strengthened if the static tank is not located in mandatory driveway required around the building.

(b) To prevent stagnation of water in the static water tank the suction tank of the domestic water supply shall be fed only through an over flow arrangement to maintain the level therein at the minimum specified capacity; and

(c) The static water storage tank shall be provided with a fire brigade inlet of 63mm dia. instantaneous male inlets arranged in a valve box with a suitable fixed pipe not less than 15 cm dia. to discharge water into the tank. Number of inlets shall be as specified in NBC. This arrangement is not required where down comer is provided.

12.21 Automatic sprinklers.- Automatic sprinkler system shall be installed in the following buildings:

(a) All buildings of 24m and above in height, except group housing and 45m and above in case of apartment /group housing society building.
(b) Hotels below 15m in height and above 1000Sq.m built up area at each floor and or if basement is existing.
(c) All hotels, mercantile and institutional buildings above15m.
(d) Underground Shopping Complex.
(e) Underground car / scooter parking /enclosed car parking.
(f) Any special hazards where the Chief Fire Officer considers it necessary.
(g) For buildings, up to 24m in height where automatic sprinkler system is not mandatory as per these Bye-Laws, if provided with sprinkler installation following relaxation may be considered.
(i) Automatic heat/smoke detection system and M.C.P. need not be insisted upon.
(ii) The number of Fire Extinguisher required shall be reduced by half.

12.22 Fixed Carbon di-oxide /Foam/DCO water spray extinguishing system.- Fixed extinguishing installations shall be provided as per the relevant specifications in the premises where use of above extinguishing media is considered necessary by the Chief Fire Officer.

12.23 Fire alarm system.- All buildings of 15m and above in height shall be equipped with fire alarm system, and also residential buildings (Dwelling House, Boarding House and Hostels) above 24 m height.

(1) All residential buildings like dwelling houses (including flats) boarding houses and hostels shall be equipped with manually operated electrical fire alarm system with one or more call boxes located at each floor. The location of the call boxes shall be decided after taking into consideration their floor without having to travel more than the distance specified in NBC 2016.
(2) The call boxes shall be of the break glass type without any moving parts, where the call is transmitted automatically to the control room without any other action on the part of the person operating the call boxes.
(3) All call boxes shall be wired in a closed circuit to a control panel in a control room, located as per Bye-Laws so that the floor number from where the callbox is actuated is clearly indicated on the control panel. The circuit shall also include one or more batteries with a capacity of 48 hours normal working at full load. The battery shall be arranged to be a continuously trickle charged from the electric mains.
(4) The call boxes shall be arranged to sound one or more sounders so as to ensure that all occupants of the floor shall be warned whenever any call box is actuated.
(5) The call boxes shall be so installed that they do not obstruct the exit ways and yet their location can easily be noticed from either direction. The base of the call box shall be at a height of 1.5m from the floor level.
(6) All buildings other than as indicated above shall, in addition to the manually operated electrical fire alarm system, be equipped with an automatic fire alarm system.
(7) Automatic detection system shall be installed in accordance with the relevant standard specifications. In buildings where automatic sprinkler system is provided, the automatic detection system may not be insisted upon unless decided otherwise by the Chief Fire Officer

Note: The installation of Fire Alarm Systems shall be carried out in conformity with the local fire regulations and rules, there under whenever they are in force and the provisions in local byelaws, if any. Several types of fire detectors are available in the market but the application of each type is

limited and has to be carefully considered in relation to the type of risk and the structural features of the building where they are to be installed.

12.24 Control Room.- There shall be a control room on the entrance floor of the building with communication system (suitable public-address system) to all floors and facilities for receiving the message from different floors. Details of all floor plans along with the details of fire fighting equipment and installation shall be maintained in the Control Room. The Control Room shall also have facility to detect the fire on any floor through indicator boards connecting fire detection and alarm system on all floors. The staff in charge of the Control Room shall be responsible for the maintenance of the various services and fire fighting equipment and installation. The Control Room shall be manned round the clock by trained fire fighting staff.

12.25 Fire drills and fire orders.- The guidelines for fire drill and evacuation etc. for high-rise building may be seen in NBC 2016 part 4. All such buildings shall prepare the fire orders duly approved by the Chief Fire Officer.

A qualified fire officer and trained staff shall be appointed for the following buildings:

a) All high-rise buildings above 30m in height where covered area of one floor exceeds 1000 Sq.m except apartments / group housing;
b) All hotels, identified under classification 3 star and above category by Tourism Department and all hotels above 15m in height with 150 beds capacity or more without star category;
c) All hospital building of 15m and above or having number of beds exceeding100;
d) Underground shopping complex where covered area exceeds 1000Sq.m;
e) All high hazard industries; and
f) Any other risk which Chief Fire Officer considers necessary.

The lightening protection warning light (red) for high-rise buildings shall be provided in accordance with the relevant standard. The same shall be checked by electrical department.

12.26 Material used for construction of building

(1) The combustible/flammable material shall not be used for partitioning, wall panelling, false ceiling etc. Any material giving out toxic gases/smoke if involved in the fire shall not be used for partitioning of a floor or wall panelling or a false ceiling etc. The surface frames spread of the lining material shall conform to class- I of the standard specification. The framework of the entire false ceiling would be provided with metallic sections and no wooden framework shall be allowed for panelling/false ceiling; and

(2) Construction features/elements of structures shall conform to National Building Code and BIS code.

12.27 Liquefied Petroleum Gas (LPG).- The use of LPG shall not be permitted in the high-rise building except residential/hotel/hostel/kitchen/pantry (if any) and shall be located at the periphery of the building on the ground level.

12.28 Housekeeping.- A high standard of housekeeping must be insisted upon by all concerned. There must be no laxity in this respect. It must be borne in mind that fire safety independent to a large extent upon good housekeeping.

12.28.1 Details for Good House-Keeping.- Good Housekeeping includes the following:

(a) Maintaining the entire premises in neat and clean condition;
(b) Ensuring that rubbish and combustible material are not thrown about or allowed to accumulate, even in small quantity, in any portion of the building. Particular attention must be paid to corners and places hidden from view;
(c) Providing metal receptacles/waste paper basket (of non-combustible material) at suitable locations for disposal of waste. Separate receptacles must be provided for disposal of cotton rags/waste, wherever it is generated, these must under no circumstances be left lying around in any portion of the building;
(d) Ensuring that receptacles for waste are emptied at regular intervals and the waste removed immediately for safe disposal outside the building;
(e) Ensuring that all doors/fixtures are maintained in good repairs, particular attention must be paid to self-closing fire smoke check doors and automatic fire/doors/rolling shutters;
(f) Ensuring that self-closing fire/smoke check doors close properly and that the doors are not wedged open;
(g) Ensuring that the entire structure of the building is maintained in good repairs;
(h) Ensuring that all electrical and mechanical service equipment's are maintained in good working condition at all times; and
(i) Ensuring that Cars /Scooters etc. are parked systematically in neat rows. It is advisable to mark parking lines on the ground in the parking areas near the building and in the parking area on ground floor and in basement(s); as applicable, inside the building. A parking attendant must ensure that vehicles are parked in an orderly

manner and that the vehicles do not encroach upon the open space surrounding the building.

12.28.2 Smoking Restrictions

(1) Smoking shall be prohibited throughout the basement(s) and in all areas where there is a profusion of combustible materials. Easily readable 'NO SMOKING' signs must be conspicuously posted at locations where they can catch the eye. Each sign must also include a pictograph. The sign may also be illuminated.

(2) In all places where smoking is permitted.

12.28.3 Limiting the Occupant Load in Parking and Other Areas of Basement(s).- Where parking facility is provided in the basement(s) no person other than the floor parking attendant may be allowed to enter and remain in the parking areas except for parking and removal of Cars/Scooters. Regular offices must not be maintained in the storage/parking area in the basement(s)unless separated by Fire separation walls. The stores/go down must be opened for the limited purpose of keeping or removing stores. No person other than those on duty may be permitted in the air-conditioning plant room(s), HT/LT switch room, transformer compartment, control room pump-house, generator room, stores and records etc.

12.29 Fire prevention.- In addition to the measures recommended above, the following fire prevention measures must be implemented when the building is in occupation.

(a) Storage of flammable substances, such as diesel oil, gasoline, motor oils, etc. must not be allowed anywhere within the building. The only exception to this rule may be:
  (i) Storage of diesel oil in a properly installed tank in a fire-resisting compartment in the generator room; and
  (ii) Diesel oil, gasoline, motor oil etc., filled in the vehicle tanks.

(b) Preparation of tea and warming of food must be prohibited throughout the hazardous building;

(c) Where heaters are used during winters, the following precautions must be taken;
  (i) All heaters, except convector heaters, must be fitted with guards;
  (ii) Heaters must not be placed in direct contact with or too close to any combustible material;
  (iii) Heaters must be kept away from curtains to ensure that the latter do not blow over the heater accidentally;
  (iv) Heaters must not be left unattended while they are switched on;
  (v) Defective heaters must be immediately removed from service until they have been repaired and tested for satisfactory performance;
  (vi) Use of heaters must be prohibited in the entire basement, fire control room and in all-weather maker rooms throughout the building. Also in all places where there is profusion of combustible flammable materials;

(d) Fluorescent lights must not be directly above the open file racks in offices/record rooms. Where this is unavoidable, such lights must be switched on only for as long as they are needed;

(e) Filling up of old furniture and other combustible materials such as scrap paper, rags, etc. must not be permitted anywhere in the building. These must be promptly removed from the building;

(f) More than one portable electrical appliance must not be connected to any single electrical outlet;

(g) Used stencils, ink smeared combustible materials and empty ink tubes must note allowed to accumulate in rooms/compartments where cyclostyling is done. These must be removed and disposed of regularly;

(h) All shutters/doors of main switch panels and compartments/shafts for electrical cables must be kept locked;

(i) Aisles in record rooms and stores must have a clear uniform width of not less than 1.0 m Racks must not be placed directly against the wall/partition;

(j) In record rooms, offices and stores, a clear space of not less than 30 cm must be maintained between the top-most stack of stores/records and the or lighting fittings whichever is lower;

(k) A similar clearance, and at (j) above must be maintained from fire detectors;

(l) Fire detectors must not be painted under any circumstances and must also be kept free from lime/distemper;

(m) Records must not be piled/dumped on the floor;

(n) Welding or use of blow torch shall not be permitted inside the building, except when it is done under strict supervision and in full conformity with the requirements laid down in IS: 3016-1966 code of practice for fire precautions in welding and cutting operation; and

(o) Printing ink/oil must not be allowed to remain on the floor. The floor must be maintained in a clean condition at all times.

12.30 Occupancy restrictions

(1) The premises leased to any party shall be used strictly for the purpose for which they are leased;
(2) No dangerous trade/practices (including experimenting with dangerous chemicals) shall be carried on in the leased premises;
(3) No dangerous goods shall be stored within the leased premises;
(4) The common/public corridor shall be maintained free of obstructions, and the occupants shall not put up any fixtures that may obstruct the passage in the corridor and/or shall not keep any wares, furniture or other articles in the corridor;
(5) The penalty for contravention of the condition mentioned above must be immediate termination of lease and removal of all offending materials; and
(6) Regular inspection and checks must be carried out at frequent intervals tonsure compliance with conditions above.

Note: *For any further details / clarification NBC, Part 4 shall be referred. Norms and standards in Part 4 of NBC 2016 shall be overriding in any instance of variance of standards.*

CHAPTER 13

13. CONSERVATION OF HERITAGE SITES INCLUDINGHERITAGE BUILDINGS, HERITAGE PRECINCTS AND NATURAL FEATURE AREAS.- The objective of this regulation shall be to conserve, regulate and manage buildings, artefacts, structures, areas and precincts of historic and / or aesthetic and / or architectural and / or cultural significance and / or environmental significance (heritage buildings and heritage precincts) and / or natural features of environmental significance and or sites of science beauty, so as to promote heritage sensitive development.

13.1 Applicability.- This regulation shall apply to all heritage sites, buildings, heritage precincts and natural features declared under the Karnataka Town and Country Planning Act,1961. Including those declared by Archaeological Survey of India and State Archaeology Department.

13.2 Composition of heritage conservation committee.- For the city, there shall be Heritage Committee (hereinafter referred to as the Committee) consisting of the following Members appointed by the State Government.

TABLE 13.1 Composition of heritage conservation committee for all Municipalities at District level:

1.	Deputy Commissioner	Chairman
2.	Commissioner of respective Urban Development Authority.	Member
3.	Commissioner of respective City Municipal Council.	Member
4.	Chief Officer or respective Town Municipal Council.	Member
5.	Chief Officer of respective Town Panchayat.	Member
6.	Structural Engineer having experience of at least 10 years in the field and membership of the Institute of Engineers (India)	Member
7.	Architect having at least 10 years' experience in Architecture and five years in heritage conservation architecture and membership of the Council of Architecture.	Member
8.	Environmentalist with recognized post graduate degree having in depth knowledge and experience of 10 years in the subject.	Member
9.	Academician possessing a doctorate in History / Archaeology and having knowledge of the region for at least 10 years.	Member
10.	Natural historian possessing post-graduation in Botany / Zoology / Forestry preferably with Ph.D. Degree having 10 years' experience in the field.	Member
11.	Artist possessing degree in fine arts and at least 10 years' experience in the field.	Member
12.	Representative of ASI, Government of India.	Member
13.	Commissioner, Archaeology, Museums and Heritage Department Mysore or his nominee.	Member
14.	Representative of two NGO's in existence for more than 3 years.	Member
15.	Representative of IHCN (Indian heritage Cities Network), Mysore	Member
16.	Asst. Director of Town Planning of the respective district	Member
17.	Project Director, DUDC Cell	Member Secretary

(a) The Committee shall have the power to appoint two additional members who may have lesser experience, but who have special knowledge of the subject matter;

(b) The tenure of the Member of category (6) to (11) and (14) of **table-13.1**shall be for three years, provided that the same person shall be eligible for reappointment as Member.

(c) The quorum for the meeting of the Committee specified in **table 13.1** shall be seven members including the Chairperson. Any vacancy in the office of members shall not vitiate any decision taken by the majority of the members present;

(d) The terms of reference of committee shall be, inter-alia,

(i) To advise the Local Authority whether development permission should be granted under this Regulation and the condition under which permission may be accorded;

(ii) To prepare a list of buildings, artefacts, structures, areas, precincts of historic, aesthetic, architectural, cultural or environmental significance and a supplementary list of natural features of environmental significance or scenic beauty including sacred groves, hills, hillocks, water bodies (and the areas adjoining the same), open areas, wooded areas etc., to which this Regulation would apply from time to time, and grade them according to the heritage value;

(iii) To advise whether any relaxation, modification, alteration or variance of any of the Zonal Regulations / Building Byelaws, is called for;

(iv) To assist the Archaeology, Museums and Heritage Department (AM&HD) in framing regulations for specific precincts and if necessary for natural features to guide the planning / Local / competent Authority regarding issue of permissions;

(v) To advise on the extent of Development Rights Certificates to be granted;

(vi) To advise whether Development Right Certificates may be allowed to be consumed in a heritage precinct;

(vii)To advise in terms of this regulations whether to allow commercial / office / hotel use of a heritage building and when to terminate the same;

(viii) To advise the Planning / Local / competent Authority in the operation of advertisements / bill boards / street furniture;

(ix) To make recommendation to the Local Authority / competent Authority regarding guidelines to be adopted by those private parties or public / government agencies that sponsor beautification schemes near heritage building and precincts at public intersections and elsewhere;

(x) To provide technical advice, if possible, on guidelines to the owner of heritage buildings / precincts to protect, conserve or restore them;

(xi) To recommend / advice the AM&HD in preparing special designs and guidelines /publications for listed buildings, control of height and essential facade characteristics such as maintenance of special types of balconies and other heritage items of the buildings and to suggest suitable designs adopting appropriate material for replacements keeping the old form intact to the extent possible;

(xii)To recommend / advice the AM&HD in preparing guidelines relating to design elements and conservation principles to be adhered to and to prepare other guidelines for the purposes of this regulation;

(xiii) To advise the Local Authority on any other issues as may be required from time to time during course of scrutiny of development permissions and in overall interest of heritage / environmental conservation; and

(xiv) To appear before the government either independently or through or on behalf of the Local Authority in cases of listed buildings / heritage buildings and listed precincts /heritage precincts and listed natural features.

13.3 Procedure for the preparation of list of heritage sites and buildings, heritage precincts listed natural features.- The list of heritage sites and buildings, heritage precincts and additions thereto will be declared by the Local Authority on the advice of the Committee and notified accordingly:

Provided that before the list is so declared, objections and suggestions granting at least 15 days' time from the public shall be invited by newspaper notification in at least two local newspapers. Restrictions on the Heritage precincts shall be in force with effect from the date of such newspaper notification by the Local Authority, provided further that such listing does not prevent change of ownership or usage.

The list may be supplemented from time to time by the Government on receipt of proposal from the agency concerned or by Government sue motto, provide that before the list is supplemented, objections and suggestions from the public are invited duly considered.

13.4 Criteria for listing of Heritage Sites:

(a)	Value for architectural, historical or cultural reasons	A
	Architectural	A(arc)
	Historical	A(his)
	Cultural	A(cul)
(b)	The date and / or period and / or design and / or unique use of the building or artefact	B
	Building or artefact	
	Period	B (per)
	Design	B (des)
	Use	B (use)
(c)	Relevance to social or economic history	C (seh)
(d)	Association with well-known persons or event	D (bio)
(e)	A building or group of buildings and / or areas of distinct architectural design and / or style, historic period or way of life having sociological interest and / or community value	E
	Style	
	Historical	
(f)	The unique value of building or architectural feature or artefact and / or being part of a chain of architectural development that would be broken if it were lost	F
(g)	Its value as a part of a group of buildings	G (gr)
(h)	Representing forms of technological development	H(tec)
(i)	Vistas of natural / scenic beauty or interest, including water-front areas, distinctive and / or planned lines of sight, street lines of sight, street line, skyline or topographical	1(se)
(j)	Open spaces sometimes integrally planned with their associated areas having a distinctive way of life which have the potential to be areas of recreation.	J
(k)	Natural Heritage sites	NH
(l)	Sites of scenic beauty	(sec)

13.5 Grading of the listed buildings / listed precincts:

Heritage Buildings, heritage precincts shall be graded as I, II, III as follows: -

GRADE – I	GRADE - II	GRADE – III
A: DEFINITION: Heritage Grade – 1 comprises buildings and precincts of national or historic importance, embodying excellence in architectural style, design, technology and material, usage and / or aesthetics; they may be associated with a great historic event, personality, movement or institution. They have been and are the prime landmark of the region. All natural sites shall fall within Grade – 1	Heritage Grade – II (A and B) comprises buildings and precincts of regional or local importance possessing special architectural or aesthetic merit or cultural or historic significance though of a lower scale in Heritage Grade-1. They are local land marks that contribute to the image and identity of the region. They may be the work of master craftsmen or may be models of proportion and ornamentation, or designed to suit a particular climate.	Heritage Grade – III comprises building and precincts of important for townscape; they evoke architectural aesthetic or sociological interest though not as much as in Heritage Grade – II. These contribute to determine the character of the locality and can be representative of lifestyle of a particular community or region and, may also be distinguished by setting on a street line, or special character of the facade and uniformity of height, width and scale.

GRADE – I	GRADE - II	GRADE – III
Objective – Heritage Grade-1 richly deserves careful preservation.	Heritage Grade-II deserves intelligent Conservation	Heritage Grade-III deserves protection unique features and attributes.
Scope for changes- Interventions would be permitted to enter on the exterior or interior unless it is necessary in the interest of strengthening, and prolonging, the life of the buildings or precincts or any part or features thereof. For this purpose, absolutely essential and minimal changes would be allowed and they must be in accordance with the original.	Grade-II. (A). Internal changes, and adaptive reuse will be generally allowed, but external changes will be subject to scrutiny. Care would be taken to ensure the conservation of all special aspects for which it is included in Heritage. Grade-IIB)- In addition to above extension or additional buildings in the same plot or compound could, in certain circumstances, be allowed provided that the extension / additional building is in harmony with (and does not detract from) existing heritage buildings(s) or precincts especially in terms of height and facade.	External and internal changes and adaptive reuse would generally be allowed. Changes can include extensions, additional buildings in the same plot or compound provided that extension/additional building is in harmony with and does not detract from the existing heritage building / precinct especially in terms of height and / or facade. Reconstruction may be allowed when the building is structurally weak or unsafe or which it has been affected by accidental fire or any other calamity or if reconstruction is required to consume the permissible FSI and no option other than reconstruction is required to consume the permissible FSI and no option other than reconstruction is available. However, unless absolutely essential, nothing should spoil or destroy and special features or attributes for which it is placed in the Heritage List.
Procedure – Development permission for the changes would be given by the Planning Authority on the advice of the Heritage Conservation Committee to be appointed by State Government.	Development permission for the changes would be given by the Planning Authority in consultation with a sub-committee of the Heritage Conservation Committee	Development permission would be given for changes by the Planning Authority itself but in consonance with guidelines, which are to be laid down by Government in Consultation with Heritage Conservation Committee.
B. VISTAS / SURROUNDING DEVELOPMENT: All development in areas surrounding Heritage Grade-I shall be regulated and controlled, ensuring that it does not mar the grandeur of, or view from Heritage Grade-1	All development in areas surrounding Heritage Grade-II shall be regulated and controlled, ensuring that it does not mar the grandeur of , or view from Heritage Grade - II	All development in areas surrounding Heritage Grade – III shall be regulated and controlled, ensuring that it does not mar the grandeur of, or view from Heritage Grade-III.

13.6 Restriction on development / re-development / repairs, etc.

(1) No development or re-development or engineering operation or additions, alterations, repairs, renovation including the painting of buildings, replacement of special features or plastering or demolition of any / part thereof of the said listed buildings including compound wall or listed precincts or listed natural features shall be allowed except with the prior written permission of the

Local Authority. Before granting any such permission, the Local Authority shall consult the Committee and shall act on its advice;

(2) Provided that before granting any permission for demolition or major alterations/ additions to listing buildings (or buildings within listed precincts), or construction at or near any listed natural features, or alteration of boundaries of any listed natural features, objections and suggestions from the public shall be invited by publishing prominently in two local newspapers and duly considered by the Committee;

(3) Provided that only in exceptional cases, for reasons to be recorded in writing, to the Planning / Local / Competent Authority may refer the matter back to the Heritage Conservation Committee for reconsideration; and

(4) Heritage Buildings and Buildings in Heritage Precincts which are under the control of Public Works Department / Corporation /Universities / Boards and any other Government organizations under the purview of Government of Karnataka and Government of India have to be listed and declared as Heritage Properties. However, the decision of the Heritage Conservation Committee after such re-consideration shall be final.

13.7 Responsibility of the owners of heritage buildings.- It shall be the duty of the owners of Heritage Buildings and Buildings in Heritage precincts to carryout regular repairs and maintenance of the buildings at their own cost. The Government or Local Authority shall not be responsible for such repairs and maintenance except for the buildings owned by the Government, or Local Authority.

13.8 Regulations for specified heritage precincts / listed natural features.- In cases of heritage precincts and where deemed necessary by the Committee, natural features notified as per the provision of this Regulation, development permissions in the form of commencement certificate shall be granted in accordance with separate regulations prescribed for respective precincts / natural features which shall be framed by the AM&HD in consultation with the Local Authority on the advice of the Committee.

These regulations should concern architectural appearances, materials, the setting of buildings, their volumes, height, planting of trees etc. They will include regulations, which will govern planning, building permissions, along with guidelines that the Committee will refer to with regard to applications for planning permission, choices of restoration methods or spatial planning.

To prepare these separate regulations, a study of the heritage precincts / listed natural features will be commissioned by the AM&HD. The study will identify the heritage issues in all its aspects, fix the objectives to be reached in order to assure the conservation of the heritage identified and to draft regulations for management and development of the heritage areas.

The Local Authority will consider the draft regulations submitted by AM&HD and obtain public opinion on it in the following manner.

The draft of the separate regulations for precincts / natural features shall be published in the official gazette and in leading newspapers for the purpose of inviting suggestions and objections from the public. The Local Authority AM&HD and the Committee shall consider all suggestions and objections received within a period of 60 days from the date of publication in the official gazette.

After consideration of the above suggestions and objections, the AM&HD in consultation with Local Authority, acting on the advice of the Committee, shall modify (if necessary) the aforesaid draft separate regulations of precincts and natural features and forward the same to the Local Authority for further submission to the Government for sanction.

Provided that pending consideration of suggestions and objections and pending final sanction from Government to the above draft regulations for precincts and natural features, the committee shall have due regard to the above draft regulations while considering applications for development / re-development, etc., of heritage buildings / heritage precincts / listed natural features

13.9 Road widening and building lines:

(1) If Road widening / Building line under the Karnataka Town and Country Planning Act,1961, are prescribed they shall be such that they will protect and not detract from the said heritage precincts / said listed natural features.

(2) If there are any new road widening / Building lines proposed in the Master Plan, the Local Authority shall consider the heritage provisions and environmental aspects while considering applications for development permissions in these precincts. Necessary steps may be taken to modify the Master Plan accordingly. Pending this action, the development of new roads shall not be carried out.

(3) No widening of the existing roads under the Karnataka Town and Country Planning Act,1961 or Master Plan shall be carried out in a manner which may affect the existing heritage buildings (even if they are not included in a Heritage Precinct) or which may affect listed natural features.

13.10 Master plan reservations.- If there are Master Plan reservations shown on heritage buildings or on listed natural features, the reservation may be deleted or modified if required. The Local Authority, on the advice of the Committee, shall move the Government to get these reservations deleted / modified as need be.

13.11 Grant of Transferable Development Rights (TDR) .- The extent of DRCs to be granted and used shall be determined by the Rules specially framed for Transfer of Development Rights.

13.12 Incentive uses for heritage buildings.- In cases of buildings included in the Heritage Conservation list, falling in zones where office / commercial / hotel use is normally prohibited, if the owner / owners /lessees agree to maintain the listed heritage building in its existing state and to preserve its heritage status with due repairs and the owner / owners / lessees give a written undertaking to that effect, the owner / owners / lessees may be permitted, with the approval of the Committee, to convert part or the whole thereof of the non-commercial area within such a heritage building to commercial / office use / hotel:

Provided that if the heritage building is not maintained suitably or if the heritage value of the building is allowed to be diminished in any manner, the local authority sue motto or on the advice of the Committee shall revoke permission given for such use.

13.13 Maintaining skyline and architectural harmony.- Buildings within heritage precincts or in the vicinity of heritage buildings / listed natural features shall maintain the skyline and follow the architectural style (without any high rise or multi-storied development) as may be existing in the surrounding area so as not to diminish or destroy the value and beauty of, or the view from, the said heritage building / heritage precincts or natural feature. The development within the precinct / in the vicinity of heritage buildings / natural features shall be in accordance to the regulations framed by AM&HD in association with the Local Authority on the advice of the Committee.

13.14 Repair fund.- With a view to give monetary help for repairs of Heritage buildings a separate fund may be created which would be available to the Local Authority who will disburse funds on the advice of the Committee. Provision for such a fund may be made through Government grants / local authorities / public contributions. Nothing mentioned above should be deemed to confer a right on the owner /occupier of the plot to demolish and / or re-construct and / or make alterations /additions to his heritage building / building in a Heritage Precinct if in the opinion of the Committee, such demolition / re-construction / additions is undesirable.

So as to preserve the heritage value of the zone, the Committee shall have the power to direct, especially in areas designated by them, that the exterior design and height of buildings should have their prior approval.

Signs and outdoors display structures / including street furniture.- The Local Authority before permitting signs, outdoor display structures including street furniture in the heritage areas / precincts building shall strictly follow the specifications, codes, conditions give below:

A. National Building Code of India to apply – The display or averting signs and outdoor display structures on building and land shall be in accordance with Part X-Signs and Outdoor Display Structures of National Building Code of India.

B. Additional Conditions – In addition to sub-regulation A, above, the following provisions shall apply to advertisement signs in different land use zones:

(i) Residential Zone: the following non-flashing neon signs with illumination not exceeding 40-watt light.

(a) One nameplate with an area not exceeding 0.1Sq.m for each dwelling unit;

(b) For other uses permissible in the zone, one identification sign or bulletin board with an area not exceeding 10Sqm, provided the height does not exceed 1.5m; and

(c) 'For sale' or 'for rent' signs for real estate, not exceeding 2 Sq.m in area provided they are located on the premises offered for sale or rent.

(ii) Residential Zones with shop lines: Non-flashing business sign placed parallel to the wall and not exceeding 1 m in height per establishment.

C. Prohibition of advertising signs and outdoor display structures in certain cases: Notwithstanding the provisions of sub-regulations of A and B, no advertisement sign or

outdoor display structures shall be permitted on buildings of architectural, aesthetic, historical or heritage importance as may be decided by the Local Authority on the advice of the Committee, including on Government buildings, save that in the case of Government buildings only advertising signs or outdoor display structures may be permitted if they related to the activities, purposes or related programmes of the said buildings. However, the signage should be approved by the Committee.

D. Provided that if the Committee so advises, the Local Authority shall refuse permission for any sign or outdoors display structure. Signs, outdoor display structures (including street furniture) will require the approval of the Committee, which may prescribe additional guidelines for the same.

13.15 Voluntary contribution and agreement with any voluntary organization, person or Company:

(1) The Local Authority may receive voluntary contributions towards the cost of maintaining any heritage building and should manage such contributions for the purpose of preservation and conservation of such heritage building; and

(2) Subject to the prior approval of the Government, Local Authority may enter into any agreement with any person or voluntary organization or company, whether incorporated or not, willing to preserve and conserve any heritage building or any other public spaces owned by Government on such terms and conditions as the Government may determine.

CHAPTER 14

14 STREAMLINING OF BUILDING PLAN APPROVALS

14.1 Streamlining the building approval/sanction procedure (Ease of Doing Business).- In order to attract investments into the country, efforts are being made by the Government to improve 'Ease of Doing Business'. In this direction, the limit of Built-up Area (BUA) for Foreign Direct Investment (FDI) has been reduced from 50,000 Sq.m to 20,000 Sq.m. In this context, the local bodies have to operate the entire building approval process in online mode, so that the building plan applications are submitted online along with building fees and other charges, and after due scrutiny, the approvals are also conveyed online.

Further, external bodies like Fire and Emergency Services Department, Airports Authority of India (AAI), Metro Rail Corporation (MRC), Ministry of Railways, Ministry of Environment, Forest and Climate Change (MoEFCC), Karnataka State Pollution Control Board (KSPCB), Heritage Conservation Committee (HCC), National Monuments Authority (NMA), Urban Art Commission (UAC), etc. shall grant No Objection Certificate (NOC)/ approvals on the proposed building plans to the local bodies. All such external bodies are mandated to prepare online NOC systems compatible to and integrated with that of the local bodies and the desired information is to be sent to the concerned external bodies and their comments/ NOC/ approval are to be received online so that there is no need for building proponents to pursue matter with local bodies or external agencies. The specific requirements of the external bodies are to be added in the Common Application Form (CAF) of the local body so that building proponent has to file all information at a single customized online application (as specified in **Appendix-II).** The objective is to make the whole process simplified and streamlined to ensure ease in getting the approvals for building licence within stipulated time.

14.2 Clearances at Master Plan level.- Individual construction proposals shall not generally require separate clearances from various authorities each time. Such clearances should be integrated into the Zonal Regulations of the Master Plan of the concerned Local Planning Area. The areas unaffected by any of the restrictions should be clearly marked out and mapped, preferably on a GIS platform. Area zones of differential control regulations (within the city) by any of these agencies may also be mapped accordingly. This will result in a composite map of the city with various control regulations as per the various agencies clearly marked on the map. Thus, the sites which are located outside these restricted/regulated areas would not require availing clearance from the respective authorities, thereby reducing the clearance process significantly.

The composite map of each LPA shall be incorporated as part of the automation process undertaken by the Government and notified separately for each LPA as and when such maps are prepared, in consultation with the concerned authorities, preferably on GIS platform.

Following are the clearances which should be integrated into the city Master Plan-

Table 14.1 Clearances from various agencies proposed to be integrated in Master Plans

Sl. No.	Name of Agency	Type of Clearance	Area of Influence
1.	National Monuments Authority through Competent Authority	Ancient Monument approval	As prescribed in the AMASAR (Amendment and Validation) Act, 2010 for protection of monuments
2.	Ministry of Environment	Environment Clearance (EC)	As prescribed in the statutory provisions for EIA and clearance based on the size of the project in accordance with Environment Protection Act, 1986
3.	Ministry of Defence	Defence Clearance	Area in and around Defence Establishments as identified by MoD.
4.	Coastal Zone Management Authority	NOC (if near sea/coastal areas)	Area under the CRZ regulations.
5.	NHAI/PWD	Road access	Buffer zones as prescribed by NHAI along National Highways.
6.	Ministry of Railways	Area clearance	Buffer zones as prescribed by Railways along Rail tracks/depots/yards etc.
7.	Airport Authority of India	Height clearance	Height restriction areas in the vicinity of Airports

Efforts are being made at the Government of India level and the State Government level to coordinate with all the Central and State ministries and their organizations so that they streamline their own internal processes to issue no objection etc. where ever required by law. The efforts are mainly focused on delegating the powers at appropriate levels, establishing an online application process for time bound delivery, creating public awareness about their requirements, reviewing the restrictions and reducing them, sharing the data and norms with local authorities to be incorporated in the Master Plan /Zonal Regulations.

Recognizing the concern for streamlining the procedures for clearances to be obtained from various departments in least possible number of procedures and number of days, the following model shall be adopted so that the entire process of Pre and Post-Construction approvals shall be completed within one month. The detailed timelines for building licence and occupation certificate are provided in **Appendix-VIII**

14.3 Risk Based Classification of building proposals.- There is a need to make provisions for fast-tracking building permission procedures for all non-automatic approvals. Therefore, in the spirit of 'Ease of Doing Business', the buildings have been classified further on the basis of risk parameters/ risk based classification to clear the building permits on fast track system. This kind of classification shall be used for fast tracking the sanction of building plans.

14.3.1 Residential Buildings

For approval of the residential plotted and group housing buildings, risk based classification shall be as per Table 14.2 –

Table 14.2 Risk Matrix for different Residential buildings

Risks		Very Low	Low	Moderate	High
Criteria	Parameters				
Size of the Plot	Square Metres	Below105 m^2	105-500 m^2	Above 500 m^2	All sizes
No. of Floors/ Height of Building	(G + no. of floor)	(G+2)	(G+ 3)	(G+ 3) but less than 15m height buildings	(G+ 4) or above 15m height buildings
Use of the premise	Various Categories	Residential Plotted	Residential Plotted	Plotted/ Group Housing	Group Housing

14.3.2 Storage/Warehouse Buildings.- For approval of the buildings meant for use as storage buildings/warehouses/go down, risk based classification shall be as per **Table 14.3**

Table 14.3 Risk Matrix for Storage/Warehouses

Risks	Very Low	Low	Moderate	High
Construction area in all floors (Sq.m)	Up to 250m²	Above 250m² and up to 2000m²	Up to 2000m²	Above 2000m²
Height of building	Below 15m	Below 15m	Below 15m	Below 15m
Abutting Road width	Min. 12m	Min. 12m	Min. 12m	Min. 12m
Type of Material Storage	Category A	Category A	Category B (Stacking Height-Medium)	Category B (Stacking Height-High)

Note:
i. The level of Risk is classified according to the material stored in the warehouse/storehouse. Material shall be classified according to the Categories defined in ***Appendix-XVII****.*
ii. The Urban Local Body shall empanel professionals as notified by the Government.
iii. The building application processing fees shall be as prescribed in ***Appendix-VII****.*

14.3.3 Industrial Buildings.- For approval of the buildings meant for use as storage buildings/warehouses/godowns, risk based classification shall be as per **Table 14.4**

Table 14.4 Risk Matrix for Industries

Risks		Low	Moderate	High
Criteria	**Parameters**			
Size of the Plot	Square Metres	up to 350 m²	Above 350 m²	All sizes
Height of building	Metres	Less than15m	upto15m	Above 15m
Abutting Road width	Metres	Min.12m	Min.12m	Min.12m

Note:
i. The level of Risk is classified according the size and height of the industrial building proposed.
ii. The Urban Local Body shall empanel professionals as notified by the Government.
iii. The building application processing fees shall be derived by an automated built-in calculator in the online system.

14.4 Fast Tracking Tools.- Fast tracking tools are provided here below for issuing building licence. However, the procedure prescribed in **Clause 3.16, 3.17 and 3.18** shall be followed

14.4.1 For very Low Risk Buildings:

(1) Plans to be submitted online to the Authority along with the required details specified in **clause 3.15.2**and Affidavit / Undertaking from the Applicant and Professional on Record for drawing and supervision; and

(2) Deemed Approval with Self-Certification

14.4.2 For Low Risk Buildings:

(1) Plans to be submitted online to the Authority along with the required details specified in **clause 3.15.2;** and

(2) The Empanelled professional (qualification and competence as notified by the government) selected as per the predetermined logic shall grant the building permit as per the procedure notified by the government within the timelines specified in **Appendix VIII**

14.4.3 For Moderate Risk Buildings:

(1) Plans to be submitted online to the Authority along with the required details specified in **clause 3.11;**

(2) Approval to be granted by the Authority within the timelines specified in **Appendix VIII;** and

(3) Deemed licence to be issued online automatically if the Authority does not grant approval within the timelines specified in **Appendix VIII**

14.4.4 For High Risk Buildings:

(1) Common application form as specified in **Appendix-II** for building licence and all required NOCs to be submitted online to the Authority along with the details specified in **clause 3.11;**

(2) NOCs to be issued by the concerned departments online within the timelines specified in **Appendix VIII;**

(3) Deemed NOCs to be issued online by the Authority if the concerned department does not issue NOC within the specified timelines.;

(4) Approval to be granted by the Authority within the timelines specified in **Appendix VIII;** and

(5) Deemed licence to be issued online automatically if the Authority does not grant approval within the timelines specified in **Appendix VIII.**

14.5 Other Tools to enhance ease of doing business.- Some other Tools, regarding Fast-Track construction licences are:

14.5.1 'Citizens' Charter.- A **'Citizens' charter** as notified by the Government shall list out the timelines and upper limits of time for the delivery of citizen services of the Authority. The objective of issuing the charter is to improve the quality of public service in terms of timely delivery. Such charters shall be brought out by all the Local Body to maintain high standards of accountability and transparency. The standards of service to be provided, the maximum number of days required for providing various citizen services and the standard procedure shall be listed out in the citizens' charter.

14.5.2 Capacity building.- Capacity building measures are to be adopted for such functionaries to identify Training Needs (TNA) and other technical requirement of duties that they are required to discharge. Fresh recruitments commensurate to the technical qualification/ experience are to be made by the State Government, if there is complete absence of the technical expertise needed for the said services.

14.5.3 Simplification of bye-laws.- The building Bye-Laws have been simplified for easy comprehension of lay person as well as professionals involved in developmental activities. The simplification process also includes the process of application, the filling up of forms and streamlining the process of application and sanctioning through online system.

CHAPTER 15

15. CLIMATE RESILIENT CONSTRUCTION – INTEGRATION OFENVIRONMENTAL CLEARANCE WITH SANCTION.- Land, Air, Noise, Water, Energy, biological, socio-economic, solid / other waste management are the main facets considered in relation to Pre, during and Post Building Construction for Sustainable Environment Management. Therefore, it is necessary for the building process to ensure compliance to various conditions laid down by the Ministry of Environment, Forest and Climate Change.

The building construction sector is a major contributor towards carbon footprints which affects climate change. India is committed towards mitigating the effects of climate change and moving towards internationally accepted norms for environmental friendly building construction. Currently this objective of environmental safeguard is achieved through obtaining a specific environmental clearance (EC) for any construction project having a size of more than 20,000Sq.m This is administered under notification of Ministry of Environment, Forest and Climate Change.

With rapid urbanisation and growth of Indian economy, it is anticipated that the construction activity will experience a proportionate growth. Government is also committed towards streamlining of clearances for buildings and real estate sector and empowering the urban local bodies with an objective of Ease of Doing Business.

Integration of environmental condition in building bye-laws:

(1) When the State Governments notifies the bye-laws and rules concurred by the Ministry of Environment, Forest and Climate Change, the Central Government may issue an order stating that no separate environmental clearance is required for buildings to be constructed in the States or local authority areas;

(2) The Authority shall certify the compliance of the environmental conditions prior to issuance of Completion Certificate, as prescribed in the Byelaws, as per the requirements stipulated for such buildings based on the recommendation of the Environmental Cell constituted in the local authority;

(3) For the purpose of certification regarding incorporation of environmental conditions in buildings, the Ministry of Environment, Forest and Climate Change may empanel through competent agencies, the Qualified Building Environment Auditors (QBEAs) to assess and certify the building projects, as per the requirements of this notification and the procedure for accreditation of Qualified Building Auditors and their role as given at **Appendix-XV;**

(4) In order to implement the integration of environmental condition in building bye-laws, the Authority shall constitute the Environment Cell (herein after called as Cell), for compliance and monitoring and to ensure environmental planning within their jurisdiction;

(5) The Cell shall monitor the implementation of the bye-laws and rules framed for Integration of environmental conditions for construction of building and the Cell may utilise the services of the Empanelled professionals as prescribed in **Appendix-IA;**

(6) The Cell shall function under the administrative control of the Authority;

(7) The composition and functions of the Cell are given at **Appendix-XVI;**

(8) The environmental concerns are integrated in the building bye-laws, as per their size of the project, and the Authority shall follow the procedure, as given below:

(9) No Environmental Clearance from Ministry of Environment, Forest and Climate Change and no Consent to Establish and Operate under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 will be required from the State Pollution Control Boards for buildings up to 1,50,000 square metres.

15.1 Environmental conditions for compliance during Building approvals.- The Ministry of Environment, Forest and Climate Change has now decided to integrate the environmental concerns into building plan approval process and empowering the concerned local body to approve and certify compliance of stipulated requirements. The new building construction proposals, for the purpose of this chapter are classified in the following 3 categories: -

(1) Building Category '1': Built-up Area 5,000Sq.m to < 20,000Sq.m;
(2) Building Category '2': Built-up Area ≥ 20,000Sq.m to 50,000Sq.m; and
(3) Building Category '3': Built-up Area ≥ 50,000Sq.m to 1,50,000Sq.m
Note: area mentioned against each building category is the total constructed area of the building including car parking area

15.1.1 BUILDINGS CATEGORY '1' (5,000 to < 20,000 Square metres).- A Self Declaration Form to comply with the environmental conditions as stipulated in **Table 15.1**along with **Form-IIb** and certification by the Building Environment Auditor to be submitted by the project proponent as a common application for building licence to the local authority along with the specified fee in separate accounts. Thereafter, the authority may issue the building License incorporating the environmental conditions in it and allow the project to start based on the self-declaration and certification along with the application. After completion of the construction of the building, the project proponent may update **Form-IIb** based on audit done by the qualified Building Environment Auditor (BEA) and shall furnish the revised compliance undertaking to the local authority. Any noncompliance issues in buildings less than 20,000 square metres shall be dealt as prescribed in the rules framed under Section 76F and 76 FFF of Karnataka Town and Country Planning Act,1961.

15.1.2 BUILDINGS CATEGORY '2' (>20,000 to <1,50,000 Square metres).- A Self Declaration Form to comply with the environmental conditions as stipulated in **Table 15.2** along with **Form-IIb** and Compliance Report submitted by Environment Engineer on Record **(EER)** to be submitted by the project proponent as a common application for building licence to the Authority along with the specified fee in separate accounts. The fee for environmental appraisal will be deposited in a separate account. The Environment Cell shall process the Application after obtaining Evaluation Report of the Building Environment Auditor (of the compliance report submitted by the **EER**) and if the Application and drawings / details submitted are in order, forward the same to the CEO

If the Environment cell is of the opinion that the application/drawings submitted by the proponent is not in accordance with the provisions of these Byelaws (based on the evaluation report submitted by the Building Environment Auditor (BEA), the Environment Cell shall suggest the necessary changes to be made and forward the same to the CEO of the Authority. The CEO shall issue endorsement to the proponent as per the suggestions made by the Environment Cell and the proponent shall make the necessary changes and resubmit the application / drawings to the satisfactions of the Environment Cell and the Environment Cell shall accept the revisions made by the proponent.

According to the Proponent or the concerned **EER**, if the defects / changes suggested in the endorsement are incorrect, the proponent may file objection, to the CEO, stating the correctness of the drawings / details submitted.

If any such objection is received from the Proponent, the CEO of the Authority shall conduct joint enquiry along with the Applicant, the concerned **EER**, the Building Environment Auditor who has submitted the Evaluation Report and the Environment Cell which has suggested the changes in the drawings / details submitted (based on which the endorsement was issued), by giving notice to all, within seven days of receiving objection.

During the enquiry, the CEO of the Authority, after hearing the views of both the parties, shall either accept or reject the objection raised by the proponent and instruct the proponent accordingly in writing and sending a copy of the same to the Environment Cell and the decision of the CEO shall be final. The Proponent shall abide by the decision of the CEO and make necessary changes as instructed by the CEO, if any and resubmit the application.

After receiving the recommendation of the Environment Cell or after receiving the changes made as instructed by the CEO (as mentioned above), the building Licence and environmental clearance shall be issued in an integrated format by the Authority.

After executing all works in site as per the environmental clearance issued by the authority and certification of works by the empanelled professional, the completion certificate shall be issued as prescribed in **clause 3.17.**

The project proponent shall submit Performance Data and Certificate of Continued Compliance of the project for the environmental conditions parameters applicable after completion of construction, from Building Environment Auditors every year to the Environment Cell with special focus on the following parameters (as detailed in **clause 11.2):** -

(a) Energy Use (including all energy sources);
(b) Energy generated on site from onsite Renewable energy sources;
(c) Water use and waste water generated, treated and reused on site;
(d) Waste Segregated and Treated on site; and
(e) Tree plantation and maintenance.

After completion of the project, the Cell shall randomly check the projects compliance status including the yearly audit report. Penalties and action against the concerned persons for non-compliances of the environmental conditions and parameters shall be initiated as prescribed in the rules framed under Section 76F and 76 FFF of Karnataka Town and Country Planning Act,1961.

15.1.3 BUILDINGS CATEGORY '3' (≥ 50,000 to < 1,50,000 Square metres).- All the process mentioned in **Clause 15.1.2** shall be followed except that after completion of the project, the Cell shall check all the projects for compliance on a yearly basis including the yearly audit report submitted by the Building Environment Auditors.

Table 15.1: Environmental Conditions for Building and Construction (Building Category '1': 5,000Sqm to < 20,000Sqm)

Sl. No.	Medium	Environmental conditions
1	Topography Natural Drainage	The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site. No construction is allowed on wetland and water bodies. Check dams, bio swales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
2	Water conservations-Rain Water Harvesting and Ground Water Recharge	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. The provisions on rain water harvesting and Ground water recharging prescribed in **Chapter 10** and as notified by the Government should be followed. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000 Sq.m of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority. All recharge should be limited to shallow aquifer.
2(a)		At least 30% of the open spaces (setback area)) shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.
2(b)		Water efficient appliances shall be used. Low flow fixtures or sensors be used to promote water conservation. Details as notified by the Government shall be followed.
2(c)		Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done. Details as notified by the Government shall be followed.
3	Solid Waste Management	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. Details as notified by the Government shall be followed.

Sl. No.	Medium	Environmental conditions
3(a)		All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
3(b)		Treatment of wet waste and sanitary waste on site (organic dry waste also is preferred) using Organic waste composter / Vermiculture pit or any other approved technology shall be installed with a minimum capacity of 0.3 kg /person/day must be installed.
4	Sewage Treatment Plant	Onsite sewage treatment of capacity of treating 100% waste water to be installed, where the sewer lines of the building cannot be connected to city level sewerage system. In case the sewer line of the building can be connected to the city level sewerage system, the relaxation on the size of STP should be obtained from the competent Authority. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharged into the city level sewerage system or as per CPCB norms. Natural treatment systems shall be promoted. Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
5	Energy	Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC. Details as notified by the Government shall be followed. All lighting and other electric fixtures shall be of low energy consumption (Electrical Appliances – BEE Star and Energy Efficient Appliances) Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
5(a)		Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 5% of the power consumption of the project subject to minimum provision made as prescribed in **clause 11.2.3** and as notified by the Government.
5(b)		Solar water heating shall be provided to meet the total hot water demand of the commercial and institutional building. Residential buildings are also to meet its hot water demand from solar water heaters, unless additional power supply from renewable energy sources is provided equal to the power requirement of electric water heaters. Alternatively, if any other hybrid system (including other cost-efficient technologies) is proposed for hot water generation instead of solar water heating system, additional power supply from renewable energy sources shall be provided equal to the power requirement for operating such hybrid or other systems for hot water generation. Details prescribed in **Clause 11.2.4** and as notified by the Government shall be followed.
5(c)		Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include fly ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September 1999 as amended from time to time.

Sl. No.	Medium	Environmental conditions
6	Air Quality and Noise	Dust, smoke and other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3 m height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Wheel washing for the vehicles should be done before leaving the site. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016. Details as notified by the Government shall be followed. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask. For indoor air quality, the ventilation provisions as per National Building Code of India.
6(a)		The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
7	Green cover	A minimum of 1 tree for every 80 Sq.m of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species
7(a)		Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.

Table 15.2: Environmental Conditions for Building and Construction (Building Category '2': ≥ 20,000 Sq.m to 50,000 Sq.m)

Sl. No.	Medium	Environmental conditions
1	Topography Natural Drainage	The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site. No construction is allowed on wetland and water bodies. Check dams, bio swales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
2	Water conservations-Rain Water Harvesting and Ground Water Recharge	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. The provisions on rain water harvesting and Ground water recharging prescribed in **Chapter 10** and as notified by the Government should be followed. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000Sq.m of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority. All recharge should be limited to shallow aquifer.

Sl. No.	Medium	Environmental conditions
2(a)		At least 30% of the open spaces (setback area shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.
2(b)		Water efficient appliances shall be used. Low flow fixtures or sensors be used to promote water conservation. Details as notified by the Government shall be followed.
2(c)		Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done. Details as notified by the Government shall be followed.
3	Solid Waste Management	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. Details as notified by the Government shall be followed.
3(a)		All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
3(b)		Treatment of wet waste and sanitary waste on site (organic dry waste also is preferred) using Organic waste composter/Vermiculture pit or any other approved technology shall be installed with a minimum capacity of 0.3 kg /person/day must be installed.
4	Sewage Treatment Plant	Onsite sewage treatment of capacity of treating 100% waste water to be installed, where the sewer lines of the building cannot be connected to city level sewerage system. In case the sewer line of the building can be connected to the city level sewerage system, the relaxation on the size of STP should be obtained from the competent Authority. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharge into the city level sewerage system or as per CPCB norms. Natural treatment systems shall be promoted. Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
5	Energy	Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC. Details as notified by the Government shall be followed. All lighting and other electric fixtures shall be of low energy consumption (Electrical Appliances – BEE Star and Energy Efficient Appliances) Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
5(a)		Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 5% of the power consumption of the project subject to minimum provision made as prescribed in **clause 11.2.3** and as notified by the Government.
5(b)		Solar water heating shall be provided to meet the total hot water demand of the commercial and institutional building. Residential buildings are also to meet its hot water demand from solar water heaters, unless additional power supply from renewable energy sources is provided equal to the power requirement of electric water heaters. Alternatively, if any other hybrid system (including other cost-efficient

Sl. No.	Medium	Environmental conditions
		technologies) is proposed for hot water generation instead of solar water heating system, additional power supply from renewable energy sources shall be provided equal to the power requirement for operating such hybrid or other systems for hot water generation. Details prescribed in **Clause 11.2.4** and as notified by the Government shall be followed.
5(c)		Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include fly ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September 1999 as amended from time to time.
6	Air Quality and Noise	Dust, smoke and other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3 m height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Wheel washing for the vehicles should be done before leaving the site. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016. Details as notified by the Government shall be followed. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask. For indoor air quality, the ventilation provisions as per National Building Code of India.
6(a)		The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
7	Green cover	A minimum of 1 tree for every 80Sq.m of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species
7(a)		Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.
8	Top Soil Preservation and Reuse	Topsoil should be stripped to a depth of 20cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.
9	Transport	A comprehensive mobility plan, as per MoUD best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria. 1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic. 2. Traffic calming measures.

Sl. No.	Medium	Environmental conditions
		3. Proper design of entry and exit points. 4. Parking norms as per local regulation.

Table 15.3: Environmental Conditions for Building and Construction (Building Category '3': ≥ 50,000 Sq.m to 1,50,000 Sq.m)

Sl. No.	Medium	Environmental conditions
1	Topography Natural Drainage	The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site. No construction is allowed on wetland and water bodies. Check dams, bio swales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
2	Water conservations-Rain Water Harvesting and Ground Water Recharge	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. The provisions on rain water harvesting and Ground water recharging prescribed in **Chapter 10** and as notified by the Government should be followed. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000 Sq.m of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority. All recharge should be limited to shallow aquifer.
2(a)		At least 30% of the open spaces (setback area shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.
2(b)		Water efficient appliances shall be used. Low flow fixtures or sensors be used to promote water conservation. Details as notified by the Government shall be followed.
2(c)		Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done.
3	Solid Waste Management	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. Details as notified by the Government shall be followed.
3(a)		All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
3(b)		Treatment of wet waste and sanitary waste on site (organic dry waste also is preferred) using Organic waste composter/Vermiculture pit or any other approved technology shall be installed with a minimum capacity of 0.3 kg /person/day must be installed.
4	Sewage Treatment Plant	Onsite sewage treatment of capacity of treating 100% waste water to be installed, where the sewer lines of the building cannot be connected to city level sewerage system. In case the sewer line of the building can be connected to the city level sewerage system, the relaxation on the size of STP should be obtained from the competent Authority. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharge into the city level sewerage system or as per CPCB norms. Natural treatment systems shall be promoted. Sludge from the onsite

Sl. No.	Medium	Environmental conditions
		sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
5	Energy	Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC. Details as notified by the Government shall be followed. All lighting and other electric fixtures shall be of low energy consumption (Electrical Appliances – BEE Star and Energy Efficient Appliances) Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
5(a)		Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 5% of the power consumption of the project subject to minimum provision made as prescribed in **clause 11.2.3** and as notified by the Government.
5(b)		Solar water heating shall be provided to meet the total hot water demand of the commercial and institutional building. Residential buildings are also to meet its hot water demand from solar water heaters, unless additional power supply from renewable energy sources is provided equal to the power requirement of electric water heaters. Alternatively, if any other hybrid system (including other cost-efficient technologies) is proposed for hot water generation instead of solar water heating system, additional power supply from renewable energy sources shall be provided equal to the power requirement for operating such hybrid or other systems for hot water generation. Details prescribed in **Clause 11.2.4** and as notified by the Government shall be followed.
5(c)		Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include fly ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September 1999 as amended from time to time.
6	Air Quality and Noise	Dust, smoke and other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3 m height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Wheel washing for the vehicles should be done before leaving the site. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be

Sl. No.	Medium	Environmental conditions
		managed as per the provisions of the Construction and Demolition Waste Rules 2016. Details as notified by the Government shall be followed. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask. For indoor air quality, the ventilation provisions as per National Building Code of India.
6(a)		The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
7	Green cover	A minimum of 1 tree for every 80Sq.m of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species
7(a)		Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.
8	Top Soil Preservation and Reuse	Topsoil should be stripped to a depth of 20cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.
9	Transport	A comprehensive mobility plan, as per MoUD best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria. 1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic. 2. Traffic calming measures. 3. Proper design of entry and exit points. 4. Parking norms as per local regulation.
10	Environment Management Plan	An environmental management plan (EMP) shall be prepared and implemented to ensure compliance with the environmental conditions specified in item number 1 to 9 above. A dedicated Environment Monitoring Cell with defined functions and responsibility shall be put in place to implement the EMP. The environmental cell shall ensure that the environment infrastructure like Sewage Treatment Plant, Landscaping, Rain Water Harvesting, Energy efficiency and conservation, water efficiency and conservation, solid waste management, renewable energy etc. are kept operational and meet the required standards. The environmental cell shall also keep the record of environment monitoring and those related to the environment infrastructure.

Note: The solid waste management system and waste water management system proposed in the above tables or as notified by the government (along with monitoring mechanism for the effective functioning of the systems) shall be followed.

By Order and in the name of the Governor of Karnataka

NAGARAJ
Under Secretary to Government
Urban Development Department

Annexure-A

Occupancy Categorization of Buildings for Water and Other Requirement for Fire fighting

Zone-I	Zone-II	Zone-III
GROUP 'A': RESIDENTIAL	**GROUP 'E' : BUSINESS**	**GROUP 'G' : INDUSTRIAL**
A-1 Lodging and Rooming House A-2 One or two family private A-3 Dormitories A-4 Apartment Houses A-5 Hotels A-6 Starred hotels	E-2Laboratories, outpatient clinics, research establishments, libraries and test houses E-3 Electronic data processing centres, computer installations, information technology parks and call centres E-4 Telephone exchanges E-5 Broadcasting stations, T.V. stations and air traffic control towers	G-3 Buildings used for High hazard industries
GROUP 'B' : EDUCATIONAL	**GROUP 'G' INDUSTRIAL**	**GROUP 'H' STORAGE BUILDINGS**
B-1 Schools up to senior secondary level B-2 All others/ training institutions	G-1 Buildings used for Low hazard industries G-2 Buildings used for Moderate hazard industries	This shall include any building or part of a building used primarily for the storage or sheltering of goods, ware or merchandise, vehicles or animals etc.
GROUP'C' INSTITUTIONAL		**GROUP 'J' HAZARDOUS BUILDINGS**
C-1 Hospitals and Sanatoria C-2 Custodial Institutions C-3 Penal and mental Institutions		These shall include any building or part thereof which is used for the storage, handling, manufacture or processing of highly combustible or explosive materials or products which are liable to burn with extreme rapidity and/or which may produce poisonous fumes or explosions
GROUP 'D' ASSEMBLY		
D-1 Buildings having a theatrical or motion picture or any other stage and fixed seats for over 1000 persons D-2 Buildings having a theatrical or motion picture or any other stage and fixed seats up to 1000 persons D-3 Buildings without a permanent stage having accommodation for 300 or more persons but no permanent seating arrangement D-4 Buildings without a permanent stage having accommodation for less than 300persons with no permanent seating arrangement		

Zone-I	Zone-II	Zone-III
D-5 All other structures including temporary structures designed for assembly of people not covered by D-1 to D-4, at ground level D-6 Buildings having mixed occupancies of assembly and mercantile (for example, shopping malls providing facilities such as shopping, cinema theatres, multiplexes and restaurants/ food courts) D-7 Underground and elevated mass rapid transit system		
GROUP 'E' BUSINESS		
E-1 Offices, Banks, professional establishments, like offices of architects, engineers, doctors, lawyers, post offices and police stations		
GROUP 'F' MERCANTILE		
F-1 Shops, Stores, departmental stores, markets (any with covered area upto $500m^{2)}$ F-2 Shops, Stores, departmental stores, markets (any with covered area more than $500m^{2)}$ F-3Underground shopping centres		

Annexure-BI

Fire Protection Requirements for Buildings in Zone-I Category

Sl. No	Measures	Group-A: Residential A-3, A-4, A-5, A-6 (see Note 3)						Group-B: Educational B-1, B-2 (see Note 3 and 23)		Group-C: Institutional al C-1, C-2, C-3 (see Note 3 and 23)		
		I	II	III	IV	V	VI	VII	VIII	VII	VIII	IX
1	Access	P	P	P	P	P	P	P	P	P	P	P
2	Means of Escape	P	P	P	P	P	P	P	P	P	P	P
3	Compartmentation	P	P	P	P	P	P	P	P	P	P	P
4	Refuge Area	X	X	X	P	P	P	X	P	X	P	P
5	Emergency Lights	P	P	P	P	P	P	P	P	P	P	P
6	Exit Signs	P	P	P	P	P	P	P	P	P	P	P
7	Manually Operated Electronic Fire Alarm System (MOEFA) with Talk Back and PA system (see Note 1)	p	p	p	p	P	P	P	P	P	P	P

Sl. No	Measures	Group-A: Residential A-3, A-4, A-5, A-6 (see Note 3)						Group-B: Educational B-1, B-2 (see Note 3 and 23)		Group-C: Institutional al C-1, C-2, C-3 (see Note 3 and 23)		
		I	II	III	IV	V	VI	VII	VIII	VII	VIII	IX
8	Fire Extinguishers	P	P	P	P	P	P	P	P	P	P	P
9	First Aid Hose Reel	P	P	P	P	P	P	P	P	P	P	P
10	Yard Hydrant	X	X	P	P	P	P	X	P	P	P	P
11	Down Comer	P	X	X	X	X	X	P	X	X	X	X
12	Wet Riser	X	P	P	P	P	P	X	P	P	P	P
13	Automatic Fire Detection and Alarm System (see Note 2)	X	X	X	P	P	P	X	X	P	P	P
14	Automatic Sprinkler System	S	S	FS	FS	FS	FS	S	S	FS	FS	FS
15	Under Ground Tank	X	P4	P5	P6	P5	P6	X	P7	P5	P6	P6
16	Over Head Tank	P8	P9	P10	P10	P11	P11	P12	P13	P11	P11	P11
17	Fire Pumps Near UGT (with minimum pressure of 3.5Kg/cm2 at remotest location)	X	P15	P16	P17	P16	P16	X	P19	P15	P16	P16
18	Booster Pumps at the Terrace Tank level with minimum pressure of 3.5 kg/cm2	P14	X	X	X	X	X	P14	X	X	X	X
19	Auto D.G. Set	P	P	P	P	P	P	P	P	P	P	P
20	MCB/ELCB	P	P	P	P	P	P	P	P	P	P	P
21	Hose Boxes	P	P	P	P	P	P	P	P	P	P	P
22	Fireman's Grounding Switch	P	P	P	P	P	P	P	P	P	P	P

Fire Protection Requirements for Buildings in Zone-I Category

Sl. No	Measures	Group-D: Assembly D-1 to D-6 (see Note 22 and 23)				Group-E: Business E-1 (see Note 22)				Group-F: Mercantile F-1, F-2 and F-3 (see Note 3 and 23)		
		X	VII	VIII	XI	X	VII	VIII	VI	VII	VIII	XII
1	Access	P	P	P	P	P	P	P	P	P	P	P
2	Means of Escape	P	P	P	P	P	P	P	P	P	P	P
3	Compartmentation	P	P	P	P	P	P	P	P	P	P	P
4	Refuge Area	X	X	P	P	X	X	P	P	X	P	P
5	Emergency Lights	P	P	P	P	P	P	P	P	P	P	P
6	Exit Signs	P	P	P	P	P	P	P	P	P	P	P
7	Manually Operated Electronic Fire Alarm System (MOEFA) with Talk Back and PA system (see Note 1)	P1	P	P	P	P	P	P	P	P	P	P
8	Fire Extinguishers	P	P	P	P	P	P	P	P	P	P	P
9	First Aid Hose Reel	P	P	P	P	P	P	P	P	P	P	P
10	Yard Hydrant	X	P	P	P	X	P	P	P	P	P	P
11	Down Comer	X	X	X	X	X	X	X	X	X	X	X
12	Wet Riser	P	P	P	P	P	P	P	P	P	P	P
13	Automatic Fire Detection and Alarm System (see Note 2)	P	P	P	P	P	P	P	P	P	P	P
14	Automatic Sprinkler System	S	FS	FS	FS	S	FS	FS	FS	FS	FS	FS
15	Under Ground Tank	P24	P5	P6	P6	P7	P24	P5	P6	P24	P6	P5
16	Over Head Tank	P9 (P25)	P10	P11	P11	P9 (P25)	P10	P11	P11	P10	P11	P10
17	Fire Pumps Near UGT (with minimum pressure of 3.5Kg/cm2 at remotest location)	P15	P15	P16	P18	P19	P15	P16	P18	P15	P16	P16

Sl. No	Measures	Group-D: Assembly D-1 to D-6 (see Note 22 and 23)				Group-E: Business E-1 (see Note 22)				Group-F: Mercantile F-1, F-2 and F-3 (see Note 3 and 23)		
		X	VII	VIII	XI	X	VII	VIII	VI	VII	VIII	XII
18	Booster Pumps at the Terrace Tank level with minimum pressure of 3.5 kg/cm2	X	X	X	X	X	X	X	X	X	X	X
19	Auto D.G. Set	P	P	P	P	P	P	P	P	P	P	P
20	MCB/ELCB	P	P	P	P	P	P	P	P	P	P	P
21	Hose Boxes	P	P	P	P	P	P	P	P	P	P	P
22	Fireman's Grounding Switch	P	P	P	P	P	P	P	P	P	P	P

Legend

I. Height 15 m and above up to 35 m
II. Height 35 m and above up to 45 m
III. Height 45 m and above up to 60 m
IV. Height above 60 m
V. Height 15 m and above up to 30 m
VI. Height above 30 m
VII. Height 15 m and above up to 24 m
VIII. Height 24 m and above up to 30 m
IX. Height 24 m and above up to 45 m
X. Height 10 m and above up to 15 m
XI. For D-6 Occupancy
XII. For F-3 Occupancy
P -To be provided.
X -Not to be provided.
S -Sprinklers to be installed in basement, if area of basement exceeds 200 Sq.m
FS -Fully Sprinklered.

NOTES:

1. *MOEFA System shall also include talk-back system and public address system for the occupancies of A-5 less than 15 m in height if floor area exceeding 1000 m2 on any of the floor, C-1 less than 15 m in height with plot area more than 1000 m2, D-1 to D-5 above 10 m to 15 m in height, and in all buildings 15 m and above in height, except for A-3 and A-4 occupancies where these shall be provided for buildings of height 24 m and above. These shall also be provided in car parking areas more than 300 m2 and in multi-level car parking irrespective of other areas.*
2. *Automatic detection and alarm system is not required to be provided in car parking area. Such detection system shall be required in other areas of car parking such as electrical rooms, cabins and other areas.*
3. *Minimum requirements for Fire Fighting Installations for Buildings less than 15 m in height, Refer NBC 2016, Part 4, Table 7. Building above 15 m in height are not to be permitted for occupancies A-1 and A-2.*
4. *75,000 Litres capacity*
5. *1,50,000 Litres capacity*
6. *2,00,000 Litres capacity*
7. *50,000 Litres capacity*
8. *25,000 Litres capacity*
9. *5,000 Litres capacity per Riser*
10. *10,000 Litres capacity per Riser*
11. *20,000 Litres capacity per Riser*
12. *25,000 Litres capacity per Riser*
13. *5,000 Litres capacity per Riser if basement area exceeds 200 m2.*
14. *Pump Capacity 900 Litre/min.*
15. *Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 2280 Lpm and two electric pump of capacity 180 Lpm (see also notes 20 and 21)*
16. *Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2280 Lpm and one electric pump of capacity 180 Lpm (see also notes 20 and 21)*

17. *Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2850 Lpm and one electric pump of capacity 180 Lpm (see also notes 20 and 21). Lower levels in high rise buildings 60m or above in height are likely to experience high pressure and therefore, it is recommended to consider multi-stage, multi-outlet pumps (creating pressure zones) or variable frequency drive pumps or any other equivalent arrangement.*
18. *Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2850 Lpm and one electric pump of capacity 180 Lpm (see also notes 20 and 21)*
19. *Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 1620 Lpm and two electric pump of capacity 180 Lpm (see also notes 20 and 21)*
20. *One set of pumps shall be provided for each 100 hydrants or part thereof, with a maximum of two sets. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers.*
21. *Alternative to provisions of additional set of pumps, the objective can be met by providing additional diesel pump of the same capacity and doubling the water tank capacity as required for one set of pumps.*
22. *Minimum requirements for Fire Fighting Installations for Buildings less than 10 m in height and D-7 occupancies, Refer NBC 2016, Part 4, Table 7.*
23. *Building above 30 m in height not to be permitted for Group B, Group C, Group D and Group F occupancies.*
24. *1,00,000 Litres capacity*
25. *Additional 5000 Litres to be provided if basement area exceeds 200 m2*

Annexure-BII

Fire Protection Requirements for Buildings in Zone-II Category

Sl. No	Measures	Group-E: Business E-2 to E-5 (see Note 22)				Group-G-1 : Industrial		Group-G-2 : Industrial		
		I	II	III	IV	V	VI	VII	VIII	IX
1	Access	P	P	P	P	P	P	P	P	P
2	Means of Escape	P	P	P	P	P	P	P	P	P
3	Compartmentation	P	P	P	P	P	P	P	P	P
4	Refuge Area	X	X	P	P	X	X	X	X	X
5	Emergency Lights	P	P	P	P	P	P	P	P	P
6	Exit Signs	P	P	P	P	P	P	P	P	P
7	Manually Operated Electronic Fire Alarm System (MOEFA) with Talk Back and PA system (see Note 1)	P	P	P	P	P	P	P	P	P
8	Fire Extinguishers	P	P	P	P	P	P	P	P	P
9	First Aid Hose Reel	P	P	P	P	P	P	P	P	P
10	Yard Hydrant	X	P	P	P	X	P	X	P	P
11	Down Comer	X	X	X	X	P	X	P	X	X
12	Wet Riser	P	P	P	P	X	P	X	P	P
13	Automatic Fire Detection and Alarm System (see Note 2)	P	P	P	P	X	P	P	P	P
14	Automatic Sprinkler System	S	FS	FS	FS	S	S	FS	FS	FS
15	Under Ground Tank	P1	P3	P4	P5	X	P2	X	P3	P4
16	Over Head Tank	P6 (P10)	P7	P8	P8	P8 (P10)	P6 (P10)	P11	P7	P8
17	Fire Pumps Near UGT (with minimum pressure of 3.5Kg/cm2 at remotest location)	P16	P12	P13	P15	X	P16	X	P16	P13
18	Booster Pumps at the Terrace Tank level with minimum pressure of 3.5 kg/cm2	P19 (P21)	X	X	X	P19 (P21)	X	P20	X	X
19	Auto D.G. Set	P	P	P	P	P	P	P	P	P
20	MCB/ELCB	P	P	P	P	P	P	P	P	P
21	Hose Boxes	P	P	P	P	P	P	P	P	P
22	Fireman's Grounding Switch	P	P	P	P	P	P	P	P	P

Annexure-BIII

Fire Protection Requirements for buildings in Zone-III Category(see Note 22 and 23)

Legend

I. Height 10 m and above up to 15 m
II. Height 15 m and above up to 24 m
III. Height 24 m and above up to 30 m
IV. Height above 30 m
V. Covered area more than 500 m2 (for building height up to 15 m)
VI. Covered area more than 500 m2 (for building height above 15 m)
VII. Covered area more than 500 m2 and up to 1000 m2 (for building height up to 15 m)
VIII. Covered area more than 500 m2 and up to 1000 m2 (for building height above 15 m)
IX. Covered area more than 1000 m2
P -To be provided.
X -Not to be provided.
S -Sprinklers to be installed in basement, if area of basement exceeds 200 Sq.m.
FS -Fully Sprinklered.

NOTES:

1. 50,000 Litres capacity
2. 75,000 Litres capacity
3. 1,00,000 Litres capacity
4. 1,50,000 Litres capacity
5. 2,00,000 Litres capacity
6. 5,000 Litres capacity per Riser
7. 10,000 Litres capacity per Riser
8. 20,000 Litres capacity per Riser
9. 25,000 Litres capacity per Riser
10. Additional 5000 Litres to be provided if basement area exceeds 200 m2
11. 50,000 Litres capacity per Riser
12. Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 2280 Lpm and two electric pump of capacity 180 Lpm (see also notes 17 and 18)
13. Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2280 Lpm and one electric pump of capacity 180 Lpm (see also notes 17 and 18)
14. Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2850 Lpm and one electric pump of capacity 180 Lpm (see also notes 17 and 18). Lower levels in high rise buildings 60m or above in height are likely to experience high pressure and therefore, it is recommended to consider multi-stage, multi-outlet pumps (creating pressure zones) or variable frequency drive pumps or any other equivalent arrangement.
15. Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2850 Lpm and one electric pump of capacity 180 Lpm (see also notes 17 and 18)
16. Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 1620 Lpm and two electric pump of capacity 180 Lpm (see also notes 17 and 18)
17. One set of pumps shall be provided for each 100 hydrants or part thereof, with a maximum of two sets. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers.
18. Alternative to provisions of additional set of pumps, the objective can be met by providing additional diesel pump of the same capacity and doubling the water tank capacity as required for one set of pumps.
19. Pump Capacity 450 Litre/min.
20. Pump Capacity 900 Litre/min.
21. Additional 450 Litres/min. to be provided if basement area exceeds 200 m2
22. Buildings above 15 m in height not to be permitted for G-3 occupancies
23. Buildings above 15 m in height not to be permitted for Group H Group J occupancies. However, buildings above 45 m in height shall not be permitted for multi-level car parking (MLCP) occupancy.

Annexure-C

1. **Water Requirement Criterion (as notified by the Government):** Unless otherwise specified in Annexure B, water requirement for fire fighting in different categories of occupancies shall be based on following.

Occupancy Category	Sprinkler Design Discharge Density (lt./min/Sq.m)	Sprinkler Design Area (Sq.m)	Max. area coverage/ Sprinkler (Sq.m)	No. of House Streams* Fully other Sprinkled	Duration of Discharge (Min.)	
					Fully Sprinkled	Wet Riser Sprinkled
LEVEL-I	02.5	084	21	24	45	45
LEVEL-II	05.0	360	12	36	60	90
LEVEL-III	10.0	225	09	36	90	90

Note: *The discharge through a standard hose stream shall be taken as 567 lt./min.*

2. **Estimation of Total Water Requirements Fully Sprinklered Buildings (as notified by the Government)**

Occupancy Category	Sprinkler(lt.)	Riser(lt.)	Total(lt.)	Wet Riser cum Down Comer (lt.)
LEVEL-I	9,450	51,030	60,480 (60,000)	1,02060 (1,00,000)
LEVEL-II	1,08,000	1,02,060	2,10,060 (2,00,000)	2,04,120 (2,00,000)
LEVEL-III	2,02,500	1,02,060	3,04,560 (3,00,000)	3,06,180 (3,00,000)

3. **Water Storage Tanks (as notified by the Government)**
   (1) The design of the water storage tanks shall be as laid down in National Building Code of India.
   (2) The capacity of underground water storage tank shall not be more than85% of the total water requirement.
   (3) The capacity of overhead tank shall not be less than 15% of the total water requirement.
   (4) The entire water requirement can be provided in overhead tanks and pumping requirements shall be finalized in consultation with Chie Fire Officer.
   (5) Under ground water storage tank shall not be provided in the setback areas.

Occupancy Category	Under Ground Static Tank		Over Head Tank	
	Fully Spkd. (lt.)	Riser (lt.)	Fully Spkd.(lt.)	Riser(lt.)
LEVEL-I	50,000	85,000	10,000	15,000
LEVEL-II	1,70,000	1,70,000	30,000	30,000
LEVEL-III	2,50,000	2,50,000	50,000	50,000

4. **Riser/Down comer (as notified by the Government)**
   (1) The size of the riser/ down comer shall be such that velocity of flow does not exceed 5m/second subject to a minimum of 100mm diameter.
   (2) The number of riser/down comer shall be calculated on the basis that if 30 m of delivery hose is laid, it reaches the farthest comer of the remotest compartment on the floor.
   (3) The riser/down comer shall be provided in the staircase/staircase lobby in such a manner that it does not obstruct the means of escape.
   (4) Only single headed hydrants shall be used on the riser/down comer.
   (5) The size of hose to be provided with the internal hydrants shall be 50mm diameter and with 63mm diameter instantaneous male/female couplings.
   (6) Diffuser branch shall only be provided in the hose boxes.
   (7) In case of partially sprinklered building tapping from the wet riser is permitted for sprinkler feed.
   (8) In case of fully sprinklered building separate rising mains and pumps shall be used for sprinkler system and wet riser.

5. **Selection of Pumps (as notified by the Government)**
   (1) Pumping requirement shall be met by a single pump or combination of pumps.
   (2) If more than one pump is installed to meet the pumping requirement they shall be so arranged that they come into operation one after another depending upon fall in pressure in the mains and the combined pumping capacity shall be 20% more than the actual pumping capacity needed.
   (3) Jockey pump shall be selected to give minimum 3% and maximum 5% of aggregate pumping requirement at the same pressure to that of the main pump subject to maximum discharge of 450 LPM.

(4) Standard pumps shall only be used having discharge capacity as 180LPM, 2280LPM 2850 LPM and 4550 LPM.

(5) The pump shall be capable of giving the pressure as shown in the table below:

Occupancy Category	Pressure* At Terrace Level	
	Fully Spkd. *(Kgf./Cm²)*	Riser *(Kgf./Cm²)*
LEVEL-I	3.5	3.5
LEVEL-II	3.5	5.5
LEVEL-III	3.5	7.0

* Orifice *plates shall be installed at the hydrants on rising mains / yard hydrants to ensure that the pressure does not exceed 7 Kgf./Cm²*

6. Manual for Fire and Life Safety Measures (as notified by the Government)

APPENDIX-I

(see clause 2.123, 3.10.1, 3.10.1.e, 7.3, 12.5)

PROCEDURE FOR REGISTRATION OF VARIOUS STAKE HOLDERS WITH THE AUTHORITY

The Stake holders to be registered with the Authority are;

A. Promoters who are developing Real estate projects within the jurisdiction of the Authority

B. Professionals on record for drawings (to prepare drawings for building licence and for NOCs from different departments)

C. Professionals on record for supervision (to supervise the works executed in site - civil works and other services) including Construction Manager on Record (CMR) responsible for issuing Completion Certificate.

D. Professionals who are interested in registering with the Authority as Empanelled Professionals, to verify the site plan with reference to the site conditions, certify the works executed in site with reference to the various drawings submitted, and to certify the building licences as notified by the government.

E. Contractors intending to undertake construction activities within the jurisdiction of the ULB (for Civil, electrical, Plumbing and Sanitation, High Voltage Air Conditioner (HVAC), Fire and Emergency services)

The following procedure shall be adopted by the ULBs to register the Stake holders with the ULB;

(1) The Stake holders shall register themselves with the Authority by providing their identity proof, submitting an undertaking cum affidavit (in the format notified by the Government) and payment of the fees as notified by the Government.

(2) The Promoter who intends to develop real estate project within the jurisdiction of the ULB, shall do a onetime registration with the Authority.

(3) Professionals intending to prepare the required drawings and details (Architectural, Structural, Services and Environmental), the Professionals intending to prepare the required drawings and details for obtaining NOCs from the concerned departments and the Professionals intending to supervise the construction of the various components of the building shall do a onetime registration with the Authority in the respective category based on the eligibility criteria of Qualification, Experience and Competence, as notified by the Government.

(4) Professionals who are interested in registering with the Authority as Empanelled Professionals to verify the site plan with reference to the site conditions, verify the works executed in site with reference to the various drawings submitted, and to certify the building licences as notified by the government shall do a onetime registration with the Authority in the respective category based on the eligibility criteria of Qualification, Experience and Competence, as notified by the Government.

(5) Contractors intending to undertake construction activities within the jurisdiction of the ULB (for Civil, electrical, Plumbing and Sanitation, HVAC, Fire and Emergency services) shall do a onetime registration with the Authority.

(6) The procedure for registration and allotting the registration no. for the stake holders and the fee payable for empanelled professionals for verifying the works executed at site shall be as notified by the Government.

APPENDIX-IA

(see clause 7.3, 7.4, 15.5)

LIST OF PROFESSIONALS ON RECORD (FOR DRAWINGS and SUPERVISION) AND EMPANELLED PROFESSIONS ANDTHEIR REQUIREMENT FOR DIFFERENT TYPES OF BUILDINGS

Professional on Record (PoR)

TYPES OF PROFESSIONALS:

Professionals involved in the development of Land and Buildings are grouped into;

A. Professionals on record (PoR)

Professional on Record may be individuals or agencies. Agencies are legal entities such as Companies, Firms, Societies etc. having multi-disciplinary professionals. If an agency is registered as PoR, it should specify the details of the individual professionals eligible for each category of PoR mentioned here below. Such agencies can be registered as any one of the following;

(a) Architectural Agency on Record **(AAR)**
(b) Engineering Agency on Record **(EAR)**
(c) Architectural and Engineering Agency on Record **(AEAR)**

1. Professionals on record for drawings

Professionals eligible to prepare the various categories of drawings required for obtaining sanction for land development and building development and also for obtaining the required NOCs on behalf of the Owner / Promoter (to be appointed by the Owner / Promoter), along with their respective designation and codes are as follows;

(a) PoR for preparing Planning and Design drawings and details for Plot approval (Single site, Bifurcation of Plot, Development Plan and Layout including Integrated Township) and building licence and to provide details of Specifications of Materials and other details of the components of the building – Architect on Record **(AR)** / Engineer on Record **(ER)**
(b) PoR for preparing Structural drawings and details for building licence – Structural Engineer on Record **(SER)**
(c) PoR for preparing Electrical (including use of Renewable Energy Sources) and HVAC drawings and details for layout approval (including Integrated Township) and building licence – Electrical Engineer on Record **(EER)**
(d) PoR for preparing Water Supply system, Sewerage system and Storm water drains (including rain water harvesting techniques) and Fire Fighting System drawings and details for layout approval (including Integrated Township) and building licence – Public Health Engineering (PHE) consultant on Record **(PCR)**
(e) PoR for preparing roads, Traffic and Transportation (including traffic surveys) drawings and details for layout approval (including Integrated Township) and Building licence – Transportation Engineer on Record **(TER)**
(f) PoR for preparing drawings and details of solid waste management system, Pollution Mitigation for layout approval (including Integrated Township) and Building licence (including other requirements related to Environmental issues) – Environmental Engineer on Record **(ENER)**
(g) PoR for preparing Land scape (including Tree plantation) and management / rejuvenation on water bodies drawings and details for layout approval (including Integrated Township) and Building licence – Landscape Architect on Record **(LAR)**
(h) PoR for the drawing and details of Urban planning components of the Integrated Township and Building Licence of Mega building projects for Layout approval and Building licence – Urban Planner on Record **(UPR)**
(i) PoR for conducting Geo Technical tests (soil test, hydrological test etc.) – Geo technical Engineer on Record **(GER)**
(j) PoR for conducting Geo Physical Surveys (using Total Intelligent Station, GPS etc.) – Surveyor on Record **(SR)**

2. Professionals on record for supervision

Professionals eligible to supervise the development works of layouts and integrated townships and to supervise the construction activities of various types of buildings on behalf of the Owner / Promoter (to be appointed by the Owner / Promoter), along with their respective designation and codes are as follows;

a) PoR for supervising the Civil Works (including RCC / Steel Structure) and other major works (including roads, PHE works, solid waste management works, landscape works etc.) of the layouts and buildings and appointed as Principal Professional for Supervision and to issue Work Completion Certificate–Construction Manager on Record **(CMR)**

b) PoR for supervising the Electrical and HVAC works of the building – Electrical Supervisor on Record **(ESR)**

Note:

(1) The Owner / Promoter shall appoint the required Professionals on Record as notified by the Government. The Owner / Promoter shall enter into an agreement with all the required PoR specifying the responsibilities of both the parties as specified in these Byelaws. The Association of the respective Professionals on Record recognised by the Competent Authority shall be the sole Arbitrator in such Agreements.

(2) The Owner / Promoter shall intimate the Authority in case of any change in the PoR and inform the details of the new PoR appointed. Similarly, the PoR also shall intimate the Authority, if he withdraws the services provided in any project.

(3) The Owner / Promoter shall not carry out any work in the building site without all the required PoR in place.

B. Empanelled Professionals (EP)

Professionals eligible to undertake the responsibilities on behalf of the Authority and in the absence of Empanelled Professionals in any Authority, the designated officer who shall undertake such responsibility and fees payable by the owner / promoter for such activities are specified as follows;

1. Professionals eligible for empanelment to certify the design, drawings and details prepared by Professionals on Record for drawings.

(f) Empanelled Structural Engineer for Structural Design Review Panel (SDRP) to certify the Structural Design Basis Report (SDBR) submitted by SER and Geo Technical tests submitted by GER – Empanelled Structural Engineer **(EMSE)**

In the absence of EMSE to form SDRP for any Authority, the SDRP for the Local Authority of the District Head Quarters or the civil department of the Engineering Colleges of the District, empanelled by the Authority shall act as SDRP for such Authority.

(g) Empanelled Electrical Engineer for certifying the details and drawings of Electrical Systems (including use of Renewable Energy Sources) and HVAC Systems submitted by EER – Empanelled Electrical Engineer **(EMEE)**

In the absence of EMEE, the Executive Engineer of the concerned Escom having jurisdiction of the Plot.

(h) Empanelled PHE Engineer for certifying the details and drawings of Water Supply system, Sewerage system and Storm water drains (including rain water harvesting techniques) and Fire Fighting System submitted by PCR – Empanelled PHE Engineer **(EMPE)**

In the absence of EMPE, the Executive Engineer of the Authority in charge of Water Supply System and in the absence of Executive Engineer in the Authority, the Executive Engineer of KUWS&DB having jurisdiction of the Local Authority or the Executive Engineer of the Local Authority of the District Head Quarters.

(i) Empanelled Environment Engineer for certifying the details and drawings of solid waste management system, Pollution Mitigation, Land scape (including Tree plantation) and management / rejuvenation on water bodies and other requirements related to Environmental issues, submitted by TER and ENER – Building Environment Auditor **(BEA)**

In the absence of BEA, the Environment Engineer of the Authority and in the absence of Environment Engineer in the Authority, the District level officer of Pollution Control Board having jurisdiction of the Local Authority

(j) Empanelled Transportation Engineer for certifying the details and drawings of roads, Traffic and Transportation (including traffic surveys), submitted by TER and ENER – Building Environment Auditor **(EMTE)**

In the absence of EMTE, the Executive Engineer of NH division of PWD having jurisdiction of the Local Authority

2. Professionals eligible for empanelment to certify the site plan for the various types of plot approvals and the development works executed in site for Layouts, Integrated Townships and Buildings.

(a) Empanelled Engineers for certifying the Site plan submitted by AR / ER and for certifying the civil works (including RCC and Steel structure) and other major works (including roads, PHE works, landscape works etc.) executed at site, after site inspection – Empanelled Engineer **(EME)**

In the absence of EME, the TPO or any other designated officer of the Authority.

(b) Empanelled Engineers for certifying the Electrical Systems (including use of Renewable Energy Sources) and HVAC Systems works executed at site, after site inspection – Empanelled Electrical Engineer (EMEE)

In the absence of EMEE, the Executive Engineer of the concerned Escom having jurisdiction of the Plot.

(c) Empanelled Environment Engineers for certifying the, solid waste management system, Pollution Mitigation, land scape (including Tree plantation) and management / rejuvenation on water bodies etc. executed at site, after site inspection – Empanelled Electrical Engineer (BEA)

In the absence of BEA, the Environment Engineer of the Authority and in the absence of Environment Engineer in the Authority, the District level officer of Pollution Control Board having jurisdiction of the Local Authority.

3. Professionals eligible for empanelment to certify the quality of materials and other

Empanelled Engineers for certifying the quality of materials and other details of the components of the building executed in site in comparison with the specifications submitted by the AR / ER and those provided in these Byelaws – Building Quality Auditor **(BQA)**

4. specifications of the various components of the building.

In the absence of BQA, the TPO or any other designated officer of the Authority

5. Professionals eligible to sanction Building Licence

Empanelled Architect / Engineer for sanctioning the Building Licence as per **Clause 3.15.2** and **Clause 14.4.1** – Empanelled Architect / Empanelled Engineer (**EMA / EME)**

In the absence of EMA / EME, the TPO or any other designated officer of the Authority.

Note: *The fees payable for the different Empanelled professionals for the various activities mentioned above shall be as notified by the Government.*

APPENDIX-II

(see clause 3.10.2)

DETAILS OF PLANS AND OTHER PARTICULARS TO BE SUBMITTED FOR SANCTION FROM THE AUTHORITY FOR DIFFERENT TYPES OF BUILDINGS.

A – Requirements of Key Plan(see clause 3.11.1)

The key plan shall be prepared in a legible scale showing the location of the plot in the Master Plan containing the following features within 500m around the plot, namely: -

(a) Location of all existing and proposed roads of the Master Plan mentioning the existing and proposed width and hierarchy of roads;
(b) Location of all existing Storm Water Drains and other water bodies;
(c) Location / Alignment of overhead or underground HT power supply lines (High Tension Electric lines);
(d) Location / Alignment of sewerage system of ULB;
(e) Location of Railway line / Railway station within 50m from the boundary of the plot;
(f) Index of drawing as specified in **Appendix-III**.

B – Requirements of Site Plan (see clause 3.11.2)

The site plan shall be prepared in a legible scale, preferably of 1:200 or 1:500 with plan oriented in North-South direction. The site plan shall contain the following details, namely: -

(a) All site boundaries with dimensions, by superimposing the survey sketch issued by Revenue Department, the sketch attached to the title document and the survey sketch prepared by conducting physical survey of plot using Total Intelligent Station. At least 3 boundary points of all the sketches should match when superimposed. The innermost boundaries of the plot derived by superimposing all the sketches shall be considered as the boundary of the plot and the area of the plot within such boundary shall be considered as the extent of the plot as existing at site;
(b) Extent of plot, which shall be lesser of the extent as per document, revenue sketch or as existing at site (as derived from clause 'a' above);
(c) All roads abutting the plot with existing width, proposed width and centre line of the road. The road widening line and building line, if any, shall be marked on the plot, if applicable, showing the portion of the plot required for road widening; (in case of varying width of the road, the survey of the road using total intelligent station shall be attached showing the average width of the road as per the provisions of the ZR)
(d) Portion of Plot to be reserved for Park and Open Spaces and Civic Amenities, if required as per Section 17 of Karnataka Town and Country Planning Act, 1961;
(e) Land use as per Master Plan and the permitted land use as per Zonal Regulations;
(f) Contours of the plot at 1m intervals along with the levels of the adjoining plots and of the abutting roads;
(g) Location with dimensions and extent of Kharab lands within the plot;
(h) Location of roads of the Master Plan passing through the plot, if any;

(i) Location of all natural features such as trees, water bodies (including wells, ponds, storm water drains, etc.) quarries including buffer area, etc.;
(j) Location of city level sewerage and H.T. lines passing through the plot including buffer area;
(k) Eligibility for relaxation of setbacks as per Zonal Regulations;

The following additional details shall be incorporated in the site plan;

(a) Building footprint (portion of the floor plan of the building projecting above the ground) for Ground coverage and setbacks and the projections in the upper floors, beyond the footprint area (in dotted line).
(b) Details of constructions provided in the setback area of the plot, including ramps (along with slope of ramp), driveway and also the parking spaces provided in the open yard.
(c) Details of the over ground and underground services provided such as water supply, sewerage, power supply and telecommunication system and details of the rain water harvesting system (pipelines, cables, chambers, manholes, transformer and generator yard / substation, STP and pump room, solid waste management plant, etc.)
(d) Entry and Exit to plot with gate and entry / exit arch details.
(e) Levels contiguous to the building and the boundaries / corners of the plot.
(f) Details for identification of neighbouring properties.
(g) Portion of the plot earmarked as unpaved areas as per clause and chapter wherever applicable.
(h) Index of drawing as specified in **Appendix-III**.

C – Requirements of Floor Plan for parking area (see clause 3.11.3)

The following details shall be provided in the plan of the floor showing parking area (for full or portion of the floor)

a. Details of entry / exit ramps (ramp from outside the building to the parking floor and ramp between parking floors, as applicable), such as number of ramps, width of the ramp and slope.
b. Width of all driveways in the parking area and the width of each of the parking bay abutting the driveway.
c. Width of columns provided in the parking floors and clear spacing between the columns, location of staircases, lifts and toilets, with dimensions.
d. Level of floor with reference to the ground level contiguous to the building or the road level whichever is considered for the height of the building.
e. Minimum Setback line from the boundary of the plot and in case of basement floor, the distance between the boundary and the parking floor periphery.
f. Details of any other uses proposed within the parking area / floor.
g. no. of parking bays provided (4 wheeler and 2-wheeler), separately showing single parking, double parking (one behind the other and one above the other – mechanical parking) and automatic parking devices adopted such as car lift etc. (along with the approval of the agencies notified by the Government), as applicable.
h. Index of drawing as specified in Index of drawing as specified in **Appendix-III.**

D – Requirements of Floor Plans of other uses (see clause 3.11.4)

(1) Residential:

Separate floor plans for each of the typical floors have to be prepared with the following details;

(a) Plan of the dwelling units with areas of sub uses such as foyer, living, dining, bedroom, study, kitchen, bathroom, WC, toilet, balcony etc. mentioned separately. The carpet area (excluding exterior wall and balcony of the dwelling unit) and plinth area (including exterior wall and balcony of the dwelling unit) of the dwelling unit has to be mentioned. Area of exclusive balcony and terrace attached to each dwelling unit has to be mentioned.
(b) Room dimensions and details of doors, windows, ventilators, duct doors and other openings shall be shown.
(c) All common areas such as staircases and lifts, corridors / passages, service / ventilation ducts, stores, entrance lobby etc. have to be shown along with dimensions.
(d) Level of floor with reference to the ground level contiguous to the building or the road level whichever is considered for the height of the building.
(e) Minimum Setback line from the boundary of the plot and balconies projecting beyond the setback line.
(f) No. of dwelling units in each floor (details of all types of dwelling units) and no. of typical floors.

(g) Terrace floor plan with details of open terrace, covered terrace, staircase room, lift / lift machine room, overhead tank, toilets and other permitted constructions in the terrace floor. (If overhead tank and the lift machine room is located one level above the terrace floor, the same has to be specifically mentioned in the Terrace floor plan).
(h) Details of all staircases provided (width, tread, riser, landing, handrail, head room, no. of steps in each flight).
(i) Details of corridors / passage (minimum width required and width provided, parapet details)
(j) Section lines
(k) Index of drawing as specified in **Appendix-III**.

(2) Commercial:

Separate floor plans for each of the typical floors have to be prepared with the following details;

(a) Plan of the commercial premises with areas of sub uses such as retail display area, office area, work area, stores, toilet, etc. mentioned separately. The carpet area (excluding exterior wall and balcony of the premises) and plinth area (including exterior wall and balcony of the premises) of the premises has to be mentioned. Area of exclusive balcony and terrace attached to each dwelling unit has to be mentioned.
(b) Room dimensions and details of doors, windows, ventilators, duct doors and other openings shall be shown.
(c) All common areas such as staircases and lifts, corridors / passages, service / ventilation ducts, stores, entrance lobby etc. have to be shown along with dimensions.
(d) Level of floor with reference to the ground level contiguous to the building or the road level whichever is considered for the height of the building.
(e) Minimum Setback line from the boundary of the plot and balconies projecting beyond the setback line.
(f) No. of premises in each floor and no. of typical floors.
(g) Terrace floor plan with details of open terrace, covered terrace, staircase room, lift / lift machine room, overhead tank, toilets and other permitted constructions in the terrace floor. (If overhead tank and the lift machine room is located one level above the terrace floor, the same has to be specifically mentioned in the Terrace floor plan).
(h) Common toilet requirements and provisions made.
(i) Details of all staircases provided (width, tread, riser, landing, handrail, head room, no. of steps in each flight).
(j) Details of corridors / passage (minimum width required and width provided, parapet details)
(k) Section lines
(l) Index of drawing as specified in **Appendix-III**.

(3) Other non-residential and non-commercial:

All details similar to that of commercial use except details of no. of premises, carpet area and plinth area of the independent premises in the floors, within the non-residential and non-commercial uses.
Index of drawing as specified in **Appendix-III.**

E – Requirements of Sections of Building (see clause 3.11.5)

Drawings for the vertical sections cut across the floor plans of the building shall be provided in such a way that any one or more section drawings shall cut across all the main staircases connecting all the respective floors of the building.
Section drawings shall also be drawn across all the floors wherever the plan of a floor projects outward or recedes inward from the lower floor, including section cut across upper Ground floor and lower ground floor, if applicable.
The section shall also cut across maximum earth cut or fill areas of the plot showing the original ground level and the formed ground level with the proposed retaining wall details. The section shall also show the general foundation details of the building.
The section drawings shall mark all the building components and structural elements (foundation, walls, slab and beams, roof, etc.,) along with the dimensions. The type / specification of material for each component shall also be mentioned.
The section drawing shall also show the ground levels contiguous to the building, average ground level contiguous to the building and also the levels of each floor. The section drawing

shall also have the floor to floor height (including mezzanine floor, if applicable) and the height of the building measured from the average ground level contiguous to the building or the road level, as the case may be, to the terrace floor level or the roof level, as the case may be.
Index of drawing as specified in **Appendix-III**.

F – Requirements of Elevation of buildings (see clause 3.11.6)

Elevation drawings shall be drawn for all side elevations showing the structural features of the building visible on each elevation such as windows and other openings, slab and other architectural projections.
Height of the building with reference to ground level or road level.
Index of drawing as specified in **Appendix-III**.

G – Requirements of Drawings for all services provided

(a) Electrical system including use of alternate energy (see clause 3.11.7(a))
Electrical drawings of all floors showing the location of electrical fixtures, switch boards, etc., both inside the specific use areas and common areas along with fixture schedule and details of wiring.
Details of electrical ducts (horizontal and vertical), panel room, 11KV sub-station (transformer and other requirements) and generator facilities.
Single line diagram of the power distribution system.
Details of alternate energy sources proposed.
(as detailed in **Clause 5.3**)

(b) Water Supply system (see clause 3.11.7(b))
Drawings showing Plumbing pipelines and fixtures inside the toilets of specific use areas and common areas with fixture schedules and pipeline layout.
Pipeline details in Sanitary ducts and connectivity to overhead and sump tanks and connectivity from Municipal water supply line and water pumping system.
Details of Solar water heating system
(as detailed in **Clause 5.3**)

(c) Rain Water harvesting and ground water recharging system (see clause 3.11.7(c))
Drawings showing Terrace water collection, filtration and connection to sump tank or ground water recharging pits.
Ground water recharging
(as detailed in **Chapter 10**and**Clause 11.2**)

(d) Sewerage system (see clause 3.11.7(d))
Drawings showing Drainage pipelines and sanitary fixtures inside the toilets of specific use areas and common areas with fixture schedules and pipeline layout.
Pipeline details in Sanitary ducts and connectivity to Inspection chambers and manholes.
Inspection chambers and manholes in the ground and connectivity to Municipal sewer lines or sewage treatment plant.
(as detailed in **Clause 5.3**)

(e) HVAC system (see clause 3.11.7(e)

A. Floor Plan
(1) Corresponds to submitted or previously approved building plans, including interior layout, room names and uses, wall and roof insulation R-values, door/window/skylight U-factors
(2) Location, volume, and/or rates in CFM of exhaust, make-up air, outdoor air and combustion air
(3) Location of equipment and appliances, fire, smoke and ceiling radiation dampers, grease duct wraps
kitchen hood exhaust duct, grease duct enclosures, suppression systems, controls, monitors, etc.
(4) Duct sealing requirements stated
(5) HVAC distribution via ductwork, sizing, location
(a) Metal duct gauge, geometry (round, square, rectangular)
(b) Flexible duct diameter, specification

(c) Flexible connector diameter, length limitations
(d) Underground duct construction, materials, vapours barriers, insulation (R-values), clearances, cross section, slope
(e) Plenum construction materials and locations

B. Sections or Details

(1) Insulation for duct or pipe; type, R-value labelling required on plans and in the field
(2) Pipe: size, type, hydraulic or gas
(3) Exhaust rates in CFM
(4) Kitchen hood construction information provided
(5) Air transfer to corridors only as allowed by code
(6) Clothes dryer exhaust duct distribution, length, access doors, etc.
(7) Metal duct gauge, geometry, means of fastening, maximum length
(8) Transition duct limitations and requirements
(9) Grease duct wrap defined for manufacturer and type
(10) Hydraulic systems have floor assembly which meets minimum under-floor/slab insulation and testing requirements

C. Equipment Information

(1) Equipment schedules or similar provided which define equipment type, capacities, efficiencies, kitchen hood suppression, as well as associated air rates in CFM
(2) Listing shows compliance with ASTM/UL/NFPA/ANSI etc. standards as required to be met by the code
(3) Operation, setback/demand control ventilation/operational controls/interlocks sequencing of all equipment, and location of controls
(4) Provision of economizer indicated if required as part of installation
(5) Provision of make-up air
(6) Platform and clearance locations for rooftop equipment defined
(7) Roof access indicated on plans (if required)
(8) Guardrail location and dimensions for roof equipment as required by code
(9) Condensate disposal location indicated
(10) Duct smoke detection system (if required)
(11) Duct smoke detector locations, model defined, installation defined (on return only or return and supply), sequence of operation defined
(12) Control panel location, model
(13) Smoke control system
(14) Apparatus used (based on submitted calculations)
(15) Designate pressure classification of the duct system based on standards.
(16) Fire, smoke and ceiling radiation dampers defined for ratings, locations and operations
(17) Hydraulic systems fully defined for type of, length of, size of, flow rate in pipe; testing requirements addressed, under floor insulation (shall be addressed in building envelope calculations)
(18) Structural weight of rooftop equipment listed on plan and associated structural design accounted for

D. Calculations

(1) Room by room heat loss calculations, not just an overall summary
(2) Heat gain calculations may be done by area served by appliance (if AC provided)
(3) Transmission plus greater of infiltration or ventilation (furnace sizing)
(4) Structural calculations provided to verify that weight of proposed appliances does not exceed load bearing capability of roof, mezzanine, platform, etc.
(5) Volume of exhaust and outdoor air intake are approximately the same
(6) Smoke control system sizing
(7) Outside air required for each room/space where different occupancies are served by one appliance

E. Ventilation Criteria

(1) Mechanical ventilation rates used shall meet minimum requirement as per standards.
(2) Natural ventilation shall be as per NBC 2016.
(3) Exceptions met and clearly stated on plans or in calculations

F. Minimum Clearances

(1) Exhaust and outside air intakes to property lines and buildings
(2) Distance between intake to exhaust ventilation openings
(3) Overhead clearances (suspended appliance)
(4) Location of intakes above ground/roof
(5) Combustible material clearances to heat-producing appliance

G. Type of fuel used by HVAC equipment
(1) Natural Gas
(2) Electricity
(3) Fuel Oil
(4) Wood or pellets
H. Combustion Air
(1) Provide calculations used to determine if internal building air can be used, or if outside combustion air is required to be provided
(2) Define number, location and size of transfer ducts, and louver/grill openings
I. Balancing Report is Required to be On-Site
J. Maintenance and Operation Manuals are Required to be Provided to Owner
(as detailed in **Clause 5.3**)

H – Requirements of Landscape plan (see clause 3.11.8)
Landscape plan shall be enclosed with the application for building licence in case of building proposed in plots above 4000 Sq.m. The following details shall be provided in the landscape plan
(a) Building foot print and all other constructions proposed in the yard including details of the over ground and underground services provided such as water supply, sewerage, power supply and telecommunication system and details of the rain water harvesting system (pipelines, cables, chambers, manholes etc.)
(b) Details of the parking spaces and other concreted or paved areas provided in the yard.
(c) Area reserved for park and open spaces (as per the provisions of Section 17 of Karnataka Town and Country Planning Act,1961)
(d) Areas proposed to be developed as green space (including in the areas reserved as park and open spaces)
(e) Type of land landscape, plantation and trees proposed.
(f) Index of drawing as specified in **Appendix-III**.

I – Requirements of Circulation Plan and Traffic study and Impact (see clause 3.11.9.)
Detailed calculations of traffic studies conducted in the locality and the impact of the development proposed, on the existing traffic scenario.

J – Requirements of Structural Drawings (see clause 3.11.10)
Structural drawings show the structural support components and details of the proposed project, from the foundation to the rooftop. All structural systems for a building that is designed must be signed and sealed by a licensed engineer.
Minimum information requirements for structural drawings include, but are not limited to, the following:
- Foundation plans, pile design (with layout), details, sections and all applicable schedules e.g. (pile schedules)
- Slab-on-grade and slab plans, section and details
- Cast-in-place concrete floor plans
- Floor framing plans, sections and details
- Roof framing plans, sections and details
- Structural steel framing plans, sections and details
- Pre-engineered building design certificates and drawings
- Load bearing walls, pads, columns, beams and joists
- Pre-cast concrete plans, details and sections
- Connection details for all components
- Retaining walls
- Building mounted antennas
- Large, heavy or high signs
- Pedestrian bridges, crane runways, and other special structures
- All other requirements as detailed in Chapter 7

K – Requirements of Green Building drawings (see clause 3.11.11)
(as detailed in Chapter 11)

APPENDIX-III

(see Appendix-II)

A – Index of Key Plan

The details to be contained are as follows

(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Existing and proposed width of roads abutting the plot
(7) Marking of North direction
(8) Date of approval

B – Index of Site Plan;

The details to be contained are as follows

(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Existing and proposed width of roads abutting the plot
(7) Extent of plot
    (a) Total extent (as per document, as per site condition and considered for building licence)
    (b) Extent to be surrendered for road widening (whether compensation paid – monetary of in the form of DR)
    (c) Extent to be surrendered for P and OS and CA, if applicable.
    (d) Net area for development
    (e) Net area considered for FAR calculation
(8) Land use analysis
    (a) Land uses of plot as per Master Plan
    (b) Permitted land uses as per Zonal regulations
    (c) Existing land use of areas in the plot (% of area for roads, Park and Open Space and Civic Amenities, if applicable and % of area for development).
(9) Summary of area statement of buildings with floor wise area details and FAR (permitted and proposed including DR / TDR).
(10) Ground coverage (permitted and proposed)
(11) Setbacks (required and provided)
(12) Parking space (required and provided)
(13) Public Toilet for Commercial Buildings (required and provided)
(14) % of floor areas provided for community facilities, in case of Group housing.
(15) Details of Means of Access, if applicable.
(16) Marking of North direction
(17) Date of approval

C – Index of Floor Plan for parking area

The details to be contained are as follows

(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Land use analysis
    (a) Land uses of plot as per Master Plan
    (b) Permitted land uses as per Zonal regulations
    (c) Proposed land use for different specific uses in the floor (% of floor area for different specific uses in the floor, including the proportionate percentage of common areas)
(7) Summary of area statement, including floor area of buildings with floor wise area details required for calculating parking space requirement.

(8) Parking space (required and provided)
(9) Date of approval

D – Index of Floor Plans of other uses

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of area statement of floor with details of total construction areas, areas considered for FAR and exempted from FAR, toilet areas, specific use areas and common areas, areas considered for parking calculations and details of FAR (permitted and proposed including DR / TDR).
(7) Schedule of openings
(8) Carpet area and plinth area of individual dwelling units and commercial premises in the floor.
(9) no. of staircases and lifts (width of each staircase and capacity of each lift)
(10) Public Toilet for Commercial Buildings (required and provided)
(11) % of floor areas provided for community facilities, in case of Group housing.
(12) No. of seats in case of Assembly buildings and no. of beds in case of hospitals and nursing homes.
(13) Date of approval

E – Index of Sections of Building

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Date of approval

F – Index of Elevation of buildings

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of Commissioner
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Date of approval

G – Index of Drawings for all services provided

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of the particular service provided (minimum requirements and provisions made)
(7) Date of approval

H-Index of Landscape plan

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of the landscape details provided (type of landscape and tree plantation made)
(7) Date of approval

I – Index of Circulation Plan and Traffic study and Impact

The details to be contained are as follows
(1) Name and address of the Applicant and space for signature

(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of the road network provided in the development plan
(7) Summary of traffic study conducted and impact (critical conditions and provisions made)
(8) Date of approval

J – Index of Structural Drawings

The details to be contained are as follows

(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of the road network provided in the development plan
(7) Summary of traffic study conducted and impact (critical conditions and provisions made)
(8) Date of approval

K – Index of Green Building drawings

The details to be contained are as follows

(1) Name and address of the Applicant and space for signature
(2) Name and address of Professional on record for drawing and space for signature
(3) Name and address of the Authority and space for signature of CEO
(4) Title of drawing
(5) Survey nos., village name, Taluk name and district name where the plot is situated.
(6) Summary of the Green building requirements (minimum requirements and provisions made for each category of green building requirement)
(7) Date of approval

APPENDIX-IV

(see clause 3.10.1(c), 3.10.2)

DETAILS OF PLANS AND OTHER PARTICULARS TO BE SUBMITTED FOR NOCS FROM OTHER DEPARTMENTS FOR DIFFERENT TYPES OF BUILDINGS.

(as prescribed by the respective departments)

APPENDIX-V

(see clause 3.10.6(1))

PROCEDURE FOR EMPANELMENT OF PROFESSIONALS BY THE AUTHORITY AND SELECTION OF EMPANELLED PROFESSIONALS

The following procedure shall be adopted for empanelling the professionals by the respective ULBs and to select the empanelled professional for site inspection to verify the various components of buildings executed at site and also to certify building licence as notified by the government;

1. The eligibility of empanelled professionals to verify different types of buildings, based on the qualification, experience and competence fixed as notified by the government.
2. Every ULB shall call Expression of Interest from eligible professionals for empanelment.
3. The ULB shall register the professionals for empanelment as specified in **Appendix-IA**.
4. The ULB shall select the empanelled professionals for inspecting the site and submitting site inspection report as specified in these byelaws based on the predetermined logic notified by the Government.
5. The empanelled professional selected by the ULB for inspection of any building site, shall confirm his acceptance to undertake inspection work and submit site inspection report (within the timelines specified in **Appendix-VIII**), on the same day of receiving intimation from the ULB, failing which the ULB shall select another empanelled professional as per the predetermined logic notified by the Government.

APPENDIX-VI

(see clause 3.10.2)

DETAILS OF DOCUMENTS TO BE SUBMITTED FOR BUILDING LICENCE

The following documents shall be submitted along with the application, namely: -

(a) RTC as per date of application;
(b) Extract of Mutation Register;
(c) Copy of the Title document such as Sale Deed, etc.;
(d) Copy of the registered document of GPA / authorisation letter, if applicable;
(e) Joint development Agreement or MOU and affidavit of all the owners of plots amalgamated for approval of plot;
(f) Latest Encumbrance Certificate;
(g) Survey sketch issued by Revenue Department for conversion purpose;
(h) Conversion Order;
(i) LAQ NOC;
(j) All applicable NOCs from other departments;
(k) Photographs of the site (minimum 4 nos., each from north, south, east and west) showing
(l) the natural and built developments within the site and also the abutting roads;
(m) Copy of the plot approval obtained
(n) Photo and other identity proof of the applicant;
(o) Specifications of the buildings and
(p) Any other documents notified by the Government;

APPENDIX-VII

(see clause 3.10.2, 3.10.8(2), 3.14, 3.15.4(1), 3.15.4(3), 3.15.5(a))

VARIOUS FEES FOR SANCTION OF BUILDING LICENCE AND OTHER FEES PAYABLE AS PER THESE BYE-LAWS

The following fees shall be paid for sanction of building licence at the rates specified by the ULB or notified by the government.

1. Registration fee payable by Stakeholders
2. Scrutiny fee
3. Licence fee
4. Fee for alteration in plan
5. Fee for revalidation of licence
6. Infrastructure cess
7. Solid waste management cess
8. Greenery cess
9. Inspection fee
10. Construction and demolition waste disposal cess
11. Labour cess
12. Refundable Security Deposit
13. Fees for respective NOC

APPENDIX-VIII

(see clause 3.10.5(1 & 2), 3.10.8(1), 3.15.3, 14.2, 14.4.2, 14.4.3, 14.4.4)

TIMELINES FOR DIFFERENT ACTIVITIES FOR ISSUING BUILDING LICENCE, NOCS AND CERTIFICATION OF WORKS EXECUTED AT SITE AS PER THE CONDITIONS OF NOC, BY DIFFERENT DEPARTMENTS, FOR DIFFERENT TYPES OF BUILDING.

Timeline for issuing NOCs

The timelines for issuing various NOCs mentioned in these byelaws shall be as notified by the Government.

Timeline for issuing building licence

Sl. No	Description of Standard Activities	Description of Additional Activities	Timelines for different types of approvals for different types of buildings (based on height)															
				B1			B2			B3			B4			B5		
			**	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*
	Activities for all types of Approval of Plot																	
1	The CEO of the Authority to verify the documents submitted along with the application.		A	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3
			C	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3
2		Issuing endorsement in case of discrepancy	A	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3
3		Applicant to rectify the defects and resubmit the documents and acceptance of the same by the designated officer	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	Evaluation of the Technical drawings and details submitted and acceptance of the same by TPO or the empanelled professionals or the designated officers, as the case may be, if the documents submitted are accepted by the CEO and also verification of compliance of conditions incorporated for obtaining NOCs from different departments.		A	2	2	2	3	3	3	4	4	4	6	6	6	5	5	5
			C	3	3	3	4	4	4	6	6	6	9	9	9	8	8	8
5	Submission of evaluation report to the CEO, with or without changes		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			C	3	3	3	4	4	4	6	6	6	9	9	9	8	8	8
6	CEO to approve the technical drawings and details submitted, with the changes recommended by the TPO or the empanelled professional		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			C	4	4	4	5	5	5	7	7	7	10	10	10	9	9	9

Sl. No	Description of Standard Activities	Description of Additional Activities	Timelines for different types of approvals for different types of buildings (based on height)														
				B1			B2			B3			B4			B5		
			**	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*
	or the designated officer, as the case may be.																
		Issuing endorsement by TPO, in															
7		case of discrepancy in the Technical details submitted	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8		Applicant to rectify the defects and resubmit the technical drawings and details and acceptance of the same by the TPO or the empanelled professional or the designated officer, as the case may be.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	CEO to forward application, technical drawings and details submitted for NOCs, to the concerned departments, along with required fees paid by the applicant, if the technical drawings and details submitted by the applicant is approved by the CEO.		A	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1
			C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	CEO to forward the required details to the selected empanelled professional for site inspection to verify the site plan submitted.		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			C	5	5	5	6	6	6	8	8	8	11	11	11	10	10	10
11	Site inspection and submission of Inspection report by empanelled professional, to the CEO,		A	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
			C	7	7	7	8	8	8	10	10	10	13	13	13	12	12	12

Sl. No	Description of Standard Activities	Description of Additional Activities	Timelines for different types of approvals for different types of buildings (based on height)														
				B1			B2			B3			B4			B5		
	with or without noting of discrepancy.		**	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*	a*	b*	c*
	Approval of Site Inspection		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	Report by the CEO, by accepting or rejecting the noting of discrepancy, if any.		C	8	8	8	9	9	9	11	11	11	14	14	14	13	13	13
13		Issuing endorsement in case of discrepancy in the Site Inspection Report accepted by the CEO	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14		Applicant to rectify the defects and resubmit the respective drawing and detail as per the endorsement and acceptance of the same by the TPO		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		Receipt of all required NOCs from the respective departments.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	On receipt of all the required NOCs and approval of site inspection report by the CEO, the CEO to sanction the building licence and forward the challan for payment of fees, to the applicant.		A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			C	9	9	9	10	10	10	12	12	12	15	15	15	14	14	14
17	Payment of Fees by land owner / promoter for the NOCs and building licence.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	CEO to issue building licence and the NOCs received from the concerned departments.		A	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
			C	**10**	**10**	**10**	**11**	**11**	**11**	**13**	**13**	**13**	**17**	**17**	**17**	**16**	**16**	**16**

a* - new construction
b* - addition / Alteration
c* - revised licence
** **A – Timeline for each activity**
C- Cumulative timeline upto that activity

Note: *Additional time of 15 days shall be provided to the Environment cell to issue Clearance for projects falling in the category of Table 15.2 and 15.3*

APPENDIX-IX

(see clause 3.10.6(2))

PROCEDURE FOR SITE INSPECTION BY EMPANELLED PROFESSIONALS AND SUBMISSION OF SITE INSPECTION REPORT.

The following procedure shall be followed for Site inspection and submission of Site Inspection report.

1. CEO shall intimate the selected Empanelled Professional or the designated officer, as the case may be, to inspect the site and submit Site inspection report within the timelines prescribed in **Appendix-VII.**
2. CEO shall forward copies of the relevant documents and drawings submitted by the Applicant, to the selected empanelled professional or designated officer, which are required to be verified at site.
3. The empanelled professional, shall intimate the Applicant and the Profession on record for drawings, tentative time and date (three options) for Site Inspection on the same day of receiving intimation from CEO and to be present at the site on the agreed date and time either in person or through his authorised representative along with the person who has conducted survey using total intelligent station.
4. The applicant and the professional on record, in mutual consent, shall select any one of the three options provided by the empanelled professional or designated officer, for site inspection and intimate the same to the Empanelled professional or designated officer. If the Applicant / professional on record does not intimate the Empanelled Professional or designated officer regarding the preferred date and time for site inspection, the empanelled professional or designated officer shall fix the site inspection at his convenient date and time (from the three options given by him) and intimate the applicant and the professional on record regarding the same.
5. The Empanelled professional or the Designated officer shall inspect the site at the time and date jointly agreed by the Applicant and the professional on record for drawings or on the date fixed by the empanelled professional or the designated officer.
6. During the site inspection on the date and time fixed as mentioned in (5) above, in the presence of the applicant and professional on record or in their absence, as the case may be, the empanelled professional on record or the designated officer shall verify the site conditions for the following details submitted by the applicant.
   (a) Photographs of the plot (by taking photographs from all four sides of the plot).
   (b) Existing width of all roads abutting the plot
   (c) Location of all natural features in the plot
   (d) Location of city level sewer lines and HT lines passing through the plot.
   (e) Building footprint and other constructions proposed on the site.
7. The empanelled professional shall mention any missing items (from the list mentioned in (6) above) or deviations (between the details submitted by the applicant and site conditions), in the site inspection report.
8. If the Applicant and professional on record are present during the site inspection, the empanelled professional shall note the acceptance or objections, as the case may be, of the observations made by the empanelled professional in the site inspection report, regarding the missing items or deviations.

The empanelled professionals shall send the site inspection report with noting of deviations, if any, in the prescribed format, to the Authority, within the timelines specified in **Appendix-VII.**

APPENDIX-X

(see clause 3.15.4(1), 3.15.4(2))

VALIDITY PERIOD OF SANCTION AFTER COMMENCEMENT OF WORK AT SITE AND EXTENSION OF VALIDITY.

(1) Validity period for commencement of work – 2 years from the date of sanction

(2) Initial validity period for completion of work

a) B1, B2 and B3 buildings – 4years from the date of sanction.

c) B4 buildings – 5 years from the date of sanction for buildings upto G + 9 floors. Additional one year for every 5 floors or part thereof

b) B5 buildings – 5 years from the date of sanction.

(3) Extension of validity

Extension of validity may be permitted by paying yearly revalidation fee as notified by the government.

APPENDIX-XI

(see clause 3.16.5(2))

DETAILS TO BE MAINTAINED IN THE SITE/ SITE OFFICE OF THE CONSTRUCTION SITE.

The person to whom a permit is issued shall, during construction keep, posted in a conspicuous place on the property in respect of which the permit was issued

(a) A copy of the building permit;

(b) A copy of the approved drawings and specifications of the property in respect of which the permit was issued.

(c) Where tests of any materials are made to ensure conformity with the requirements of the Bye-laws, records of test data shall be kept available for inspection during the construction of the building and for such a period thereafter as required by the Authority.

APPENDIX-XII

(see clause 3.16.7(1), 3.16.9(1), 3.17.1(1))

STAGES OF CERTIFICATION OF VARIOUS COMPONENTS OF BUILDING EXECUTED AT SITE BY EMPANELLED PROFESSIONALS

i. Commencement of foundation work (marking of orientation of building should be completed whereby the empanelled professional can easily verify the perimeter of the proposed building and the RCC or masonry footing / foundation work should have commenced)

ii. Completion of foundation

iii. Completion of each RCC slab (floors and terrace)

iv. Exterior masonry completion in each floor

v. Completion of building exterior works and common areas

vi. Completion of yard works and services

vii. Completion of all works

APPENDIX-XIII

A. REQUIREMENT OF NUMBER AND TYPE OF LIFTS (see clause 5.3.1.2(2)

Number and Type of Lifts Required for Different Occupancies and Space for Electrical Installations

1. The number and type of lifts required depending on the capacity of lift, desired speed nature of operation is as given in table below:

Table: Number and types of lifts for non-residential Multi-storeyed Building

Sl. No.	No.of floor	Capacity of lifts in person	Speed m/s	No. of persons that can be carried by a lift							
				In 6 min		In 30 min		In 50 min		In 60 min	
				Manually operated	Automatic	Manually operated	Automatic	Manually operated	Automatic	Manually operated	Auto matic
1	2	3	4	5	6	7	8	9	10	11	12
1	7	6	0.6-0.75	17	-	102	-	170	-	204	-
2	7	8	0.6-0.75	22	-	132	-	220	-	-	-
3	7	10	0.6-0.75	26	-	156	-	260	-	312	-
4	7	10	1.0	30	-	180	-	300	-	360	-
5	7	13	1.0	37	-	122	-	370	-	444	-
6	11	6	0.6-0.75	11	-	70	-	115	-	140	-
7	11	8	0.6-0.75	15	-	90	-	150	-	180	-
8	11	10	0.6-0.75	18	-	108	-	180	-	216	-
9	11	13	0.6-0.75	22	-	132	-	220	-	264	-
10	11	10	1.0	21	-	126	-	210	-	252	-
11	11	10	1.5	24	-	144		240	-	288	-
12	11	13	1.5	28	-	156	-	260	-	312	-
13	11	13	1.5	32	-	180	-	300	-	-	-
14	16	10	1.0	17	-	100	126	170	210	-	252
15	16	13	1.5	20	24	120	145	200	240	248	290
16	16	13	1.5	23	30	138	180	138	300	-	360
17	16	16	1.5	25	33	150	198	150	330	300	356
18	21	10	1.5	18	32	108	132	108	220	214	264
19	21	13	1.5	21	26	126	156	126	250	250	312
20	21	14	1.5	23	28	138	168	138	280	-	-

Note-1:

a) For all non-residential buildings, the traffic cleared in 50 minutes is considered adequate and is approved by Authority. As such for calculation the number of lifts required, the rate of the clearance of traffic in column 9 and 10 and the population may be taken into consideration.

b) In addition to total number of lifts required as above, provision of one lift of the same capacity may be considered to serve as stand-by.

Note-2: *The population may be worked out on the basis of useful carpet area which the person occupies (excluding area of Verandah, Lobbies, Halls, Passages, Lavatory blocks, etc.)*

Note-3: *The population on ground and first floor may not be taken into consideration since these floors are not generally served by lifts.*

Note-4: *0.75 metre per sec. Equivalent to 150 ft. per Min.*
1.00 metre per sec. Equivalent to 200 ft. per Min.
1.5 metre per sec. Equivalent to 300 ft. per Min.

Note-5: *The height of buildings for lift installation i.e. the travel on the lift presumed in the above statements are as below:*

7 floors 21.0m
11 floors 33.0m
16 floors 48.0m
21 floors 64.0m

Table: Number and types of lifts for Residential Building

Sl. No	No. of floors	No	Passenger unit capacity Persons	Speed in m/s	Landing Gate Type	Central System	Service Lift No.	Capacity Persons	Type of Gate	Central System
1	5 to 8	2	6	0.0 to 0.5	*	Automatic push button operation both from car and landing	-	-	-	-
2	9 to 11	2	8	0.6 to 1	*	--Do--	1	8	-	Push button can handle switch control

Sl. No	No. of floors	No	Passenger unit capacity Persons	Speed in m/s	Landing Gate Type	Central System	Service Lift No.	Capacity Persons	Type of Gate	Central System
3	11 to 13	2	8	0.6 to 0.74	*	-- Do-- and without collection system	1	8	-	-- do --
		1	6		Power operated doors	-- do --				
4	13 to 19	2	8	1	-	--Do--	1	8	-	--Do—
		2	8	1	Power operated doors					

* *For buildings more than 15 m in height collapsible gates shall not be permitted.*

Table: Dimensions and required information for Lift Installation in Building

Carrying capacity of lift (persons) number	Load (kg)	Lift speed	Dimension of lift well front depth (in cm)		(cm)	Leading Pit Entrance (Cm)	Dimension of Machine Room			Clearance from top floor landing to machine room flooring cm	Imposed load in tones on top of lift well due to installation. It may be noted that figures do not include weight of the machine from floors and well, etc.
1	2	3	4	5	6	7	8	9	10	11	12
4	272	Up to and including 1 m/s	175	115	70	140	230	275	245	450	6.5
6	408	--do--	195	135	80	140	230	335	275	450	7.0
8	544	Up to and including 1 m/s	200	170	80	150	245	395	275	450	8.5
10	680	Up to and including 1 m/s	225	170	90	150	245	395	305	470	10.5
13	884	--do--	235	188	90	150	245	425	335	470	13.0
16	1088	--do--	255	205	105	150	245	520	335	480	15.0
20	1360	--do--	255	220	105	150	245	520	335	480	15.0

Note:

(i) All lift well dimensions are minimum clear finished plumb requirements.

(ii) Where more than one lift is located in the lift well, extra width of 10 cm Separator beam should be provided.

(iii) 1 m/s = 200 ft./min.

(iv) The height of landing entrance should be 210 cm (about 7 ft.) for all lifts.

B. REQUIREMENT FOR ELECTRICAL SUB STATION (see clause 5.3.1.3)

Area Requirements for Sub-Station for buildings

Sl.No.	Total covered Area (Sq.m)	Transformer Capacity (KVA)	Sub-Station Size Required (Sq.m)
1	2500	1 X 400	70
2	4500	1 X 630	70
3	8000	2 X 630	100
4	10,000	2 X 630	130
5	15,000	4 X 630	160
6	20,000	5 X 630	175
7	25,000	6 X 630	200
8	30,000	7 X 630	220

Note:

1) For additional 1000 Sq.m covered area, a load of 90 KVA will come up with 150 KVA TR. Capacity at 60 % loading.

2) *For additional of one transformer as per covered area, a space of additional 16 Sq.m is to be provided.*
3) *In case of any deviation in space size due to unavoidable circumstance, the same may be considered with the approval of Electricity Board.*
4) *The floor of the sub-station shall have cable trenches of 0.6 m depth, the layout for which will be given at the time of actual construction. For this purpose, a dummy floor of 0.6 m depth shall be provided to facilitate cutting/digging of floor for installation of equipment's and making subsequent changes in trenches. This floor shall be capable to withstand minimum load of 10 ton of each transformer mounted on flour wheels.*

The break-up spaces required for different installations in a sub-station are given as below:

1. Supply company's Switchgear room and or space of meters.
2. *Transformer Rooms:* The number and size of transformer rooms shall be ascertained from the total power requirements of the company. To determine the size of transformer and clearance around a transformer, reference may be made to good practice (I.S.1887-1967 code of practice for installation and maintenance of Transformer). A 500 KVA transformer may be provided with a minimum space of 4 m X 4 m

   If transformer is to be installed outdoor space shall be provided on similar considerations and adequate provision for safety enclosure is to be made. For transformer having large oil content (more than 2000 lt.) soak pits are to be provided in accordance with rule 64 of Indian Electricity Rules, 1956.

3. *High Voltage Switch Rooms*: In case of sub-station having one transformer, the owner is required to provide only one high voltage switch. In the case of single point supply for two transformers, the number of switches required is 3 and for 'n' transformers the number of switches is n+1. The floor area required in case of a single switch will be roughly 4mX1m and for every additional switch the length should be increased by 1m
4. *Low Voltage Switch Rooms*: The floor area requirement in respect of low voltage switchgear room cannot be determined by any formula.
5. *Room for Stand-by-Generator*: A room space not less than 6mX9m may be provided for housing a standby Generator set of 50 KW.

Location of electric sub-station in basement of multi-storied buildings:

(1) The electric sub-station should be provided in the approved/sanctioned covered area of the buildings not below the first basement level and should be on the periphery of the building with clear independent round the clock approach having proper ramp with slope.

The ramp should be designed in such a manner that in case of fire no smoke should enter the main buildings. The exit from basement electric sub-station shall have self-closing fire/smoke check doors of 2 hours. F.R. near entry to ramp. Additional exit shall be provided if travelled distance from the farthest corner of the ramp is more than 15m.

(2) The electric sub-station should be totally segregated from rest of the basement having 4 hours. F.R. wall and should have adequate internal lighting and ventilation. A perfect independent ventilation system of 30 air charges per hour linked with detection as well as automatic medium velocity water spray system for individual transformer shall be located outside the building at ground floor, fire control room shall be manned round the clock and shall also have and audio system in the basement as well as in the control room. No service such as water, sewer, air-conditioning, gas pipes or telegraphs services should pass through electric substation of the cable trench.

(3) The rising mains should be of metal bus bars. The floor of electric substation should be 2 ft above the rest of basement floor and designed suitably to carry 10 tons of transformer weight on wheels also having provision of proper cable trenches 0.6mX0.6m depth. Dummy floor of 0.6 m depth be provided to facilitate laying of cables inside the building connecting to equipment. Fire retarding cables should be provided and cable trenches be filed with said cables. R.C.C. pipes at suitably places as required will be provided for cable entries to the sub-station spaces with suitable water proofing arrangement. A provision of 12 ft. clear height below Beams should be made in the electric sub-station area along with adequate arrangement for fixing chain pulley block for a load of 15 tons. Provision of sumps shall be kept in the floor so that complete volume of transformer oil in the event of spill over could be accommodated. Sufficient arrangement to prevent spread of fire to oil pumps is made.

(4) Transformers room and sub-station room shall be provided with steel shutters of 8' X 8' with suitable grills. Sufficient arrangement for pumping the water out, in case of flooding should be made to minimize loss to switchgear and transformer.

(5) In view of experience of installation of exhaust chimneys in the multi-storied buildings at undesirable locations, proper provision in the form of vertical exhaust leading to above terrace level should be made for the substation.

(6) Electric sub-station space should be made available free of cost by promoters and should be free of seepage/leakage of water. There should be no combustible material kept in side or in the vicinity. Periodic inspection of electric sub-station shall be mandatory and violation of any bye-law will be dealt, sternly with penalty and immediate disconnection.

Other Requirements for Sub-station

1. The sub-station will preferably be located on the ground level failing which it can be in the basement floor in no case at higher level.
2. The entire space will be provided at one floor in continuation.
3. The minimum width of the sub-station space shall not be less than 6 m.
4. The areas given above in respect of the different categories of rooms hold good if they are provided with windows and independent access doors.
5. All the rooms should be provided with partition up to the Ceilings and shall have proper ventilation. Special care should be taken to ventilate the transformer rooms and where necessary, louvers at lower levels and exhaust fans at higher level shall be provided at suitable locations.
6. In order to prevent storm water entering the transformer and switch rooms through the soak pits, the floor level of the sub-station shall be at least 15 cm above the highest flood water level that may be anticipated in the locality.

Cable Trenches Shafts Etc.

(1) Suitable number of vertical shafts, rising mains, distribution boxes, etc. shall also be provided as per the requirements at suitable location. Cable trenches with suitable handy covers for entry of the cables up to the substation onwards up to the street adjoining other building shall also be provided as per the requirements.
These vertical shafts, rising mains, distribution boxes, cable trenches, etc. shall be so constructed as to be accessible only to authorized personnel. The rising mains and other installations in the vertical shafts, tap off boxes distribution boxes etc. required at each floor shall be provided, installed and maintained by the owner at their own cost. Adequate enclosed space shall also be provided at each floor for installation of equipment's for distribution on respective floors such as distribution boxes, cut-out, and meter boxes and main switches.

(2) Location of Switch Room: In large installations other than where a substation is provided, a separate switch room shall be provided. This shall be located as closely possible to the electrical load centre and suitable ducts shall be laid with minimum number of bends form the point of entry of the supply to the position of the main switchgear. The switch room shall also be placed in such a position that rising ducts may readily be provided there from to the upper floors of the building in one straight vertical run. In larger building, more than one rising duct and horizontal ducts may also be required for running cables from the switch room to the foot of each rising main. Such cable ducts shall be reserved for the electrical services only, which may, however, include medium and low voltage installations, such as call bell systems. Telephone installation should be suitably segregated.

(3) Location and Requirement of Distribution Panels: The electrical gear distribution panels and other apparatus, which are required on such floor, may conveniently be mounted adjacent to the rising mains, and adequate space should be provided at each floor for this purpose.

(4) Location and Requirement of PBX/PABX Room: Information regarding provision and location of PBX/PABX room, telephone outlets and riser shall be ascertained form the relevant Authority.
Adequate space should be provided for installation of Sub-Distribution Board.

GENERAL

The maintenance of the built-up space for electric sub-station, distribution equipment, vertical shafts and enclosure at each floor shall be done by the owner. The standby arrangement for electricity supply up to and including the substation equipment and distribution pillars at the sub-station shall be provided compulsorily.

APPENDIX-XIV

(see clause 9.12)

PROVISION FOR DIFFERENTLY ABLED

1. Definitions

Ambulant Disabled People: Disabled who are able to walk but who may depend on prostheses (Artificial Limbs) or those (Callipers), Sticks, crutches or walking aids.

Non-Ambulant Disabled People: Disabled people with impairments that confine them to wheelchair.

Wheel Chair: Chair used by disabled people for mobility.

i. Size of small wheel chair: 750 x 1050 mm
ii. Size of large wheel chair: 800 x 1500 mm

2. Scope

These bye-laws are applicable to public buildings and exclude domestic buildings.

Building which shall provide access to ambulant disable and Non-Ambulant disabled are listed below. Distinction is made for buildings to be designed for the use of large wheel chairs and small wheel chair.

3. Building to be designed for Ambulant Disabled People Higher Secondary School, Conference Hall, Dance Halls, Youth Centres, Youth Clubs, Sport Centres, Sport Pavilions, Boat Club Houses, Ice Rinks, Bowling Centres, Swimming Pools, Police Stations, Law Courts, Courts Houses, Sport Stadiums, Theatres, Concert Halls, Cinemas, Auditoria's, Small Offices (the maximum plinth area 1400 sq.mt) Snack Bars, Cafes and banqueting rooms (for capacity above 50 dinners).

Note:

i. In sport stadiums provisions shall be made for non-ambulant spectators (small wheel chair)
ii. @ 1:1000 up to 10,000 spectators and @ 1:2000 for spectators above 10,000.
iii. In Theatres, Concert Halls, Cinemas and Auditoria provisions shall be made for non-ambulant spectators (Small Wheel Chairs) @ 1/250 up to 1000 spectators and 1/500 for spectators above 1000.

4. Building to be designed for Non-Ambulant Disabled People:

Schools for physically handicapped, cremation, buildings as mentioned in 3, Botanical Gardens, Religious Buildings, Old People Clubs, Village Halls, Day Centres, Junior Training centres, Post Offices, Banks, Dispensaries, Railway Stations, Shops, Super Markets, and Departmental Stores.

Notes: *Large wheel chair criteria shall be applicable on ground floors of the following building, post offices, banks, dispensaries, railway station, shops, supermarkets, and departmental stores*

5. Building to be designed for Non-Ambulant People (using small wheel chairs) Public lavatories in Tourist Sports, Clubs Motels, Professional and Scientific Institution, Museum, Art Galleries, Public Libraries, Laboratories, Universities, Collage for further Education, Teachers Training Colleges, Technical College, Exhibition Halls Dentist Surgeries, Administrative Department of the Hospitals, Service Stations, Car Parking, Buildings Airports Terminals, Bus Terminals, Factories Employing Handicapped for Sedentary Works, Large Offices, (with plinth area abode 1400 sq.mt.), Tax Offices, Passport Offices, Pension Offices, and Labour Offices, Cafes, Banqueting Rooms and Snack Bars (For capacity above 100 dinners).

6. Buildings Requirements:

All Building requirements for building projects proposed under this category shall be conforming to Annex D, Part 3 of NBC 2016

APPENDIX-XV

(see clause 15(3))

ACCREDITATION OF ENVIRONMENTAL AUDITORS (QUALIFIED BUILDING AUDITORS)

The Ministry of Environment, Forest and Climate Change (MoEFCC), through qualified agencies shall accredit the Qualified Building Environment Auditors (QBEAs). The Qualified Building Environment Auditors could be a firm /organization or an individual expert, who fulfils the requirements. The Ministry will implement this process of accreditation through Quality Council of India (QCI), National Productivity Council or any other organization identified by the Government. The organizations like Indian Green Building Council, Bureau of Energy Efficiency etc. can also be associated in the process of accreditation, training, and renewal. The environmental consultants

accredited by the QCI for building sector will be qualified as QBEAs. The QBEAs will meet the following criteria. The accrediting agency can improvise on these criteria.

Qualifications of the Auditor:

a. Education: Architect (Degree or Diploma), Town Planners (Degree), Civil Engineer / Mechanical Engineer (Degree or Diploma), PG in Environmental Science or any other qualification as per the scheme of the accreditation.

Training:

b. Mandatory training to be given by the accreditation body or their approved training providers. This will be as per the scheme of the accreditation.

Experience:

c. At least 3 years of work experience in the related field or building sector Environment Impact Assessment consultants accredited by QCI or any other experience criteria as per the scheme of the accreditation.

Infrastructure and equipment:

d. As per the scheme of the accreditation

Renewal:

e. The accreditation will be valid for 5 years and will be renewed as per the process developed under the accreditation scheme.

Accountability/Complaint redressal mechanism: Any complaints regarding the quality of the work of QBEAs shall be made to the accreditation body. The accreditation body shall evaluate the complaint and take appropriate action including black listing or cancellation of the accreditation with wide public notice. This will be in addition to the action at the level of local authority for penalty and blacklisting. The Ministry can also take such action in case of specific complaint or feedback.

APPENDIX-XVI

(see clause 15(7))

ENVIRONMENTAL CELL AT THE LEVEL OF LOCAL AUTHORITY

An Environmental Cell shall be setup at the local authority level to support compliance and monitoring of environmental conditions in buildings. The Cell shall also provide assistance in environmental planning and capacity building within their jurisdiction. The responsibility of this cell would be monitoring the implementation of this notification and providing an oversight to the Third-Party Auditing process. The cell will operate under the local authority.

Constitution of the cell:

The cell will comprise of at least 3 dedicated experts in following fields:

a. Waste management (solid and liquid);
b. Water conservation and management;
c. Resource efficiency including Building materials;
d. Energy Efficiency and renewable energy;
e. Environmental planning including air quality management; and
f. Transport planning and management.

The Cell shall induct at least two outside experts as per the requirements and background of dedicated experts. Existing environmental cells at the level of local authority can be co-opted and trained for this Cell.

Financial Support:

An additional fee may be charged along with processing fee for building License for integrating environmental conditions and it's monitoring. The local authority can fix and revise this additional fee from time to time. The amount of this fee shall be deposited in a separate bank account, and used for meeting the requirement of salary / emoluments of experts and running the system of online application, verifications and the Environmental Cell.

Functions of the Cell:

1. The cell shall be responsible for assessing and appraising the environmental concerns of the area under their jurisdiction where building activities are proposed. The Cell can evolve and propose additional environmental conditions as per requirements. These conditions may be area specific and shall be notified in advance from time to time. These additional conditions shall be approved following a due consultation process. These environmental conditions will be integrated in building Licenses by the sanctioning authority;
2. Develop and maintain an online system for application and payment of fees. The Cell shall maintain an online database of all applications received, projects approved, the compliance audit report, random inspections made. The Cell shall maintain a portal for public disclosure of project details including self-certification and compliance audit reports filed by the

Qualified Building Environment Auditors for public scrutiny of compliance of environmental conditions by the project;

3. Monitoring the work of Environmental Audit process carried by the Qualified Building Auditors;
4. The Cell shall review the applications; finalize the additional environmental conditions if required within 15 days of the submission of the application to the local authority;
5. The Cell shall adopt risk based random selection of projects for verifying on site for certification of QBA, compliance of environmental conditions and yearly audit report;
6. The Cell shall recommend to the local authority for financial penalty for non-compliance of environmental conditions by the project proponent; and
7. The Cell shall recommend to the accrediting body and the local authority against any Qualified Building Environment Auditor, if any lapse is found in their work.

APPENDIX- XVII

(see Table 14.3 (note i))

CATEGORIES OF MATERIALS OF STORAGE OF WAREHOUSE AS PER COMBUSTION RISK.

A. Non-combustible materials:

Articles (which are Non- Combustible, Non -Flammable, Non -Corrosive, Non -toxic, Non-poisonous, Non-Explosive) such as Cement, brick, mortar, hardware items, metals in solid bar/metal goods (excluding those having melting point below 1000 ° C)

B. Combustible Materials in following 4 sub categories

Category	Material Specifications	Stacking Height	
		Medium (in m)	High (in m)
Category I	Articles such as Carpets, Non-synthetic/synthetic yarn and fabrics. Mechanical and electrical goods (dominantly metal parts), Glassware and crockery, fiberboards, groceries, metal goods, Papers other than those listed under categories Moderate and High, Powdered and canned foods, Plastic/glass bottles containing non-flammable liquids, etc.	**4**	**6.5**
Category II	Articles such as Batteries, Baled cotton/synthetic fibers, Books, Baled cork, Baled waste paper, Cartons containing alcohols (in cans/bottles), Cartons of canned lacquers which dry by solvent evaporation, Chipboard, Cardboard rolls (horizontally Stored), Cereals/Grains/Foodstuff/ Flour/Sugar in sacks, Cellulose/Cellulose pulp, Electrical goods other than those stated in Category low, Flammable liquids in non-combustible containers, Leather goods, Palletized liquor stocks, Plastics (non-foamed, other than cellulose nitrate), Rolled pulp and paper and asphalted paper (Horizontal storage), Veneer sheets, Wooden patterns, Metal/wooden furniture with plastic seats, etc.	**3**	**5.5**
Category III	Articles such as Bitumen/Wax coated paper, Candles, Carbon black, Card board rolls (vertically stored), Charcoal, Coal> cellulose nitrate, Foamed plastic and foam rubber products, Flammable liquids in combustible containers, Linoleum products, Matches, Plastics other than those stated in Category Moderate, Rolled pulp and paper and asphalted paper (vertical storage), Rubber goods including tyres and tubes, Sawn timber, Ventilated wood stacks, Waxed and asphalt coated papers and containers in cartons, Wood wool, wooden pallets and flats (idle), Ail materials having wrappings or pre-formed containers of foamed plastics, etc.	**2**	**4.5**
Category IV	Off cuts and random pieces of foamed plastic or rubber rolls of sheets of foamed plastic or foamed rubber, Foam mattress, Expanded polystyrene packaging, Foam upholstery, etc.	**1.25**	**3.5**

Explanations:

# The deflector of the sprinkler fitted in the ceiling shall be at more than 1.5 m from the goods stored below. However, in case of jute storage, no jute stock shall reach within 2 m of the deflectors of the sprinkler heads. # In case of storage in racks or shelves, if the height of storage is more than what is specified, intermediate sprinklers shall be provided for each shelf/rack in addition to the ceiling sprinklers and overall design density and AMAO shall be maintained as per Table 5 of IS: 15105. # The aisle width between the storage stacks shall not be less than 2.5m and the maximum area of each storage stack shall not be more than 15.0Sq.m. If these parameters are exceeded, the design density applicable shall be loaded by 2.5 L/min/m2. # In case of mixed storage (both moderate and high hazard storage) in buildings, the parameters will be governed by the most hazardous occupancy	Goods stored not higher than what is stated above for the appropriate category or not higher than the eaves height of the roofs or within 1 m of a flat ceiling Whichever is the lowest shall be regarded as moderate hazard storage. If the above conditions are not met, the risk shall be regarded as high hazard storage

Notes:

1. Any new use which increase the number of occupants to a figure comparable with other classes of occupancy shall change the classification of the building to that of the new use (for example, Warehouse used for Office purposes).

2. Ware house buildings shall not include any article which is highly combustible or explosive materials or products which are liable to bum with extreme rapidity and or which may produce poisonous fumes or explosions for storage, handling and which involve highly corrosive, toxic or noxious alkalis, acids or other liquids or chemicals producing flame, fumes and explosive, poisonous, irritant or corrosive gases; and for the storage, handling of any material producing explosive mixtures of dust which result in the division of matter in to fine particles subject to spontaneous ignition as such buildings fall in Hazardous Building Category.

FORMS

FORM-I

(see clause 3.10.2, 3.13, 3.16.10(1))

DETAILS TO BE CONTAINED AND TO BE ATTACHED TO THE APPLICATION FORM FOR BUILDING LICENCE.

1. Name and address of the Applicant;
2. Identification proof of the Applicant;
3. Whether the Applicant is the owner of the plot or GPA holder or Promoter, representing the Owner;
4. Survey No., Village, Taluk and District of the plot and other description of plot;
5. Type of Building licence required (for new construction, addition / alteration, revises licence);
6. Documents enclosed with the Application;
7. Drawings or Details enclosed with the Application;
8. Details of Professionals on Record to prepare the drawings;
9. Details of Professionals on Record to supervise the works (compulsory in case B3, B4 and B5 types of buildings);
10. Affidavit and indemnity for basement floor construction;
11. Specifications of the building enclosed with the application (in the format notified by the government); and
12. Affidavit of applicant and professionals on record for drawings and supervision enclosed with the application (in the format notified by the government).

FORM-II

(see clause 3.10.2, 3.17.2)

DETAILS TO BE CONTAINED AND TO BE ATTACHED TO THE APPLICATION FOR NOCS FROM DIFFERENT DEPARTMENTS (as specified by the concerned department), **IN ADDITION TO THE DETAILS REQUIRED FOR BUILDING LICENCE IN FORM-I (COMMON APPLICATION FORM)**

IIa. From Department of Fire and Emergency Services
IIb. From Environment Cell (see clause 15.1.1, 15.1.2, 15.1.3)
IIc. From Airport Authority of India
IId. From Coastal Regulation Zone Authority
IIe. From Karnataka State Water Supply and Drainage Board
IIf. From Indian Railways
IIg. From Metro rail corporation
IIh. From Heritage conservation committee
IIi. From National Monuments Authority
IIj. From Urban Arts Commission

After completion of the works at site as per the conditions of NOC, the applicant shall apply for clearance / certificate of approval from the departments which have issued NOCs, in Form II by filling the relevant portions of the Form.

FORM-III

(see clause 3.10.3)

DETAILS TO BE CONTAINED IN THE ENDORSEMENT ISSUED BY THE AUTHORITY TO THE APPLICANT REGARDING DISCREPANCY IN THE DOCUMENTS SUBMITTED

1. Name and address of the Applicant;
2. Details of the application for building licence;
3. Document having discrepancy;
4. Details of discrepancy; and
5. Details of rectification proposed, if any.

FORM-IV

(see clause 3.10.4(2))

DETAILS TO BE CONTAINED IN THE ENDORSEMENT ISSUED BY THE AUTHORITY TO THE APPLICANT REGARDING DISCREPANCY IN THE PLANS AND DETAILS SUBMITTED FOR SANCTION OF BUILDING LICENCE

1. Name and address of the Applicant;
2. Details of the application for building licence;
3. Drawings having discrepancy (specify for each drawing separately);
4. Details of discrepancy in drawings (specify for each drawing separately);
5. Details of discrepancy in the conditions for obtaining NOCs from other departments; and
6. Details of rectification proposed, if any.

FORM-V

(see clause 3.10.6(1))

DETAILS TO BE CONTAINED IN THE INTIMATION LETTER OF THE AUTHORITY TO EMPANELLED PROFESSIONAL FOR SITE INSPECTION AND SUBMISSION OF SITE INSPECTION REPORT FOR APPROVAL OF SITE PLAN

1. Name and address of the Applicant;
2. Details of the application for building licence;
3. Name and address of the Professional on record for preparing drawing;
4. Details of the building site in which building licence is applied for;
5. Copies of the relevant documents; and
6. Details of the site plan and other technical drawings and details submitted.

FORM-VI

(see clause 3.10.6 (2))

DETAILS TO BE CONTAINED IN THE SITE INSPECTION REPORT

1. Name and the address of the Applicant;
2. Name and the address of the professional on record for drawings;
3. Name and the address of the Empanelled professional or designated officer;
4. Particulars of the Plot;
5. Date of inspection;
6. Noting of site inspection;
7. Acknowledgement of applicant and professional on record; and
8. Date of submission of report.

FORM-VII

(see clause 3.10.7)

DETAILS TO BE CONTAINED IN THE ENDORSEMENT ISSUED BY THE AUTHORITY TO THE APPLICANT REGARDING DISCREPANCY IN THE SITE INSPECTION REPORT

1. Name and address of the Applicant;
2. Details of the application for building licence;
3. Name and address of the Professional on record for preparing drawing;
4. Name and address of the empanelled professional who has submitted the inspection report;
5. Drawings having discrepancy (specify for each drawing separately);
6. Details of discrepancy in drawings (specify for each drawing separately); and
7. Details of rectification proposed, if any;

FORM-VIII

(see clause 3.15.1)

DETAILS TO BE CONTAINED IN THE BUILDING LICENCE

1. Name and address of ULB with logo;
2. Type of building licence;
3. Building licence no. and date;
4. Plot approval details;
5. Particulars of Plot;
6. Name and address of Applicant;
7. Name and address of Professionals on record for drawings;
8. Name and address of Professionals on record for supervision;
9. Particulars of the building (floor area, construction area, parking details, etc.,);
10. NOCs received;
11. Various fees paid;
12. Licence validity period;
13. Other Terms and conditions of licence; and
14. Seal and signature of CEO

FORM-VIIIA

(see clause 3.16.4(3))

DETAILS TO BE CONTAINED IN THE COMMENCEMENT CERTIFICATE

1. Name and address of ULB with logo;
2. Type of building licence;
3. Building licence no. and date;
4. Name and address of Applicant;
5. Name and address of Professionals on record for drawings;
6. Name and address of Professionals on record for supervision;
7. Particulars of the building (floor area, construction area, parking details, etc.,);
8. Reference of Site Inspection Report of Empanelled Professional;
9. Initial Validity period of Licence;
10. Other Terms and conditions of licence; and
11. Seal and signature of CEO.

FORM-IX

(see clause 3.16.5 (1))

DETAILS TO BE DISPLAYED OUTSIDE THE CONSTRUCTION SITE.

1. Name and address of the Applicant;
2. Details of the building licence (extent of site, existing and proposed width of roads abutting the road and name of roads as per the records of the Authority, no. of building blocks and for each block – no. of floors, all-round setbacks, no. of basement floors, total floor area eligible and proposed – permissible, premium and TDR, no. of 4-wheeler and 2-wheeler parking required and provided, including visitors parking – within the building and outside the building, both covered and open);
3. Details of Professionals on Record to prepare the drawings;
4. Details of Professionals on Record to supervise the works;
5. Site plan; and
6. 3D view of the building (if proposed in any advertisement of the promoter).

FORM-X

(see clause 3.16.7(3 and 4), 3.16.9(1), 3.17.2(10 and 11))

DETAILS TO BE CONTAINED IN THE SITE INSPECTION REPORT OF EMPANELLED PROFESSIONAL, CERTIFYING THE WORKS OR STATING THE DEFECTS / DEVIATIONS IN WORKS EXECUTED AT SITE.

1. Name and address of the Applicant;
2. Name and address of the professional on record for supervision;
3. Name and address of contractor executing work;
4. Name and address of empanelled professional;
5. Name and address of the Authority;
6. Particulars of the Plot;
7. Noting of site inspection (stating the defects / deviations in works executed, from the approved plans, specifying the related drawing);
8. Acknowledgement of applicant and professional on record;
9. Date of inspection; and
10. Date of submission of report.

FORM-XI

(see clause 3.16.7(5))

DETAILS TO BE CONTAINED IN THE ENDORSEMENT ISSUED BY THE AUTHORITY TO THE APPLICANT TO RECTIFY THE DEFECTS IN WORKS EXECUTED.

1. Name and address of the Applicant;
2. Details of the application for building licence;
3. Name and address of the Professional on record for supervision;
4. Name and address of the empanelled professional who has submitted the inspection report;
5. Works having defects / deviations from approved drawings (specify for each drawing separately);
6. Details of discrepancy in works executed (specify for each drawing separately); and
7. Details of rectification proposed, if any.

FORM-XII

(see clause 3.16.7(9 and 11), 3.17.2(8), 3.17.2(10))

DETAILS TO BE CONTAINED IN INSPECTION REPORT OF CEO REGARDING OBJECTIONS RAISED BY THE APPLICANT AGAINST THE INSPECTION REPORT OF EMPANELLED PROFESSIONAL OR DEPARTMENT ISSUING NOCs.

1. Name and address of the Applicant;
2. Name and address of the professional on record for supervision;
3. Name and address of contractor executing work;
4. Name and address of empanelled professional;
5. Name and address of the Authority;
6. Name and address of the Department which issued NOC (if objection is raised against such department);

7. Particulars of the Plot;
8. Noting of site inspection (stating the changes to be made by the applicant in works executed, if applicable, or certifying the works executed);
9. Acknowledgement of applicant, professional on record and designated officer of the department (if applicable);
10. Date of inspection; and
11. Date of submission of report.

FORM-XIII

(see clause 3.17.1(1), 3.18)

DETAILS TO BE CONTAINED IN COMPLETION CERTIFICATE ISSUED BY THE PRINCIPAL PROFESSIONAL ON RECORD, SUPERVISING THE WORKS.

1. Name and address of ULB with logo;
2. Type of building licence issued;
3. Building licence no. and date;
4. Plot approval details;
5. Particulars of Plot;
6. Name and address of Applicant;
7. Name and address of Professionals on record for drawings;
8. Name and address of Professionals on record for supervision;
9. Particulars of the building (floor area, construction area, parking details, etc.,) as built in site;
10. Details of certification by empanelled professional; and
11. Signature of Professional on record for supervision.

FORM-XIV

(see clause 3.18)

DETAILS TO BE CONTAINED IN THE OCCUPATION CERTIFICATE.

1. Name and address of ULB with logo;
2. Type of building licence issued;
3. Building licence no. and date;
4. Plot approval details;
5. Particulars of Plot;
6. Name and address of Applicant;
7. Name and address of Professionals on record for drawings;
8. Name and address of Professionals on record for supervision;
9. Particulars of the building (floor area, construction area, parking details, etc.,);
10. Approvals received from other departments which issued NOCs;
11. Details of completion certificate;
12. Details of certification by empanelled professional;
13. Other Terms and conditions of occupation;
14. Date and no. of occupation certificate; and
15. Seal and signature of CEO.

FORM-XV

(see clause 3.17.1(1), 7.1.6)

CERTIFICATE OF STRUCTURAL SAFETY IN DESIGN (to be provided by SER)

1. Name and the address of the Applicant;
2. Particulars of the Plot;
3. Building license sanctioned date; and
4. A statement, certifying that the structure of the building has been designed as per the relevant standards satisfying the soil investigation report submitted by GER and for the loads expected on the building and that the building will be structurally safe if constructed accordingly.

FORM-XVA

(see clause 7.1.7.2)

CERTIFICATE OF STRUCTURAL SAFETY IN CONSTRUCTION (to be provided by CMR)

1. Name and the address of the Applicant;
2. Particulars of the Plot;
3. Building license sanctioned date; and
4. A statement, certifying that the building is structurally safe and the construction is in accordance with the specified designs and drawings provided by SER.

FORM-XVI

(see clause 7.1.8.2)

CERTIFICATE OF QUALITY CONTROL

1. Name and the address of the Applicant;
2. Particulars of the Plot;
3. Building licence sanctioned date;
4. Date of inspection;
5. Details of materials and other specifications inspected; and
6. written statement submitted by Building Quality Auditor (BQA) affirming that the building meets the standard specification.

By Order and in the name of the Governor of Karnataka

NAGARAJ
Under Secretary to Government
Urban Development Department

ಸರ್ಕಾರಿ ಮುದ್ರಣಾಲಯ, ವಿಕಾಸ ಸೌಧ ಘಟಕ, ಬೆಂಗಳೂರು. (ಪಿ7) ಪ್ರತಿಗಳು: 200