

मानकीकृत विकास एवं भवन निर्माण विनियम, 2023

(भारत की राष्ट्रीय भवन निर्माण संहिता 2016 पर आधारित, बिहार राज्य द्वारा
अंगीकृत किए जाने हेतु)

STANDARDIZED DEVELOPMENT AND BUILDING REGULATIONS, 2023

(Based on the National Building Code of India 2016, for adoption
by the State of Bihar)



भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

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FOREWORD AND ACKNOWLEDGEMENTS

FOREWORD

The Special Publication, SP 73 : 2023 'Standardized Development and Building Regulations, 2023' contains standardized regulations that lay down a set of minimum provisions to ensure safety in built environment, aligned to the provisions of the National Building Code of India 2016 (NBC 2016) as well as leading practices from India and abroad. The document is a model document that intends to bring forth uniformity in structuring, detailing as well as key approval processes throughout the country, without sacrificing any unique/area specific need of the various states and union territories (UTs), and within their concerned local bodies.

The key beneficiaries of this document are the following:

- a) Ministry of Housing and Urban Affairs (MoHUA) and Town and Country Planning Organization (TCPO) under MoHUA;
- b) State and Union Territory Governments;
- c) Local Bodies (LBs), both urban and rural;
- d) Development Authorities (DAs);
- e) Cantonment Boards and Port Trusts;
- f) Zila and Gram Panchayats; and
- g) Other organizations involved in the development of built environment.

The objective of this document is to improve regulatory mechanisms governing building construction, aligning these to various best practices and provisions existing in NBC 2016 to ensure better, time bound and transparent services to people and help create faster, better, more durable, resilient, accessible and sustainable buildings and built environment, generally improving ease of doing business in the field of construction.

Aim is also to bring about commonality, where possible, in rules/regulations/acts being followed by various regulatory bodies and to align these regulations to latest developments in the building industry to ensure that the regulatory bodies become more transparent, efficient and people are able to access services of registered building professionals. As there will be sufficient commonality in rules and regulations across the country, this will help in ease of doing business in various geographic areas. Another objective is to suggest how various regulatory bodies can integrate collection of verifiable data through these common rules and regulations, and how Information Technology can be leveraged to assist these bodies.

Preparation of this document involved a comprehensive study of existing regulatory/statutory mechanisms, rules and regulations governing land development and building construction in the country, mapping these to the provisions available in NBC 2016 and other best practices in India and abroad, and specifying improved standards which can be adopted by regulatory/statutory bodies to ensure better regulations to create safe and more sustainable, efficient and accessible buildings and built environment. Further, the exercise also included dissemination of the outcome to various statutory/regulatory bodies of all states and UTs through twenty (20) two-day workshops and focussed discussions at various locations across the country. Also, more than five hundred suggestions received during the series of workshops as well as through written communications, have been suitably addressed in the document. This document is intended to be a dynamic document which would be amended/revised as and when required.

To ensure that the document is easy to understand, adopt/adapt, implement and comply with, a number of measures have been undertaken while drafting it, some of which are given below:

- i) The structuring of the chapters and the document as a whole has been done in the order of the development process for the most part. This makes the document a cogent continuous volume.

- ii) Explanatory notes have been outlined at the beginning of each chapter to brief the users about the contents therein, in the form of major highlights.
- iii) To enable easy navigation through the document and easy identification of the regulations, the items, clauses, sub-clauses, tables, figures, annexes, etc have been duly numbered in a standardized manner.
- iv) The regulations have been supported with figures and flowcharts wherever necessary, to enhance their interpretation visually.
- v) The regulations are so written as to ensure that there is no room for multiple interpretations, and effort has been made to frame the regulations in a manner that it is unambiguous.
- vi) Wherever there is a possibility of an ambiguity arising in the interpretation of a clause or an exception occurring to the rule, notes have been inserted to clarify the same.
- vii) The regulations are so written as to ensure easy translation of the document to other languages, as well as help in designing various forms/checklists for administering the land development and building activity.
- viii) Key provisions of NBC 2016 related to safety, sustainability and accessibility have been specifically incorporated for ensuring ease of implementation.
- ix) Latest developments and advancements in the field of land development and building construction have also been addressed considering available guidelines and regulations.

There are certain provisions which may not be universally applicable to all cities and towns such as those relating to hilly areas, coastal areas, etc. The states and UTs have been informed of the same, and have been requested to adopt the document with minimal changes to suit their local conditions and only delete such text which are not applicable to them without altering the numbering of the chapters/clauses. For this, it has been suggested to them that the deleted text may be replaced by '[Intentionally deleted]'.

Users of this standardized regulations are informed that this document makes reference to NBC 2016 and various other Indian Standards. NBC 2016 in turn refers to several other Indian Standards. Users are advised to refer to the latest versions of these codes and standards as amended from time to time. These codes and standards can be accessed from the link given below. Indigenous Indian Standards can be downloaded and used free of cost.

<https://standardsbis.bsbedge.com/>

This document has been prepared with the support of a team of consultants guided by Shri Rajpal Kaushik in the capacity of an expert advisor. The entire exercise was monitored by the Project Monitoring Committee and Technical Advisory Committee of BIS, and the document was finalized by the National Building Code Sectional Committee, CED 46 of BIS as a Special Publication.

SUGGESTIVE PROCEDURE FOR ADOPTION OF STANDARDIZED DEVELOPMENT AND BUILDING REGULATIONS, 2023 AS STATE/UT/CITY DEVELOPMENT AND BUILDING REGULATIONS

Bureau of Indian Standards (BIS) welcomes adoption of Standardized Development and Building Regulations, 2023, by States, Union Territories (UTs) and concerned Authorities. The publication may be suitably adopted by States, UTs, Cities, Panchayats and other authorities as an enforceable regulation governing land development and building construction. In case the State/UT/Authority (herein referred as 'authority') wants to modify a regulation or part thereof as given in this document, the following process should be adopted:

- a) The authority shall compile a list of all modifications being requested by the various departments/officials in their jurisdiction, after following due processes as applicable in their organization.
- b) The authority shall constitute a Committee to review the suggested modifications (additions, insertions, deletions and changes, as the case may be). The Committee shall include at least one Architect, one Urban Planner and one Structural Engineer each.
- c) The Committee shall consider each suggestion in light of local requirements and recommend a final list enlisting reasons for the modifications required. The Competent Officer shall consider and approve the recommendations of the Committee as 'Approved List of Modifications'.
- d) The approved list of modifications shall be incorporated by the authority in a manner not to alter the numbering of the chapters and regulations.
- e) Translation of the Regulations in the vernacular language of the State/UT shall be done by the authority. The English version of the Regulations shall prevail in case of any discrepancy or inconsistency between the English version and its translation in the vernacular language.
- f) The authority shall notify the Regulations as per their legal procedure.
- g) A provision on applicability and scope of the Regulations may be included by the authority in the Notification. In case it is decided to include the above as part of the Regulations, the same shall be done in a manner to not alter the numbering of the chapters and regulations.
- h) The approved list of modifications along with the notified Regulations shall be communicated to BIS for future records only.
- i) All future modifications are suggested to follow the same process as listed above.

Further, while preparing the list of modifications to be incorporated in the Regulations, the following shall be considered:

- a) Texts highlighted in blue indicate generic descriptive content/recommendations to the authority for adopting the Regulations and their proper implementation, which may be deleted at the time of adoption of the Regulations.
- b) Texts highlighted in yellow indicate specific provisions that may not be applicable to the concerned State/UT/City in view of the local conditions. Therefore, the concerned authorities may delete such provisions in their Regulations. Such provisions shall be

deleted in a manner that the structuring and the numbering of the chapters/regulations are not altered. The deleted text, therefore, shall be replaced by the phrase '*[Intentionally deleted]*'.

- c) Following matter shall be included in the preface/foreword/introduction/scope of the Regulations, wherever deemed fit by the authority:

Users are informed that the verbal forms as given below have been used in the Regulations, which shall mean the following:

- “shall” indicates a requirement;
- “should” indicates a recommendation;
- “may” indicates a permission;
- “can” indicates a possibility or capability.

Users are also informed that this Regulations makes reference to NBC 2016 and various other Indian Standards. NBC 2016 in turn refers to several other Indian Standards. Users are advised to refer to the latest versions of these codes and standards as amended from time to time. These codes and standards can be accessed from the link given below. Indigenous Indian Standards can be downloaded and used free of cost.

<https://standardsbis.bsbedge.com/>

Disclaimer— This Standardized Development and Building Regulations, 2023 prepared for your State/UT/City is based on the Special Publication of BIS, SP 73:2023 ‘Standardized Development and Building Regulations, 2023’. The main objective of this publication is to bring forth uniformity in structuring, detailing as well as key approval processes throughout the country, without sacrificing any unique/area specific need of the various states and union territories (UTs), and their concerned local bodies. It serves as a model document to be utilized for developing statutes/regulations for your State/UT/City.

ABOUT BUREAU OF INDIAN STANDARDS

Bureau of Indian Standards (BIS) is the National Standards Body of India established under the BIS Act 2016 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto. BIS has been providing traceability and tangibility benefits to the national economy in a number of ways – providing safe reliable quality goods; minimizing health hazards to consumers; promoting exports and imports substitute; control over proliferation of varieties, etc through standardization, certification and testing.

ABOUT NATIONAL BUILDING CODE OF INDIA 2016 (NBC 2016)

The National Building Code of India 2016 (NBC 2016), a comprehensive building Code prepared by BIS, is a national instrument providing guidelines for regulating the building construction activities across the country. It serves as a Model Code for adoption by all agencies involved in building construction works, be the Public Works Departments, other government construction departments, local bodies or private construction agencies. The Code mainly contains administrative regulations, development control rules and general building requirements; fire safety requirements; stipulations regarding materials, structural design and construction (including safety in construction); building and plumbing services; landscaping and outdoor display structures; approach to sustainability; and asset and facility management.

Thus, the Code gives all the information required by the architect, engineer, structural engineer, construction engineer, services engineer and other professionals from the early stages of planning to translating the building on to terra firma. The comprehensive NBC 2016 contains 13 Parts some of which are divided into Sections and Subsections totalling 33 chapters.

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ABBREVIATIONS, UNITS AND DEFINITIONS

1 ABBREVIATIONS, UNITS and DEFINITIONS

1.1 Abbreviations

| Abbreviation | Word or Phrase |
|--------------|---|
| AAI | Airport Authority of India |
| AHU | Air Handling Unit |
| AICTE | All India Council for Technical Education |
| ASI | Archaeological Survey of India |
| BO | Building Official |
| BIS | Bureau of Indian Standards |
| BRTS | Bus Rapid Transit system |
| BUA | Built-Up Area |
| C&D | Construction and Demolition |
| CBD | Commercial Business District |
| CBSE | Central Board of Secondary Education |
| CCTV | Closed Circuit Television |
| CFAR | Compensatory Floor Area Ratio |
| CLC | Cellular Light Weight Concrete |
| CO | Competent Official |
| CPCB | Central Pollution Control Board |
| CPWD | Central Public Works Department |
| CRZ | Coastal Regulation Zone |
| CZMP | Coastal Zone Management Plan |
| DG | Diesel Generator |
| DRC | Development Rights Certificate |
| DU | Dwelling Unit |
| ECBC | Energy Conservation Building Code |
| ECS | Equivalent Car Space |

| Abbreviation | Word or Phrase |
|---------------------|--|
| FAR | Floor Area Ratio |
| FCC | Fire Command Centre |
| HFL | High Flood Line |
| HMV | Heavy Motor Vehicle |
| HT | High Tension |
| HTL | High Tide Line |
| HV | High Voltage |
| HVAC | Heating, Ventilation and Air Conditioning |
| ICU | Intensive Care Units |
| IFC | Integrated Freight Complex |
| IRC | Indian Roads Congress |
| ISBT | Inter State Bus Terminal |
| IT | Information Technology |
| LCV | Light Commercial Vehicle |
| LED | Light Emitting Diode |
| LIG | Low Income Group |
| LMV | Light Motor Vehicle |
| LoC | Line of Control |
| LPG | Liquefied Petroleum Gas |
| LV | Low Voltage |
| MMT | Multi Modal Transport |
| MoEFCC | Ministry of Environment, Forest and Climate Change |
| MoHUA | Ministry of Housing and Urban affairs |
| MoU | Memorandum of Understanding |
| MRC | Metro Rail Corporation |
| MRTS | Metro Rail Transit System |

| Abbreviation | Word or Phrase |
|---------------------|--------------------------------------|
| MV | Medium Voltage |
| NBC 2016 | National Building Code of India 2016 |
| NCR | National Capital Region |
| NDZ | No Development Zone |
| NHAI | National Highways Authority of India |
| NMT | Non-motorised Transport |
| NOC | No Objection Certificate |
| OPD | Out Patient Department |
| PVC | Polyvinyl Chloride |
| PwD | Persons with Disabilities |
| PWD | Public Works Department |
| RERA | Real Estate Regulatory Authority |
| RoW | Right of Way |
| RRTS | Regional Rapid Transit System |
| RBP | Registered Building Professional |
| RWA | Resident Welfare Association |
| SEZ | Special Economic Zone |
| SMS | Short Message Service |
| SPCB | State Pollution Control Board |
| STP | Sewage Treatment Plant |
| SWM | Solid Waste Management |
| TDR | Transferable Development Rights |
| TGSI | Tactile Ground Surface Indicators |
| TOD | Transit Oriented Development |
| TPTAA | Third Party Technical Audit Agency |

| Abbreviation | Word or Phrase |
|--------------|---|
| URDPFI | Urban and Regional Development Plans Formulation and Implementation |
| WC | Water Closet |
| WTP | Water Treatment Plant |

1.2 Units

| Symbol | Name |
|----------------|------------------------|
| DU/ha | dwelling units/hectare |
| ha | hectare |
| kW | kilowatt |
| kWp | kilowatts peak |
| kVA | kilovolt ampere |
| m | metre |
| m ² | metre square |
| Pph | persons per hectare |
| TR | tonne of refrigeration |
| t | tonne |
| V | volt |

1.3 Definitions

| SI No. | Term | Definition |
|--------|------------|---|
| 1. | Alteration | A change from one occupancy to another, or a structural change, such as an addition to the area or height, or the removal of part of a building, or any change to the structure, such as the construction of, cutting into or removal of any wall, partition, column, beam, joist, floor (including a mezzanine floor) or other support, or a change to or closing of any required means of ingress or egress or a change to the fixtures or equipment. |
| 2. | Apartment | Also called as block, chamber, dwelling unit, flat, office, showroom, shop, godown, premises, suit, tenement, unit or by any other name, means a separate and self-contained part of any immovable property, including one or more rooms or enclosed spaces, located |

| SI No. | Term | Definition |
|---------------|--------------------------------|--|
| | | 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 godown or for carrying on any business, occupation, profession or trade, or for any other type of use ancillary to the purpose specified. |
| 3. | Appellate Authority | The chairperson of the Authority or any other person as notified by the State/UT Government, responsible for taking decisions with respect to the appeals filed by applicant/owner. |
| 4. | Applicant | The person who has legal title to a land or building and includes a) The owner; b) An authorized agent or trustee who receives the rent on behalf of the owner; c) An authorized agent or trustee who receives the rent of or is entrusted with or is concerned with any building devoted to religious or charitable purposes; d) A receiver, executor or administrator or a manager appointed by any Court of competent jurisdiction to have the charge, or to exercise the rights of the owner; and e) A mortgagee in possession. |
| 5. | Atrium | A large-volume space created by a floor opening or series of floor openings connecting two or more storeys that is covered at the top of the series of openings and is used for purposes other than an enclosed staircase; lifts hoist-way; an escalator opening; or as a utility shaft used for plumbing, electrical, air conditioning or communication facilities. |
| 6. | Authority | The organization having jurisdiction for regulating the development of land and building construction activities in a notified area. |
| 7. | Balcony | A horizontal projection cantilevered or otherwise, provided with a parapet and/or handrail and balustrade. |
| 8. | Basement | The lower storey(s) of a building, below or partly below the ground level. |
| 9. | Bathroom | A room or cubicle containing a tap and/or shower for bathing. |
| 10. | Battery Charging Station (BCS) | A station where the discharged or partially discharged electric batteries for electric vehicles are electrically charged. |
| 11. | Battery Swapping Station (BSS) | A station where any electric vehicle can get its discharged battery or partially charged battery replaced by a charged battery. |

| SI No. | Term | Definition |
|---------------|----------------------|---|
| 12. | Biodegradable Waste | Organic material waste that can be degraded by micro-organisms into simpler stable compounds within a reasonable time period and shall include waste, such as tea leaves, egg shells, fruit and vegetable peels, cooked food, meat and bones, garden and leaf litter, including flowers, animal litter, soiled paper, coconut shells and ashes, commonly known as wet waste. |
| 13. | Bio-Medical Waste | Waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological material, and includes wastes like sharps, soiled waste in healthcare, disposables, anatomical waste, cultures, discarded medicines, chemical wastes, etc. |
| 14. | Bio-Methanation | A process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas. |
| 15. | Black Water | Wastewater from toilets, which contains high level of pathogens and is contaminated with faecal matter and urine. |
| 16. | Block of Buildings | Multiple buildings on a plot which are interconnected at any level. NOTE – Buildings connected by a horizontal exit(s) above ground level will also be considered as a block of building. |
| 17. | Buffer | A no development zone identified between two land uses or within the same land use. This buffer may or may not be a green belt. |
| 18. | Building | Any structure for whatsoever purpose and of whatsoever materials constructed and every part thereof, whether used as human habitation or not and includes foundation, plinth, walls, floors, roofs, chimneys, plumbing and building services, fixed platforms, verandah, balcony, cornice or projection, part of a building or anything affixed thereto or any wall enclosing or intended to enclose any land or space and signs and outdoor display structures. Tents, <i>Shamianahs</i> , tarpaulin shelters, etc, erected for temporary and ceremonial occasions with the permission of the Authority shall not be considered as building. |
| 19. | Building Constructor | An individual or an organisation engaged by the owner to construct/maintain/develop their plot or building(s). |
| 20. | Building Envelope | The horizontal spatial limits up to which a building may be permitted to be constructed on a plot. From sustainability point of view, Building Envelope refers to exterior façade and is comprised of opaque components and fenestration systems. The envelope protects the buildings interior and occupants from the weather conditions and shields them from other external factors such as noise and air pollution. NOTES – |

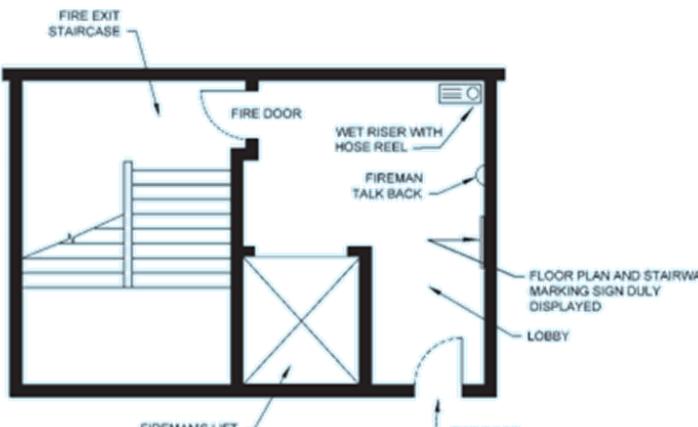
| SI No. | Term | Definition |
|--------|------------------------|---|
| | | <p>1) Opaque components include walls, roofs, slabs on grid, basement walls and opaque doors.</p> <p>2) Fenestration system includes windows, skylights, ventilators and doors that are more than one-half glaze</p> |
| 21. | Building Footprint | That area of the plot which falls within the perimeter of the built structure. |
| 22. | Building Height | <p>In the case of flat roofs, it is the vertical distance measured from the average ground level around (and contiguous to) the building to the terrace level of the last liveable floor adjacent to the external wall.</p> <p>In the case of pitched/sloped roofs, it is the vertical distance measured from the average ground level around (and contiguous to) the building to the point where the external surface of the outer wall intersects the finished surface of the sloping roof.</p> <p>Where the gable end of sloping roof faces the access road, it is the vertical distance measured from the average ground level around (and contiguous to) the building to the mid-point between the eaves and the ridge level.</p> <p>Where the building is located on a sloped terrain, height shall be calculated from the lowest ground level.</p> <p>NOTE — Architectural/decorative features extending above terrace shall be ignored for the purpose of this measurement.</p> |
| 23. | Building Line | The line up to which the plinth of a building adjoining a street or an extension of a street or on a future street, may lawfully extend. |
| 24. | Building Official (BO) | An officer of the Authority authorized by the Competent Official (CO) to permit development or redevelopment, building construction or reconstruction, alteration and demolition activity in its jurisdiction, either by way of an act, or these regulations, or a government order, or delegation of power. |
| 25. | Building Permit | A permission granted by the building official for undertaking any building construction or reconstruction and alteration activity. |
| 26. | Built Environment | The collection of human made or induced physical objects located in a particular area or region. |

| SI No. | Term | Definition |
|---------------|--------------------------------|--|
| | | NOTE — When treated as a whole, the built environment typically is taken to include buildings, external works, landscape areas, infrastructure and other construction works within the area under consideration. |
| 27. | Built-up Area (of a building) | The area covered by a building on all floors including cantilevered portion, mezzanine floors, if any. |
| 28. | Bulk Solid Waste Generator | Owner(s)/occupiers of housing society/housing complexes, restaurants, hotels, markets, industrial estates, shopping complexes/malls, government or public office buildings, residential colonies, clubs, gymkhana, marriage halls, recreation/entertainment complexes, hospitals, religious institutions, educational institutions, railway stations, commercial establishments including other establishments/sources/ sites with more than 5,000 m ² built-up area or having an average waste generation rate exceeding 100 kg per day or more, if specifically identified and notified by the Authority. |
| 29. | Bus Terminal or Terminus | The point where a bus route starts or ends, where buses stop, turn or reverse, and wait before departing on their return journeys. It is also the point where passengers board and alight from vehicles. |
| 30. | Cabin | A non-residential enclosure constructed with non-load bearing partition. |
| 31. | Canopy | A permanent structure or architectural projection of rigid construction that provides weather protection, identity or decoration. A canopy may be structurally independent or supported by attachment to a building on one or more sides. |
| 32. | Captive Charging Station (CCS) | A vehicle charging station exclusively for the electric vehicles owned or under the control of the owner of the charging station, for example government departments, corporate houses, bus depots, etc, that shall not be used for commercial purpose of charging other vehicles on paid for basis. |
| 33. | Carpet Area | Floor area of the usable rooms at any floor level to be determined as per IS 3861 'Method of measurement of plinth, carpet and rentable areas of buildings'. |
| 34. | Central Business District | A commercial and business center of a city which contains commercial space and offices. |
| 35. | <i>Chhajja/ Sunshade</i> | A sloping or horizontal structural overhang usually provided over openings on external walls to provide protection from sun and rain. |
| 36. | Chimney | An upright shaft containing one or more flues provided for conveyance to the outer air of any product of combustion resulting from the operation of heat producing appliances or equipment employing solid, liquid or gaseous fuel. |

| SI No. | Term | Definition |
|---------------|-----------------------------------|---|
| 37. | Cluster | Plots or dwelling units (DUs) or housing grouped around an open space. |
| 38. | Common Terrace | A rooftop terrace that is a common space available for the use by all units in a building. |
| 39. | Competent Official (CO) | Head of the authority/any department of the authority, vested with the powers to plan and approve land development or redevelopment, building construction or reconstruction, alteration and demolition activity permission as per the state acts/policies. |
| 40. | Composting | Controlled process involving microbial decomposition/degradation/breaking down of organic matter. |
| 41. | Connected Load | The sum of the rated wattage of all equipment, appliances and devices to be installed in a building or part of a building or building complex, in kilowatt (kW) that is allocated to all applicants for electric power consumption in respect of the proposed building or building complex on its completion. |
| 42. | Construction and Demolition Waste | Building rubble/debris obtained from construction/demolition of any building or any other development activity. |
| 43. | Contract Demand | The maximum demand in kilowatt (kW) or kilovolt ampere (kVA) (within a consumer's sanctioned load) agreed to be supplied by the electricity provider or utility in the agreement executed between the consumer and the utility or electricity provider. |
| 44. | Cooking Alcove | A cooking space having direct access from the main room without any inter-communicating door. |
| 45. | Corner Plot | A plot at the junction of two intersecting roads/streets. |
| 46. | Corridor | A common passage or circulation space connecting separate rooms or different parts of the same building including a common entrance hall. |
| 47. | Covered Area | Total area covered on all the floors of a building. However, the area covered by the structures and features defined in 5.4.2 are excluded in the calculation of covered area. |
| 48. | Cul-de-Sac | A closed edge of a public or private street or passage with provision for turning of vehicles. |
| 49. | Dead End | An end of a road or passage from where no further access/exit is possible. |
| 50. | Deconstruction | A planned selective demolition in which salvage, re-use and recycling of demolished structure is maximised. |

| SI No. | Term | Definition |
|---------------|--------------------------|--|
| 51. | Demolition | Safely and efficiently tearing down of buildings and other constructed structures or a part thereof. |
| 52. | Demolition Permit | A permit granted by the building official for demolishing a structure or a part thereof and clearing the debris from the plot the structure is located on. |
| 53. | Development | Carrying out of building, engineering, mining or other operations in, or over, or under land or water, on the making of any material change, in any building or land, or in the use of any building, land, and includes redevelopment and layout and subdivision of any land; and 'to develop' shall be construed accordingly. |
| 54. | Detached Building | A building detached on all sides. |
| 55. | Developer | A person or an organization legally empowered to develop or construct or execute work on a land parcel, building or structure. |
| 56. | Development Permit | Permission granted by the building official for undertaking any development/redevelopment in any plot/site by the applicant/owner. |
| 57. | Development Plan | A set of documents that set out the Authority's policies and proposals for the development and use of land in the area under their jurisdiction. NOTE — The term Development Plan, Regional Plan, Master Plan and Zonal Plan are often used interchangeably and will depend on the State Rules and Regulations. |
| 58. | Dharamshala | A building devoted to religious or charitable purposes offering lodging and/or dining facilities for interested individuals or group of people at a nominal charge, or in some cases free of charge. |
| 59. | Directional Signs | A sign which is usually included with an arrow and used for indicating a change in route or confirmations to a correct direction. |
| 60. | Domestic Hazardous Waste | Wastes comprising discarded paint drums, pesticide cans, compact fluorescent lamp bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes, contaminated gauzes, etc, generated at the household level. |
| 61. | Donor Plot | The plot which generates FAR credits that may be transferred to another plot in the form of development rights. |
| 62. | Door-to-Door Collection | Collection of solid waste from the door step of households, shops, commercial establishments, offices, institutional or any other non-residential sites and may include collection of such waste from entry gate or a designated location on the ground floor in a housing society, multi-storeyed building or apartments, large residential or commercial or institutional complex or premises. |

| SI No. | Term | Definition |
|---------------|----------------------|---|
| 63. | Drain | A conduit, channel or pipe for the carriage of storm water, sewage, wastewater or other water borne wastes. |
| 64. | Dwelling Unit | An independent housing unit with separate facilities for living, cooking and sanitary requirements. |
| 65. | Embodied Energy | The sum of energy that is used to extract, process, package, transport and install the material in the building. |
| 66. | Environmental Impact | Any change to the environment due to any type of development including demolition in an area, whether adverse or beneficial, wholly or partially. |
| 67. | Escalator | A power driven, inclined, continuous moving staircase used for raising or lowering passengers in which the user carrying surface remains horizontal. |
| 68. | Evacuation Lift | Lift that can be used during an emergency for self-evacuation. |
| 69. | Exit | That unobstructed component of means of egress which is between the exit access and the exit discharge or public way. Exit components include exterior exit doors at the level of exit discharge, interior exit staircase, exit passageways, exterior exit staircase and exterior exit ramps. |
| 70. | Exit Access | That portion of a means of egress that leads to an exit (for example, doorways, staircase lobby, ramps, Veranda, corridor or passageway leading to an exit). |
| 71. | Exit Discharge | The component of a means of egress between the termination of an exit and a public way. |
| 72. | Extensive Industry | An industry set up with the permission of the Government and employing more than 100 workers, and may use any kind of captive power of fuel provided they do not have any obnoxious features. |
| 73. | E-waste | Wastes comprising electrical and electronic equipment, whole or in part, discarded as waste by the generator as well as rejects from manufacturing, refurbishment and repair processes. |
| 74. | FAR Credits | FAR that has been generated on the donor plot for use/sale on the designated plot(s). <p style="text-align: center;">NOTE — FAR credit is represented in Development Rights Certificate (DRC) in terms of both FAR (factor) and area (m).</p> |
| 75. | Fenestration | Any opening in a building envelope with or without glazing for the purpose of providing light and/or ventilation. |
| 76. | Firefighting Shaft | An enclosed shaft having protected area of 120 min fire resistance rating comprising protected lobby, staircase and fireman's lift, connected directly to exit discharge or through exit passageway, |

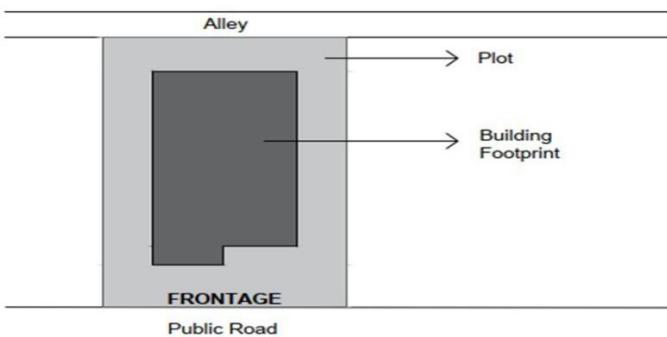
| SI No. | Term | Definition |
|--------|---------------------------|--|
| | | <p>with 120 min fire resistant wall at the level of exit discharge. These shall also serve the purpose of exit requirement/strategy for the occupants. The respective floors shall be approachable from fire-fighting shaft, enabling the fire fighters to access the floor and also enabling the fire fighters to assist in evacuation through fireman's lift. The firefighting shaft shall be equipped with 120 min fire doors. The firefighting shaft shall be equipped with firemen talk back, wet riser and landing valve in its lobby, to fight fire by fire fighters.</p> <p>(Figure 2)</p>  <p>(LAYOUT TO BE PLANNED AS PER PROJECT BASIS MEETING ALL THE REQUIRED DETAILS)</p> |
| 77. | Fireman's Lift | A lift or a group of lifts invariably associated with all the features and requirements of a fire-fighting shaft. Such lift(s) are installed to enable fire services personnel to reach different floors with minimum delay. This lift also serves the purpose of meeting the requirement of evacuation lift for assisted evacuation. |
| 78. | Flatted Industries | Premise(s) housing a group of permissible non-hazardous small industrial units in multi-storeyed industrial buildings. |
| 79. | Floor | The lower surface in a storey on which one normally walks in a building. The general term 'floor' unless specifically mentioned otherwise shall not refer to a 'mezzanine floor'. |
| 80. | Floor Area (Gross) | The area of the floor within the inside perimeter of the outside walls of the floor of the building under consideration with no deductions for corridors and passage-ways, stairs, closets, thickness of interior walls, columns, lifts and building shafts or other features. |
| 81. | a) Floor Area Ratio (FAR) | <p>The quotient obtained by dividing the total covered area on all floors by the area of the plot.</p> $\text{FAR} = \frac{\text{Total covered area of all floors}}{\text{Plot Area}}$ |

| SI No. | Term | Definition |
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| | | NOTE — Many times, the terms Floor Area Ratio (FAR) and Floor Space index (FSI) are used interchangeably, but in these regulations, FAR is used uniformly. |
| | b) Compensatory FAR | The FAR received by the owner from the Authority as a compensation for surrender of land to the government body without any monetary compensation and free from encumbrances. |
| | c) Permissible FAR | FAR permitted in these regulations for any particular activity/use. |
| | d) Purchasable FAR | Additional FAR, which an owner can purchase over and above the permissible FAR that was specifically allowed to him/her at the time of allotment. |
| 82. | Fire Barrier (or Fire Resisting Barrier) | A vertically or horizontally aligned member such as a wall or a fire curtain, or a floor. These may be with discontinuities created by openings with a specified fire resistance rating, where such members are designed and constructed with a specified fire resistance rating to limit the spread of fire that also restricts the movement of smoke. |
| 83. | Fire Compartment | A space within a building that is enclosed by fire barrier or fire resistant walls on all sides, including the top and bottom. |
| 84. | Footpath | The portion of the right of way of road used for the movement of pedestrian traffic. |
| 85. | Foundation | That part of the structure which is in direct contact with and transmits loads to the ground. |
| 86. | Garage | A building or a portion thereof designed and used for parking of vehicles. |
| 87. | Garden and Horticulture waste | Organic waste from public or private parks, gardens, traffic islands, building premises, roads, etc, and includes grass clippings, weeds, woody 'brown' carbon-rich material such as pruning, branches, twigs, wood chipping, straw or dead leaves and tree trimmings, which cannot be accommodated in the daily door to door collection system for biodegradable waste. |
| 88. | Grey Water | Wastewater collected from bath, shower, wash basin, washing machine, dishwasher, laundry and kitchen sink. |
| 89. | Ground Coverage | The ratio of area of the plot covered by the building at the ground level to the total area of the plot, expressed in percentage. This excludes the spaces mentioned in 5.4.2 . |
| 90. | Group Housing | A housing complex comprising either residential flats or a cluster of flats and independent houses, with basic amenities like parking, park, convenience shop, public utilities, etc. |

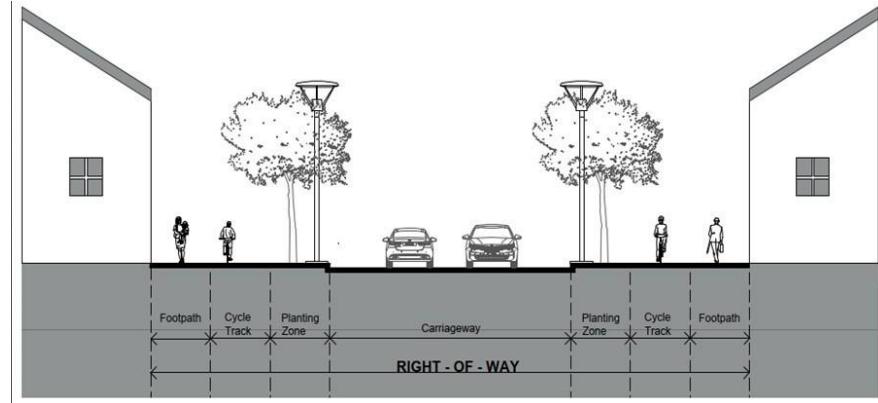
| SI No. | Term | Definition |
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| 91. | Habitable Room | A room occupied or designed for occupancy by one or more persons for study, living, sleeping, eating, kitchen if it is provided in a living room, but not including bathrooms, water-closet compartments, laundries, serving and store pantries, corridors, cellars, attics, and spaces that are not used frequently or for extended periods. |
| 92. | Handrail | A rail used in circulation areas such as corridors, passageways, ramps and staircases to assist in continuous movement. |
| 93. | High Rise Building | A building 15 m or above in height. |
| 94. | Horizontal Exit | An exit component consisting of fire-resistance-rated construction and opening protectives intended to compartmentalize portions of a building thereby creating refuge areas that afford safety from the fire and smoke from the area of fire origin. |
| 95. | Indemnity Bond | The bond that is intended to reimburse the holder for any actual or claimed loss caused by the issuer's conduct or another person's conduct. |
| 96. | Indoor Air Quality | The air quality that refers to the nature of unconditioned or conditioned air that circulates throughout the space/area where one works or lives, that is, the air one breathes when indoors. |
| 97. | Industrial Waste | The waste comprising discarded materials from manufacturing processes and industrial operations covering a vast range of substances. |
| 98. | Informational Sign | A sign that is used for overall information for general organization of a series of elements, such as campus plan, bus route, building layout and shopping mall plan. |
| 99. | Integrated Township | A cluster of residential and commercial complexes with infrastructures such as roads, schools, hospitals, retail outlets, water and sewage treatment plants that make it a self-sustaining ecosystem. |
| 100. | Internal Partition | An interior dividing wall or such portion of an interior dividing wall that is not a door, side panel, shop front or atrium wall. |
| 101. | Internal Staircase | An exit staircase within a building that serves to meet one or more means of egress design requirements, and provides for a protected path of egress travel to the exit discharge either directly or through an exit passageway or a lobby. |
| 102. | Kerb | A side barrier to a trafficable surface or the edge where a raised footpath, road median, or road shoulder meets an unraised street or other roadway. |

| SI No. | Term | Definition |
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| 103. | Land-Locked Plot | A plot that has no legal access to a public right of way. |
| 104. | Land Use Plan | The scientific, aesthetic, and orderly disposition of land, resources, facilities and services with a view to securing the physical, economic and social efficiency and health and well-being of urban and rural communities. |
| 105. | Layout Plans | A plan of the entire site showing location of plots/building blocks, roads, open spaces, entry/exits, parking, landscaping, etc. indicating the activity for all land parcels. NOTE — In certain urban areas, the terminology sector plan is also used for layout plan. |
| 106. | Ledge/ <i>Tand</i> | A shelf-like projection, supported in any manner whatsoever, except by means of vertical supports within a room itself but not having projection wider than 1 m. |
| 107. | Lift | 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 or platform. The word 'elevator' is also synonymously used for 'lift'. |
| 108. | Light Industry | Industries which do not throw out excessive smoke, noise, offensive odor or harmful industrial wastes, employing not more than 100 workers and using power of not more than 100 horsepower. Such Industries except in the case of foundries and smithies do not consume any solid fuel. |
| 109. | Lodge | A premise used for lodging on payment. |
| 110. | Loft | A structure providing intermediate storage space in between two floors with a maximum height of 1.5 m, without having a permanent access. |
| 111. | Low Income Group Housing | A house or DU intended for low-income groups. |
| 112. | Master Plan | A plan formulated under any relevant act (Town and Country Planning or Development Act or Municipal Act) for any urban area, approved and notified by the Authority in the State. |
| 113. | Means of Access | Any road, street, lane, passage giving access to the plot being a right of way, and includes such features as drain, median strip, shoulder or berm, bridge, culvert, burrow pit etc. between the two boundary walls of the premises on either sides of such right of way or, where a street alignment has been fixed and the area within such alignment has been acquired by authority and the alignment has been demarcated or is capable of being demarcated up to such alignment. |

| SI No. | Term | Definition |
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| 114. | Mezzanine Floor | An intermediate floor between two floors of any storey forming an integral part of floor below. |
| 115. | Mixed Occupancy | A multiple occupancy where the occupancies are intermingled. |
| 116. | <i>Mumty</i> or Stair Cover | A structure with a 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. |
| 117. | Night Shelter | A premise having the facility for providing the night accommodation to individuals without any charges or with token charges. |
| 118. | Non-Biodegradable Waste | Any waste that cannot be degraded by microorganisms into simple stable compounds, also generally referred to as dry waste. |
| 119. | Notice of Completion | A notice to the building official that the building has been completed in line with the sanctioned plans and as required for Occupancy Permit. In case of land development, this notice of completion refers to the completion of all development activities as per sanctioned plans. |
| 120. | Notified Area | An urban area, municipal area, development area, industrial development area, regulated area, rural area, etc, as notified by the state government under relevant acts. |
| 121. | Occupancy (or Use Groups) | The principal occupancy for which a building or a part of a building is used or intended to be used; for the purposes of classification of a building according to occupancy, an occupancy is deemed to include subsidiary occupancies which are contingent upon it. |
| 122. | Occupancy Permit | A permission granted by the BO to enable occupation of any completed development/redevelopment or construction/reconstruction or alteration. |
| 123. | Open Space | An area, forming an integral part of the plot, left open to the sky. |
| 124. | Owner | A person, a group of persons or a body having a legal interest in land and/or building thereon, who has a legal right to occupation and has liabilities in respect of safety or building condition. This includes freehold and lease/sublease hold properties. |
| 125. | Pantry | A room where food provisions, dishes or linens are stored and serves in an ancillary capacity to the kitchen. |
| 126. | Parapet | A low wall or railing built along the edge of a roof or floor. |
| 127. | Parking Space | An area enclosed or unenclosed, covered or open, sufficient in size to park vehicles, together with a driveway connecting the parking |

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| | | space with a street or alley and permitting ingress and egress of the vehicles. |
| 128. | Plinth | The portion of a structure between the surface of the surrounding ground and surface of the floor immediately above the ground. |
| 129. | Plinth Area | The area of the building measured at the plinth level. |
| 130. | Plot Frontage | The length of site/plot abutting a road/street. Where more than one road/street is abutting the plot, the side abutting the wider street is considered as the plot frontage. (Figure 3) |
| | |  <p style="text-align: center;">Figure 3 Plot Frontage</p> |
| 131. | Plotted Development | A stretch of developed land divided into regular sized plots. |
| 132. | Podium | A horizontal platform extending beyond the building footprint on one or more sides, and may consist of one or more levels. |
| 133. | Porch/Portico | A covered structure supported on pillars or otherwise for the purpose of pedestrian or vehicular approach to a building. |
| 134. | Private Charging Infrastructure | The charging infrastructure installed by a home owner meant for self-use (non-commercial basis). |
| 135. | Project/Scheme | Any development or redevelopment on a plot/site and/or building construction or reconstruction activity in any building. |
| 136. | Promoter | A person who develops land into a project or 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. |
| 137. | Proof Checking/Peer Reviewing | Review of structural design by a strutural engineer who is not part of the original design team. |

| SI No. | Term | Definition |
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| 138. | Public Charging Station | An EV charging station installed at public/private areas or building premises that caters to the commercial mode of charging of EVs. |
| 139. | Ramp | The construction, in the form of an inclined plane that is steeper than or equal to 1:20 (5 percent) from the horizontal, together with any intermediate landing, that makes it possible to pass from one level to another. |
| 140. | Receiving Plot | The plot that is designated by the Authority to receive FAR credits in form of development right through the process of Transferable Development Right (TDR). |
| 141. | Reconstruction | When a building is rebuilt in whole or parts due to fire damage, or obsolescence/deterioration due to natural forces. |
| 142. | Recycling | A process to convert discarded materials that would otherwise become waste into valuable resources. |
| 143. | Refuge Area | An unenclosed area within the building for a temporary use during egress. It generally serves as a staging area which is protected from the effect of fire and smoke. |
| 144. | Refuse Chute | A convenient and safe mode of transportation and collection of domestic solid wastes from building exceeding 5 storeys from floors at different heights. |
| 145. | Regional Plan | Efficient placement of land use activities, infrastructure, and settlement growth across a larger area of land than an individual city or town. Regional planning is related to urban planning as it relates land use practices on a broader scale. It also includes formulating laws that will guide the efficient planning and management of such said regions. NOTE — Regional plans are prepared for a specifically notified area which may have one or more than one political boundary such as National Capital Region (NCR), Metropolitan region, Special Investment Region, Eco sensitive region (Bhagirathi and Chambal), etc. |
| 146. | Registered Building Professional | A qualified professional registered by the Authority or by the body governing such profession and constituted under a statute, as may be applicable. |
| 147. | Renewable Resource | A resource that is available naturally, harnessed, and can be replenished. |
| 148. | Residential Density | The degree of compactness of the residential units expressed in terms of the number of DUs per hectare. |
| 149. | Retrofitting | Retrofitting is done to enhance the performance of the structure by strengthening the existing structure or its elements. It means to |

| SI No. | Term | Definition |
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| | | improve the shear resistance and the capacity of the structural members to resist seismic loads and eventually the whole structure. |
| 150. | Reuse | Using a material, product or component of the waste stream in its original form for more than once. |
| 151. | Right of Way | The total land area acquired for the construction of the roadway. Its width should be enough to accommodate all the elements of the roadway cross section, any future widening of the road and any public utility facilities that will be installed along the roadway. (Figure 4) |
| | |  |
| | | Figure 4 Right of Way |
| 152. | Room Height | The vertical distance measured from the finished floor surface to the finished ceiling surface. Where ceiling is not provided, the height shall be measured up to the underside of the joists/beams/tie beams. |
| 153. | Row Housing/Row Type Buildings | Houses of similar nature joined together and attached to each other by a common wall/side walls with private front, rear and side open spaces, where applicable. |
| 154. | Sanctioned Plan | The set of plans, specifications and other details submitted in connection with a building or development and duly approved and sanctioned by the Authority. |
| 155. | Sanitary Waste | Wastes comprising used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste. |
| 156. | Scissor Stairs | Two interlocking stairways providing two separate paths of egress located within one staircase enclosure. |
| 157. | Secondary Storage | The temporary containment of solid waste after collection at secondary waste storage depots or material recovery facility or bins for onward transportation of the waste to the processing or disposal facility. |

| SI No. | Term | Definition |
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| 158. | Service Floor | A floor provided to install various building services/equipment and to facilitate its maintenance. |
| 159. | Service Industry | Industries which are not engaged in the manufacture of goods or articles, but are mainly concerned with the repair, maintenance, servicing and/or/other jobbing work. |
| 160. | Service Road/Lane | A road/lane provided adjacent to a plot(s) for access or service purposes as the case may be. |
| 161. | Setback | The minimum required distance between the property line and building line. |
| 162. | Setback Line | A line usually parallel to the plot boundaries and laid down in each case by the Authority, beyond which nothing may be constructed towards the plot boundaries. |
| 163. | Site/Plot | A parcel (piece) of land enclosed by definite boundaries. |
| 164. | Sky Bridges | A path provided for pedestrians at above grade level and may partly consist of travellators or other similar devices. |
| 165. | Slaughter house Waste | Waste generated at slaughter houses, meat, fish, chicken stalls and outlets. |
| 166. | Solid Waste | The waste that includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the jurisdiction of the Authority. |
| 167. | Stilt Floor | A non-habitable portion of a building above ground level consisting of structural columns supporting the super-structure with at least two sides open without any enclosures which may be used for the purpose of parking cars, scooters, cycles and landscaping. |
| 168. | Storey | The portion of a building included between the surface of any floor and the surface of the floor next above it, or if there be no floor above it, then the space between any floor and the ceiling next above it. |
| 169. | Street Level or Grade | The officially established elevation or grade of the central line of the street upon which a plot fronts and if there is no officially established grade, the existing grade of the street at its mid-point. |
| 170. | Studio Apartment | An apartment unit consisting of a single room and a bathroom, the single room functioning as living room, bedroom and kitchen. |
| 171. | Subdivision | The division of a plot or parcel of land into two or more plots or other divisions of land. |

| SI No. | Term | Definition |
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| 172. | Substation (Electric) | A building or a part of a building for transforming or converting electricity for the transmission or distribution thereof and houses transformers, converters, switchgears, capacitors, synchronous condensers, cables and other appurtenant equipment and any buildings used for that purpose and the site thereof. |
| 173. | Sunken Courtyard | An open sunken space within the plot to provide natural light and ventilation subject to set back restriction with clear fire tender movement passage. |
| 174. | Sustainability | The state in which components of ecosystem and their functions are maintained for the present and future generations. |
| 175. | Sustainable Buildings | A building that meets the specific building performance requirements while minimising disturbance to and improving the functioning of local, regional and global ecosystem both during and after its construction and specified service life. NOTE — A sustainable building optimizes efficiencies in resource management and operational performance; and minimizes risk to human health safety and the environment. |
| 176. | Swimming Pool | A constructed pool or a tank indoor or outside the building, 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 60 cm. and the surface area exceeding 23.25 sq m. both for the use of public or the institution concerned. |
| 177. | Sustainable Development | The development that meets the need of present without compromising the ability of future generations to meet their own. |
| 178. | Transit Oriented Development (TOD) | Integrated land use and transport planning with the aim to develop planned sustainable urban growth centers, having walkable and livable communes with high density mixed land-use. |
| 179. | To erect | To erect a building means, a) to erect a new building on any site whether previously built upon or not; and b) to re-erect any building of which portions above the plinth level have been pull down, burnt or destroyed. |
| 180. | TOD Influence Zone | The area in the immediate vicinity of the transit corridor/stations, that is, within a walking distance, having high density compact development with mixed land use. |
| 181. | Transferable Development Rights (TDR) | The development rights that are transferable from one property (sending property) to one or more receiving properties. |

| SI No. | Term | Definition |
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| 182. | Travel Distance | The distance to be travelled from any point in a building to a protected exit measured along the line of travel. |
| 183. | Underground Building | The provisions to buildings/building spaces having a floor level used for human occupancy more than 3 m below the finished floor of the lowest level of exit discharge. |
| 184. | Unsafe Building | Buildings which are structurally (or otherwise) unsafe or insanitary or not provided with adequate means of egress or which constitute a fire hazard or are otherwise dangerous to human life or which in relation to existing use constitute a hazard to safety or health or public welfare, by reason of inadequate maintenance, dilapidation or abandonment. |
| 185. | Ventilator | An opening in a wall for ventilating the space inside. |
| 186. | Verandah | A covered area with at least one side open to the outside with the exception of 1 m high parapet on the upper floors to be provided on the open side. |
| 187. | Waste Generator | Any person or associations of person, in residential/institutional/commercial establishments who undertakes construction or demolition of any civil structure which generates construction and demolition waste, including Indian Railways, defence establishments, airport, port and harbour which generate solid waste. All residential, commercial, institutional, property owners, occupiers shall be considered as waste generators. |
| 188. | Water Closet | A 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. |
| 189. | Window | 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. |
| 190. | Zonal Plan | A plan detailing out the proposals of master plan and acting as a link between master plan and the layout plan. It may contain a site plan and land use plan with approximate location and extent of land uses such as public, semi-public buildings/works, utilities, roads, housing, recreation, industry, business, markets, schools, hospitals open spaces etc. It may also specify standards of population density and various components of development of the zone. |

ADMINISTRATION

Explanatory Note:

This chapter outlines the administrative set up for regulating any land development or redevelopment, building construction or reconstruction activity, alteration and demolition of building in an area.

- 1) *It has been divided into three key sections- Building Official (BO); Applicant; and Registered Building Professional (RBP).*
- 2) *These sections provide the roles and responsibilities of the key stakeholders that is the BO, the Applicant and the RBP, respectively.*
- 3) *The detailed qualifications and competence of RBPs have been annexed with this chapter.*

2 ADMINISTRATION

The administration of any development or redevelopment, building construction or reconstruction, alteration and demolition activity in an area shall be the responsibility of the Building Official(BO) of the Authority. Along with the BO, the responsibility of safe, secure and compliant development and/or construction shall also be vested with the applicant and the Registered Building Professional (RBP) in their respective field of expertise.

2.1 Building Official

2.1.1 Any land development or redevelopment, building construction or reconstruction, alteration and demolition activity shall be carried out only after obtaining permission from the Authority.

2.1.2 The Competent Official (CO) of the Authority may act as the BO or may delegate powers to an official(s) to act as a BO.

2.1.3 The authorization by the CO shall be by way of delegation of powers, and an office order shall be issued for the same.

2.1.4 Any official of the team with delegated powers as in **2.1.3** of these regulations shall not be engaged directly/indirectly in any work which creates a conflict of interest.

2.1.5 The various methods available to the CO for administration are as follows:

- a) delegate tasks to a BO from the planning and/or architecture and/or civil engineering department/section/wing/cell of the Authority. Landscape architect/urban designer may also be included as and where required, for landscape plans/urban design in projects/schemes having area more than 5 ha involving landscape design and development/urban design features respectively.
- b) define procedures and timelines for submission and processing of applications and make it publicly available on the Authority's website;
- c) include officials or team of officials from other expert organizations, as and when required;
- d) constitute a committee of officials (other than BOs) responsible for issuing NOCs, for permits related to land development and/or building activities to facilitate efficient and expeditious clearance;
- e) provide deemed approvals for residential, industrial and commercial (excluding hotels and storage buildings) buildings as per **3.3.4.1** (a) and (b), excluding those mentioned in **7.1** of these regulations;
- f) utilize services of independent consultants for third-party technical audits, inspections, etc;
- g) constitute committees for high rise buildings, tall buildings (greater than 50 m in height) and special building(s) ; and
- h) register building professionals, for which comprehensive written tests and interviews may be conducted.

2.1.6 The powers and duties of the BO shall be as follows:

- a) receive applications for permit(s) for land development or redevelopment, construction or reconstruction, alteration and demolition activity;
- b) process the applications received in a prompt and efficient manner and on first come first out basis;

- c) scrutinize applications and all related documents submitted with the application;
- d) issue notice for corrections in the application/drawings/documents, if required;
- e) issue show cause notice with reasons/deficiencies in the submitted plan and provide opportunity for representation, in case the submitted application/drawings are to be rejected;
- f) issue permits for land development or redevelopment, building construction or reconstruction, alteration and demolition activity on receipt of application;
- g) undertake site inspections;
- h) enter a building or premise at a reasonable time (08:00 am to 06:00 pm) to perform their duties;
- i) ensure inspection of development works at different stages of construction and building works at foundation level/plinth level and thereafter at regular intervals, depending on the nature, size and phasing of the works in a project/scheme;
- j) issue notices or orders to ensure— necessary safeguards during construction, provision of adequate exit facilities in existing buildings, compliance with all the requirements of safety, health and general welfare of the public as included in these regulations and remove illegal or unsafe constructions, if any;
- k) take all necessary legal actions against an offender as per the provisions of these regulations and other relevant acts and regulations;
- l) ensure compliance of the relevant provisions of the Real Estate Regulatory Authority (RERA) Act and Rules, the Apartment Act and any other relevant Acts which are enforced in a particular jurisdiction in case of revision(s) of sanctioned plans;
- m) conduct site inspection on receipt of Notice of Completion along with the completion drawings (sanctioned plans basis which the final construction has been completed on site) for obtaining occupancy permit, and prepare an inspection report detailing out the exact status of development and/or construction or demolition on site;
- n) issue orders to stop development, redevelopment, construction, reconstruction, alteration, demolition, removal, etc of non-permissible development and/or construction;
- o) sanction any compoundable development and/or construction as per the provisions of these regulations and prevalent compounding regulations/policies;
- p) issue occupancy permit if development and/or construction is as per sanctioned plans;
- q) perform responsibilities within the timelines as specified in these regulations;
- r) provide advice, wherever sought, to the Applicant/RBPs engaged by the Applicant to rectify the discrepancies identified during various stages of the permit process;
- s) ensure compliance to conditions for allotment of land/plot; and
- t) maintain proper records of all applications received, permits (including occupancy permits) and orders issued, inspections made, and copies of all documents connected with the administration of their duties. All such records shall be open to public inspection at all appropriate times. These records shall also be kept as a measure of efficiency and for making further improvements in the overall building regulatory system.

2.2 Applicant

2.2.1 The applicant shall be fully responsible for compliance with these regulations, master plan/development plan/zonal plan and other relevant acts/regulations applicable on the development/construction/demolition/alteration activity being undertaken by them. Granting of the permit or sanction of the drawings/specifications or inspections by the BO does not relieve the applicant from full responsibility for carrying out the work in accordance with the requirements of these regulations.

2.2.2 The responsibilities of the applicant shall be as follows:

- a) obtain all necessary permits including development permit and/or building permit; NOCs and approvals required in connection with the proposed work;
- b) ensure that the development and/or building complies with these regulations;
- c) ensure that the development and/or construction works are undertaken as per sanctioned plan(s) and bear all responsibility for any irregularity committed in the use and function of the site/building or its parts for which the permit has been obtained;
- d) engage an RBP, where applicable and ensure that the work is undertaken under their supervision;
- e) allow the BO or any officer authorized by BO to enter the building or premises for which the permit has been granted at any reasonable time (08:00 am to 06:00 pm) and facilitate inspection for the purpose of enforcing these regulations;
- f) ensure that every plan and every sheet of the application is digitally signed before submission;
- g) submit necessary documents/plans/fees/checklist along with the application as applicable;
- h) notify the BO of the intention to start work on the building site;
- i) notify the BO intimating completion of work at plinth level on the building site;
- j) notify the BO in case of termination of services of RBP engaged by him/her;
- k) notify the BO after final completion of work for obtaining an occupancy permit prior to any occupancy of the building or part thereof after construction or alteration of that building or part thereof, or change in the class of occupancy of any building or part thereof;
- l) maintain records of the test data of any tests conducted at the site in conformity with the requirements of these regulations, and make the records available for inspection during construction and for at least 1 year after completion of construction;
- m) ensure availability of a copy of sanctioned development and/or building plans and permits on site and with themselves forever for any future reference;
- n) install a board on site with details given below:
 - i) layout plan (except for independent residential houses);
 - ii) name of the proprietor;
 - iii) RERA registration number, if applicable as per RERA;
 - iv) name of architect/engineer(s) and the constructor, where applicable;
 - v) area of the project;
 - vi) sanctioned date; and

- vii) project financer, wherever applicable.
- o) ensure that no construction is undertaken during the period a permit has lapsed or has been revoked;
- p) obtain permit from BO before demolition or removal of a building or a part of building;
- q) notify all utility departments having service connections within the building, such as water, electricity, gas, sewer and other connections, before demolition or removal of a building or a part of building;
- r) make adequate safety arrangements to avoid risk/injury to persons working on site and passers-by and adjoining properties;
- s) indemnify the BO for any damage or accident to any person or property on the plot/site or in a building or at adjoining properties including due to any natural or human-made disaster/negligence;
- t) indemnify the BO for any legal dispute arising out of development and/or building activities on the plot/site;
- u) ensure proper maintenance of the development and/or building(s) in accordance with Part 12, 'Asset and Facility Management' of NBC 2016; and
- v) ensure that safeguards for environment protection (air, noise, water, land) are maintained while undertaking development, redevelopment, construction, reconstruction, alteration and demolition.

2.3 Registered Building Professional

2.3.1 RBP shall be engaged by an applicant for land development and/or construction and/or alteration and/or demolition activity. The qualification and competence of RBPs shall be as detailed in **ANNEX A**.

2.3.2 All plans for development or redevelopment, building construction or reconstruction and alteration and demolition shall be prepared and signed by a duly qualified RBP.

2.3.3 Sanction of drawings and acceptance of any statement, document, structural design basis report, structural drawing, progress certificate, or building permit shall not discharge the RBP from their responsibilities.

2.3.4 The responsibilities and duties of RBP shall be as follows:

- a) study and be conversant with the provisions of the state and local acts and rules, the prevailing regulations, policy orders and standing orders, approved by the state government and/or Authority and/or BO and other instructions printed/mentioned on prescribed application forms and permit letters;
- b) prepare all plans (new or revised), documents and other details as required, in accordance with these regulations;
- c) upload the application and all related documents on Authority's portal as per its procedures and policy;
- d) assist and co-operate with the BO in carrying out and enforcing the provisions of these regulations, and comply with all requisitions/queries received from the BO in connection with the work under their charge, expeditiously and fully in a single response;
- e) ensure that correct details are submitted online with reference to their registration number, date, full name and address;

- f) immediately intimate to the applicant, the corrections and other changes they make on the plans, documents and details as per requisitions/queries from the BO;
- g) carry out work in connection with any building or other erection on plot/site as per these regulations and/or any other applicable laws;
- h) ensure the fulfilment of accessibility requirements for Persons with Disabilities (PwDs), as and where required as per these regulations and Rights of Persons with Disabilities Act, 2016, as amended from time to time; and
- i) inform the BO of their employment/assignment/resignation for any work within 7 working days of the date of such employment/assignment/resignation.

NOTE — Guidelines for manual process for Permit

It is to be noted that manual process is not a recommendatory practice. However, in case the authority is still adapting to the online permit process, the manual process shall be streamlined.

Additional responsibilities and duties for obtaining permits (through a manual process) shall be as follows:

BO:

- a) ensure availability of all the required forms at a designated desk along with an option to print the forms from the Authority's website;
- b) inform the applicant and RBP about any modifications/objections/grant or refusal by sending a post, an e-mail and an SMS; and
- c) accept scanned copies of updated plans, documents and application via a registered email of the applicant and/or the RBP.

Applicant:

- a) ensure all plans and each paper of the document is signed before submission;
- b) provide correct communication (email address, phone number) details to the BO;
- c) inform the BO about any revised plan submission by sending a post, an e-mail and an SMS.

RBP:

- a) prepare all plans, new or revised, documents and other details as required, in a neat, clean and legible manner and on a durable paper, properly arranged and folded in accordance with the prevailing regulations; and
- b) duly sign the plans as per their competence, and clearly indicate on every plan, document and submission- the details of their designation such as registration number, date, full name and their address below the signature for identification.

ANNEX A

(Clause 2.3.1, Clause 8.1.1)

DETAILED QUALIFICATIONS AND COMPETENCE OF REGISTERED BUILDING PROFESSIONALS

| SI No. | RBP | Qualification | Competence |
|---------------|----------------|--|---|
| i) | Architect | The minimum qualifications for an architect shall be the qualifications as provided in the Architects Act, 1972 for registration with the Council of Architecture. | <p>The architect shall be competent to carry out the work related to the development permit and/or building permit as given below:</p> <ul style="list-style-type: none"> a) preparation of all plans and information connected with building permit, except engineering services of high-rise and special buildings; b) issuing certificate of supervision and completion to all buildings pertaining to architectural aspects; c) preparation of subdivision/layout plans and related information connected with development permit of area up to 1 ha for metro-cities, and 2 ha for other places; and d) issuing certificate of supervision for development of land of area up to 1 ha for metro-cities, and 2 ha for other places. |
| ii) | Civil engineer | The minimum qualifications for an engineer shall be graduate in civil engineering/architectural engineering from a recognized Indian or foreign university, or the Corporate Member of Civil Engineering Division/Architectural Engineering Division of the Institution of Engineers (India) or the member of the statutory body governing such profession, as and when established. | <p>The civil engineer shall be competent to carry out the work related to the development and/or building and/or demolition permit as given below:</p> <ul style="list-style-type: none"> a) preparation of all plans and information connected with building permit; b) structural details and calculations of buildings including subsurface investigation on plot up to 500 m² and up to 5 storeys or 16 m in height; c) preparation of demolition plan and supervision of demolition of buildings with ground coverage |

| SI No. | RBP | Qualification | Competence |
|---------------|-----------------------|--|---|
| | | | <p>up to 500 m² and up to 5 storeys or 16 m in height;</p> <p>d) issuing certificate of supervision and completion for all buildings;</p> <p>e) preparation of subdivision/layout plans and related information connected with development permit of area up to 1 ha for metro-cities, and 2 ha for other places;</p> <p>f) preparation of all services plans and related information connected with permit; and</p> <p>g) issuing certificate of supervision for development of land for all areas.</p> |
| iii) | Structural engineer | <p>The minimum qualifications for a structural engineer shall be graduate in civil engineering from a recognized Indian or foreign university, or Corporate Member of Civil Engineering Division of the Institution of Engineers (India), and with minimum 3 years' experience in structural engineering practice with designing and field work.</p> <p>NOTE — The 3 years experience shall be relaxed to 2 years in the case of post graduate degree of recognized Indian or foreign university in the branch of structural engineering. In case of doctorate in structural engineering, the experience required would be one year.</p> | <p>The registered structural engineer shall be competent to carry out works as given below:</p> <p>a) Preparation of structural design calculations and details for all buildings and carrying out supervision; and</p> <p>NOTE — In case of buildings having special structural features, as decided by the Authority, which are outside the horizontal areas and vertical limits specified at sl no. (ii) and (v) of this table, the same shall be designed/supervised only by structural engineers.</p> <p>b) Preparation of demolition plan and supervision for all buildings and other structures.</p> |
| iv) | Geotechnical engineer | The minimum qualifications for a geotechnical engineer shall be graduate in civil engineering from a recognized Indian or foreign university, or Corporate Member of Civil Engineering Division of the Institution of Engineers (India), and with minimum 3 years' experience in geotechnical | The registered geotechnical engineer shall be competent to carry out subsurface investigations and give report thereof. These may <i>inter-alia</i> include performing various tests required to determine engineering properties of sub-strata and ground water and making recommendations about the type of foundation, soil bearing capacity and the depth at which |

| SI No. | RBP | Qualification | Competence |
|---------------|---------------------|--|--|
| | | <p>engineering practice with designing and field work.</p> <p>NOTE — The 3 years experience shall be relaxed to 2 years in the case of post graduate degree of recognized Indian or foreign university in the branch of geotechnical engineering. In case of doctorate in geotechnical engineering, the experience required would be one year.</p> | the foundations shall be placed, considering the structural system and loads supplied by the engineer/structural engineer. |
| v) | Supervisor | The minimum qualifications for a supervisor shall be diploma in civil engineering or architectural assistantship, or a qualification in architecture or engineering equivalent to the minimum qualification prescribed for recruitment to non-gazetted service by the Government of India plus 5 years' experience in building design, construction and supervision. | <p>The registered supervisor shall be competent to carry out the work related to the building permit as given below:</p> <ul style="list-style-type: none"> a) All plans and related information connected with building permit for residential buildings on plot up to 200 m² and up to 2 storeys or 7.50 m in height; and b) Issuing certificate of supervision for residential buildings on plot up to 200 m² and up to 2 storeys or 7.50 m in height. |
| vi) | Town planner | The minimum qualification for a town planner shall be the associate membership of the Institute of Town Planners, India or graduate or post-graduate degree in the disciplines related to town and country planning. | <p>The registered town planner shall be competent to carry out the work related to the development permit as given below:</p> <ul style="list-style-type: none"> a) Preparation of plans for land subdivision/layout and related information connected with development permit for all areas; and b) issuing of certificate of supervision for development of land of all areas. <p>NOTE — For layouts for development permit above 5 ha in area, landscape architect shall also be associated, and for land development infrastructural services for roads, water supplies, sewerage/drainage, electrification, etc, the registered engineers for utility services shall be associated.</p> |
| vii) | Landscape architect | The minimum qualification for a landscape architect shall be a bachelor/master's degree in landscape architecture or | The registered landscape architect shall be competent to carry out the work related to landscape design for building/development permits for land |

| SI No. | RBP | Qualification | Competence |
|---------------|----------------------------------|--|--|
| | | equivalent from a recognized Indian or foreign university. | <p>areas 5 ha and above. In case of metro-cities, this limit of land area shall be 2 ha and above.</p> <p>NOTE — For smaller areas below the limits indicated above, association of landscape architect may also be considered from the point of view of desired landscape development.</p> |
| viii) | Urban designer | The minimum qualification for an urban designer shall be a master's degree in urban design or equivalent from a recognized Indian or foreign university. | <p>The registered urban designer shall be competent to carry out the work related to the building permit for urban design for land areas more than 5 ha and campus area more than 2 ha. They shall also be competent to carry out the work of urban renewal for all areas.</p> <p>NOTE — For smaller areas below the limits indicated above, association of urban designer may be considered from the point of view of desired urban design.</p> |
| ix) | Engineer(s) for utility services | <p>Engineer for utility services may be one or more of the following:</p> <ul style="list-style-type: none"> a) Mechanical engineer b) Electrical engineer c) Civil/Plumbing engineer d) Electronics and Telecommunication engineer <p>The minimum qualification shall be an undergraduate degree in the respective engineering discipline from a recognized Indian or foreign university.</p> | For high rise and special buildings the work of building and plumbing services (including but not limited to air conditioning, heating and mechanical ventilation; electrical installations; telecommunication lines, systems and other related facilities; lifts, escalators and moving walks; and water supply, drainage, sanitation and gas supply installations) shall be executed under the planning, design and supervision of engineers for utility services. |
| x) | Building constructor | The minimum qualification for the building constructor or their representative for execution of respective works shall be as given in relevant sections above for respective RBP of the concerned profession. | The qualified building constructor or their representative, competent to carry out execution of work, shall have the same extent of competence for execution as that for supervision by such RBP, as prescribed above for the concerned professional. |

PERMITS

Explanatory Note:

This chapter details out the process for obtaining Development Permit, Building Permit, Occupancy Permit, Demolition Permit and Permit for Signage. Key points to consider while reading this chapter are as follows:

- 1) *The chapter has been divided into nine sections- Applicability, Development Permit and/or Building Permit Issued Prior to these Regulations, Permit Process, Violations and Penalties, Unsafe Buildings, Third-party Audit, Demolition of a Building, Permit for Signage, and Online Single Window Clearance.*
- 2) *These sections of the chapter elaborate applicability of these Regulations, the procedure to be followed for processing applications, regulations for dealing with violations and penalties and unsafe buildings.*
- 3) *All certificates, forms and notices required during the permit process have been given as annexes at the end of this chapter and can be adopted by the Authority as is.*
- 4) *Online building approval system has already been adopted by some Authorities using commercially available softwares which may be considered for adoption.*
- 5) *Fees including plan processing fees are to be decided by the Authority. Values specified (if any) in this regulation are only suggestive in nature.*
- 6) *It is recommended to ensure a transparent, objective, and simple process for registration of competent building professionals at State level.*

3 PERMITS

3.1 Applicability

3.1.1 Any development or redevelopment of land, construction or reconstruction, alteration and demolition activity of any building shall be carried out only after obtaining permission for each of these activities from the BO of the Authority.

3.1.2 Occupancy of any new building or a part of a building, for any purpose whatsoever, shall be permitted only after obtaining an occupancy permit for such building or part thereof.

3.1.3 The following activities shall be exempted from taking permit, provided they conform to all clauses of these regulations including structural, fire and health safety and do not cause damage or disturbance to any person or property. Building elements such as parapet walls and sunshade shall be securely affixed to the building.

a) Alterations

- i) plastering, re-plastering and patch repairs, cladding, except for the heritage buildings where the permission or NOC from the concerned authorities is required;
 - ii) re-roofing, re-tiling or renewal of roof without altering its height;
 - iii) flooring and re-flooring;
 - iv) opening and closing of windows, ventilators and door openings in non-load bearing walls provided they do not open directly over other private/public property;
 - v) minor rehabilitation/repair of fallen bricks/stones, walls, columns, beams etc;
 - vi) construction or re-construction of sunshade;
 - vii) construction or re-construction of parapet;
 - viii) white washing, painting, polishing, varnishing;
 - ix) erection of false ceiling in any floor while maintaining the permissible clear height, provided the false ceiling is not to be used as a loft/mezzanine;
 - x) erection or re-erection of internal partitions;
 - xi) change/installation/re-arranging/relocating of fixture(s)/re-wiring;
 - xii) gardening;
 - xiii) public art;
 - xiv) public washroom, security room and bank ATM on the ground floor up to a maximum area of 9 m², provided it does not obstruct fire tender movement;
 - xv) portable cabins up to a maximum area of 4.50 m².
- b) Operational construction/installations of the Government - Temporary or permanent, which are essential for the operation, maintenance, development or execution of any of the following services:
- i) all railways;
 - ii) national highways;
 - iii) national waterways;
 - iv) major ports;
 - v) airways and aerodromes;

- vi) posts, telephones, wireless, broadcasting, and other like forms of communications;
- vii) regional grid for electricity;
- viii) defence; and
- ix) any other operation, maintenance, development or execution of service which the central/state government may declare by notification essential to the life of the community.

3.1.4 In all cases mentioned in **3.1.3 b)**, the concerned departments/agencies shall submit the drawings/plans/details for information and records to the BO before commencement of construction/installation. The provisions of these regulations, as applicable, shall however, be followed for all these activities.

3.1.5 Operational construction/installation shall not include residential buildings, commercial buildings, institutional buildings, hospitals, clubs and schools (other than gate lodges, quarters for limited essential operational staff and the like), roads, bridges, flyovers and drains of the government departments, and therefore, these are not exempted from seeking permission.

3.2 Development Permit and/or Building Permit Issued Prior to These Regulations

3.2.1 Development and/or building permit which has been issued before the notification of these regulations, and where the sanctioned activity is not completed within the validity period of permit, the permit shall be deemed to have lapsed and the previously sanctioned plan shall be re-submitted for time extension in accordance with these regulations.

3.2.2 In case where the validity of permit has expired, and the work has not commenced, a fresh permit shall be applied for along with the fees in accordance with these regulations.

3.2.3 In case a plot or a building is allotted/leased by any government department or Authority with specific provisions, such as FAR, ground coverage, setback, building height and population density, before application of these regulations, the provisions of the allotment/lease agreement/contract shall apply. All other provisions of these regulations shall be applicable.

3.2.4 In case where the validity of permit has not expired and the sanctioned activity is in progress, the original approval shall apply.

3.3 Permit Process

3.3.1 Submission of Application

3.3.1.1 Application for obtaining a permit to commence land development or redevelopment, building construction or reconstruction, alteration and demolition activity shall be submitted to the BO in the prescribed application formats (**ANNEX B** to **ANNEX H**) along with all applicable plans and documents as per Table 1 and Table 2 as applicable.

3.3.1.2 The local authorities shall decide which NOCs/approvals are required.

Table 1 List of Documents to be provided along with the Application of Permit (except for Demolition Permit)

| SI No. | Documents | Development Permit | Building Permit |
|--------|-------------------|--------------------|-----------------|
| (1) | (2) | (3) | (4) |
| i) | Engagement of RBP | Y | Y |

| SI No. | Documents | Development Permit | Building Permit |
|--------|--|--------------------|-----------------|
| | (ANNEX B) | | |
| ii) | Application for obtaining development permit/building permit (ANNEX C) | Y | Y |
| iii) | Subdivision/layout plan | Y | NA |
| iv) | Key plan | Y | Y |
| v) | Site plan | Y | Y |
| vi) | Building plan | NA | Y |
| vii) | Services plans | Y | Y |
| viii) | Specifications | Y | Y |
| ix) | Ownership documents | Y | Y |
| x) | NOC related to site, wherever applicable for permissibility of proposed activity | Y | Y |
| xi) | Certificate of structural design sufficiency (ANNEX D) | NA | Y |
| xii) | NOCs (as per requirement) (ANNEX E) | Y | Y |
| xiii) | Indemnity Bonds (ANNEX F and ANNEX G) | Y | Y |
| xiv) | Valid time extension (wherever applicable) | Y | Y |
| xv) | Photographs of the site with date-time stamp | Y | Y |
| xvi) | Receipts of all applicable fees and charges including labour cess (ANNEX H) | Y | Y |
| xvii) | Energy Efficiency Compliance Report from BEE certified professional, wherever applicable as per ECBC Rules | NA | Y |

NOTE — For detailed requirements/description of the above documents, refer to ANNEX I.

Table 2 List of Documents to be provided along with Application for Demolition Permit

| SI No. | Documents |
|--------|---|
| (1) | (2) |
| i) | Engagement of RBP (ANNEX B) |
| ii) | Application for obtaining demolition permit (ANNEX J) |
| iii) | An engineering survey of the structures/buildings prepared by RBP. |
| iv) | Demolition plan as described in 3.7.6 of these regulations |
| v) | NOC from all essential utility services (supply of gas, water, sewerage, telecommunications, electricity). (ANNEX E) |
| vi) | Receipts of all applicable fees and charges (ANNEX H) |

NOTE — For detailed requirements/description of the above documents, refer to **ANNEX I**.

3.3.1.3 For all high rise buildings or special buildings (as specified in **7.1** of these regulations), the building permit process shall be carried out in two stages. The stages shall be as follows:

- a) Stage 1: Planning clearance
- b) Stage 2: Building Permit clearance

The applicable plans and documents to be submitted in the two stages shall be as per Table 3.

Table 3 Documents to be submitted in the Two Stages of Building Permit Process for High Rise and Special Buildings

| SI No. | Documents | Stage 1 | Stage 2 |
|--------|---|---------|--|
| (1) | (2) | (3) | (4) |
| i) | Engagement of RBP (ANNEX B) | Y | To be submitted only if there is a change. |
| ii) | Application for obtaining development permit/building permit (ANNEX C) | Y | NA |
| iii) | Subdivision/layout plan | Y | NA |
| iv) | Key plan | Y | NA |
| v) | Site plan | Y | NA |
| vi) | Building plan | Y | NA |

| SI No. | Documents | Stage 1 | Stage 2 |
|---------------|--|--|--|
| (1) | (2) | (3) | (4) |
| vii) | Structural plans, sections, details, design calculations | NA | Y |
| viii) | Services plans | NA | Y |
| ix) | Specifications | NA | Y |
| x) | Ownership documents | Y | NA |
| xi) | NOC related to site, wherever applicable for permissibility of proposed activity | Y | NA |
| xii) | Certificate for subsurface investigation (ANNEX K) | NA | Y |
| xiii) | Certificate of structural design sufficiency (ANNEX D) | NA | Y |
| xiv) | Indemnity Bonds (ANNEX F and ANNEX G) | Y | NA |
| xv) | Valid time extension (wherever applicable) | To be submitted only if there is a change. | To be submitted only if there is a change. |
| xvi) | Photographs of the site with date-time stamp | Y | Y |
| xvii) | NOCs (as per requirement) (ANNEX E) | Y | Y |
| xviii) | Receipts of all applicable fees and charges including labour cess (ANNEX H) | Y | Y |
| xix) | SDBR Report (as described in 8.1.3) | NA | Y |
| xx) | Energy Efficiency Compliance Report from BEE certified professional, wherever applicable as per ECBC Rules | NA | Y |
| xxi) | Stage 1 Planning Clearance | NA | Y |

NOTE — For detailed requirements/description of the above documents, refer to **ANNEX I**.

3.3.1.4 In case of the two stage process, all the documents required to be submitted for stage 2 shall be submitted by the applicant within 90 days of obtaining planning clearance from the BO. The timelines for grant of permit shall begin from the date of submission of all documents of stage 2.

3.3.2 Scrutiny of the Application

3.3.2.1 The BO shall validate completion of an application against the list of documents specified in Table 1, within 7 working days from the date of submission/resubmission of an application.

3.3.2.2 Completed applications shall be accepted for technical scrutiny. In case of any deficiency, notice for modifications shall be issued to the applicant.

3.3.2.3 Resubmission of the application shall be made within 30 days of issuance of notice for modifications, else the submitted application shall stand cancelled and a fresh application shall be submitted along with plan processing fees.

3.3.2.4 The BO shall conduct site inspections to verify the site conditions and status of proposed development and/or construction activity.

3.3.2.5 The BO shall conduct technical scrutiny of the application for conformity to these regulations and provisions of applicable regional plan, master plan, development plan, zoning regulations and/or other plans prepared for the area. Scrutiny shall be completed within 15 working days from the date of submission/resubmission of application.

3.3.2.6 If found in conformity, technically scrutinized applications shall be sent to external departments as and where required for receipt of NOCs from them (**ANNEX E**).

3.3.2.7 If not in conformity, modifications required in the submitted plans shall be formally communicated to the applicant. The communication shall be sent within 21 working days from the date of submission/resubmission of application.

3.3.2.8 Plans along with required modifications shall be resubmitted within 15 working days from the date of communication failing which the application shall stand cancelled and a fresh application shall be submitted along with plan processing fees.

3.3.2.9 The process flow for obtaining development/building permit is illustrated in Figure 5 and timelines are illustrated in Figure 7.

3.3.3 Sanction or Refusal of Development Permit and/or Building Permit

3.3.3.1 Development and/or building permit shall be granted in accordance with these regulations, and sanctioned development and/or building plans (with all modifications incorporated) shall be issued to the applicant within 30 working days from the date of submission/resubmission of application.

3.3.3.2 The applicant shall notify the BO in case of the non-receipt of any intimation post 30 days of submission/resubmission of an application. The submitted development and/or building plans shall be deemed to be sanctioned if there is no communication from the BO for sanction or modifications within 15 working days from the date of notification from the applicant. Subject to the conditions mentioned, nothing shall be construed to authorize any person to do anything in contravention of or against these regulations and the terms of lease or titles.

3.3.3.3 Refusal of permit (**ANNEX L**) shall be issued to the applicant, with reasons and quoting the relevant clauses of these regulations which the application contravenes. All reasons and objections shall be intimated in the first instance itself and it shall be ensured that no new objections are raised when the new application for sanction of plans is submitted after compliance of objections in the refusal letter.

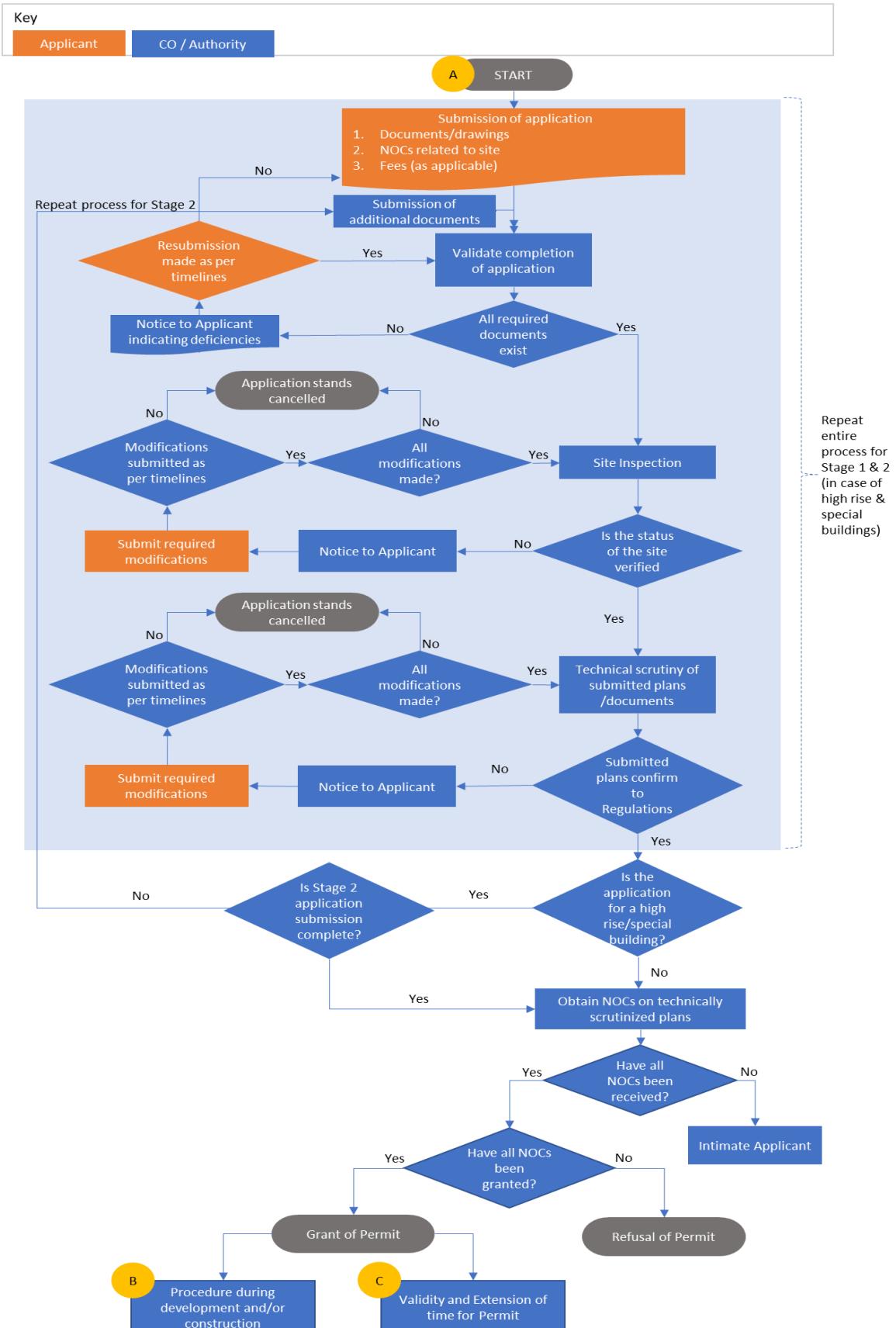


Figure 5 Process Flow for Obtaining Development Permit and/or Building Permit

3.3.4 Deemed Approval in case of Development and/or Building Permit

3.3.4.1 Deemed approvals shall be provided in the following scenarios:

- a) building plans related to residential plots, industrial plots and commercial (excluding hotels and storage) plots up to an area of 500 m² for plain areas and 200 m² for hilly areas, except in the case of high rise and special buildings on such plots;
- b) published approved layouts of residential plots up to an area of 300 m²; and
- c) inaction by Authority on the application of development and/or building permit in the prescribed timelines as described in **3.3.3.2**.

3.3.4.2 In case of **3.3.4.1** above, all applications shall be submitted to the BO by the RBP (architect and/or engineer only) with requisite fees and all documents as specified in Table 1 for building permit, except for those specified in case of high rise buildings.

3.3.4.3 Deemed approval only allows the applicant to start construction onsite subject to the conditions mentioned. Nothing shall be construed to authorize any person to do anything in contravention of or against these regulations and the terms of lease or titles basis which the land has been allocated.

3.3.4.4 The concerned RBP shall supervise the construction of proposed building and ensure compliance to the submitted plans and designs.

3.3.4.5 Plans submitted under deemed approval shall be scrutinized and/or site inspections shall be conducted on sample basis by the BO. Any deficiencies shall be communicated to the concerned architect/civil engineer, who shall rectify and resubmit the plans. In case of discrepancies, appropriate action shall be taken against the concerned architect/engineer as per 3.4 of these regulations.

3.3.4.6 The concerned RBP shall submit notice of completion as per **3.3.9** of these regulations and the Authority shall provide an occupancy permit in accordance with these regulations.

The process for deemed approval is shown in Figure 6.

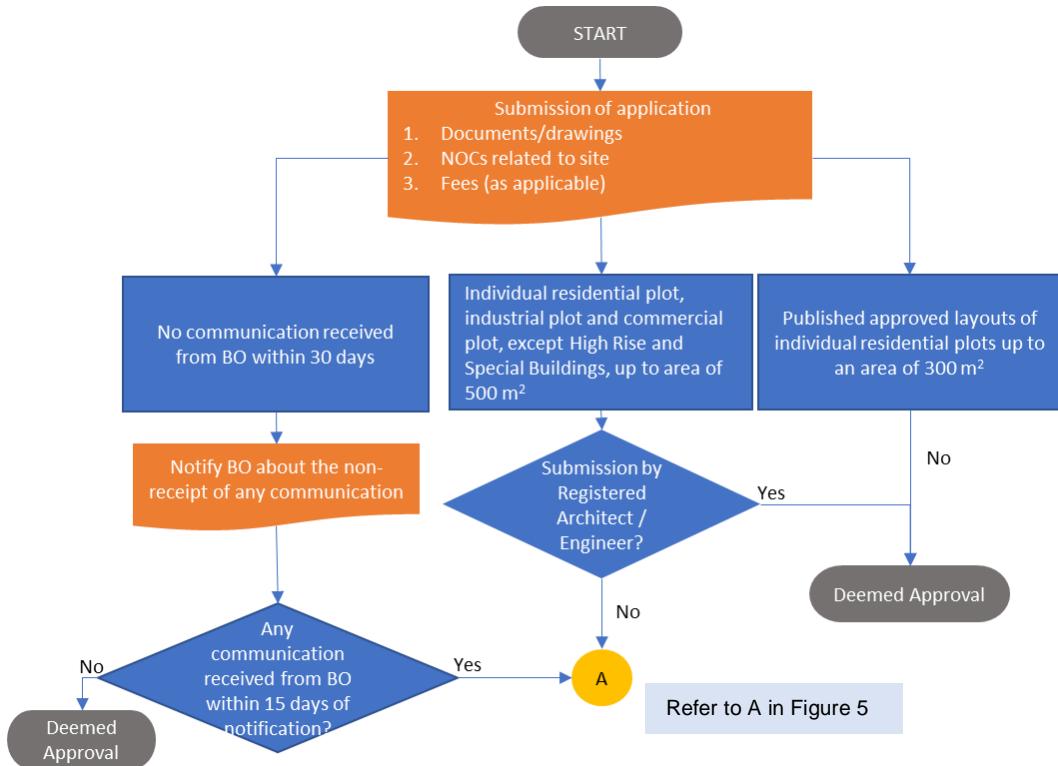


Figure 6 Process Flow for Deemed Approval

3.3.5 Addition and/or Change in Sanctioned Development and/or Building or Sanctioned Demolition Plan

3.3.5.1 Any addition or change in the sanctioned development and/or building plans has to be approved by the Authority. The application for approval shall be submitted by the Applicant along with charges as prescribed in these regulations. The BO shall consider the request for addition and/or change, provided it is in accordance with these regulations and does not violate provisions related to structural, fire and life safety and the master and/or zonal plans. Further, additional floor(s) may be permitted only when it is established that the approved structural design is capable to withstand the loads, forces and effects due to the proposed additional floor(s).

3.3.5.2 Any change in the demolition shall also be approved by the Authority. The application for approval shall be submitted by the Applicant along with charges as prescribed in these regulations.

3.3.6 Withdrawal of Application

3.3.6.1 Application for development and/or building permit or demolition permit may be withdrawn at any time prior to the sanction. However, In case of unsafe building(s), withdrawal of demolition permit shall not be allowed. Withdrawal shall terminate all proceedings with respect to such application. Plan processing fees paid by the applicant shall not be refunded, however other fees and charges may be refunded or readjusted in case of resubmission of new application for the same site, as decided by the Authority.

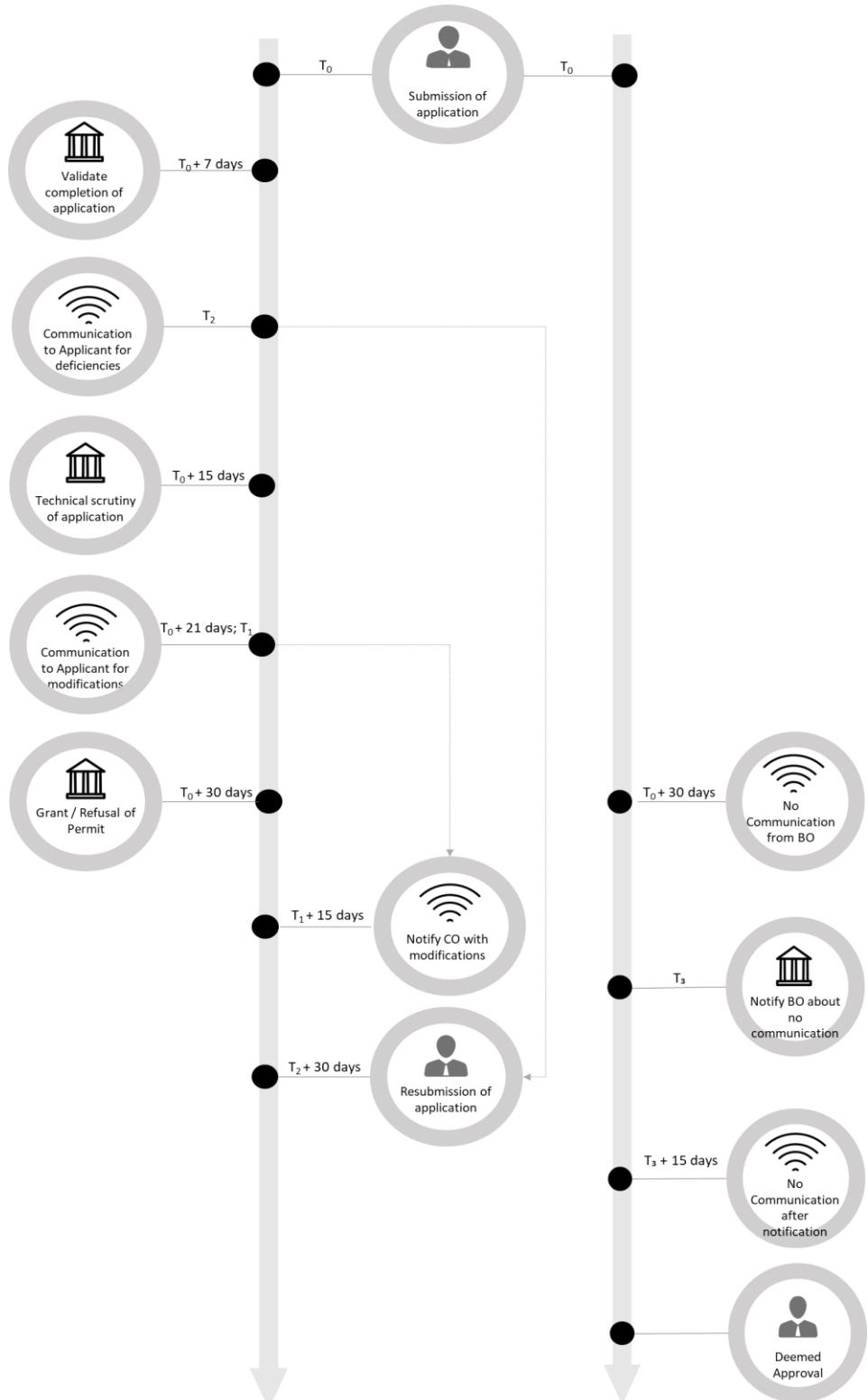


Figure 7 Timelines for the Permit Process for Development and/or Building Permit (Other than 2-Stage Process)

3.3.7 Procedure During Development and/or Construction

3.3.7.1 Work at site shall commence once the building permit has been obtained or deemed to be obtained as per these regulations and the applicant has notified the BO regarding

commencement of work in accordance with **ANNEX M**.The procedure during development and/or construction is illustrated in Figure 8.

3.3.7.2 Site inspection shall be undertaken regularly depending on the nature, size and phasing of the works in the project/scheme. A copy of the permit along with sanctioned drawings and specifications shall be available on site. Any deviations and/or defects in the execution of development and/or construction works identified during site inspection shall be immediately communicated to the person who is in-charge of the site, at the time of inspection. Thereafter, a formal notice shall be sent within 3 days from the date of site inspection to the applicant and the concerned RBP.

3.3.7.3 All deviations and/or defects shall be rectified by the applicant and intimated back to the BO.

3.3.7.4 Any deviations and/or defects which cannot be rectified, or which are dangerous to public safety may be demolished by the order of the BO.

3.3.7.5 If the deviations and/or defects mentioned in the notice are being contested, the applicant shall intimate them in writing to the BO. Joint inspection by BO, applicant and the RBP shall be carried out immediately and an appropriate decision shall be taken so that the work is not adversely affected.

3.3.7.6 Necessary remedial measures to remove the violations of safety precautions at construction site shall be immediately adhered to, post notice by the BO. Unless such remedial measures are taken, all development and/or construction activities shall be immediately stopped.

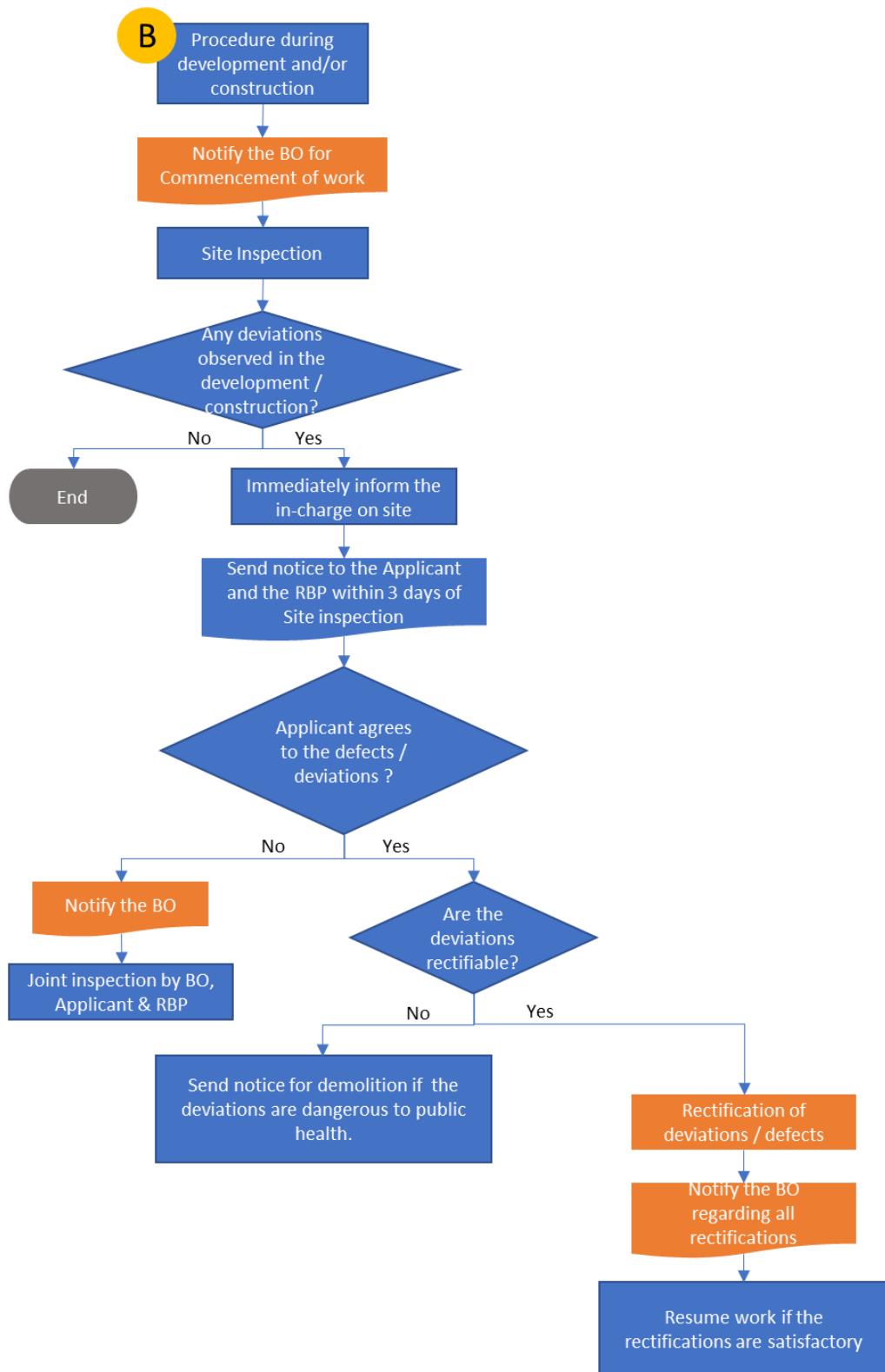


Figure 8 Procedure During Development/Construction

3.3.8 Validity and Extension of Time

3.3.8.1 The development permit and/or building permit shall remain valid for 5 years from the date of grant of permit.

3.3.8.2 Extension of time for sanctioned plans may be granted to the applicant for a maximum of 2 years. However, if the allotment/lease conditions allow for a development and/or construction period of more than 7 years (5 + 2), the BO may allow further extension for such time period to the sanctioned plans. The entire process regarding validity and extension has been depicted in Figure 9. The applicant shall submit the sanctioned plans for extension of time along with the following documents:

- a copy of letter granting extension of time-period prescribed in the lease condition for development and/or construction (This extension of time period shall be granted by the lessor; also referred to as revalidation);
- applicant/ownership documents for updated applicant/ownership title after previous sanction, if applicable;
- copy of previously granted permit; and
- 50 percent of original processing plan fees.

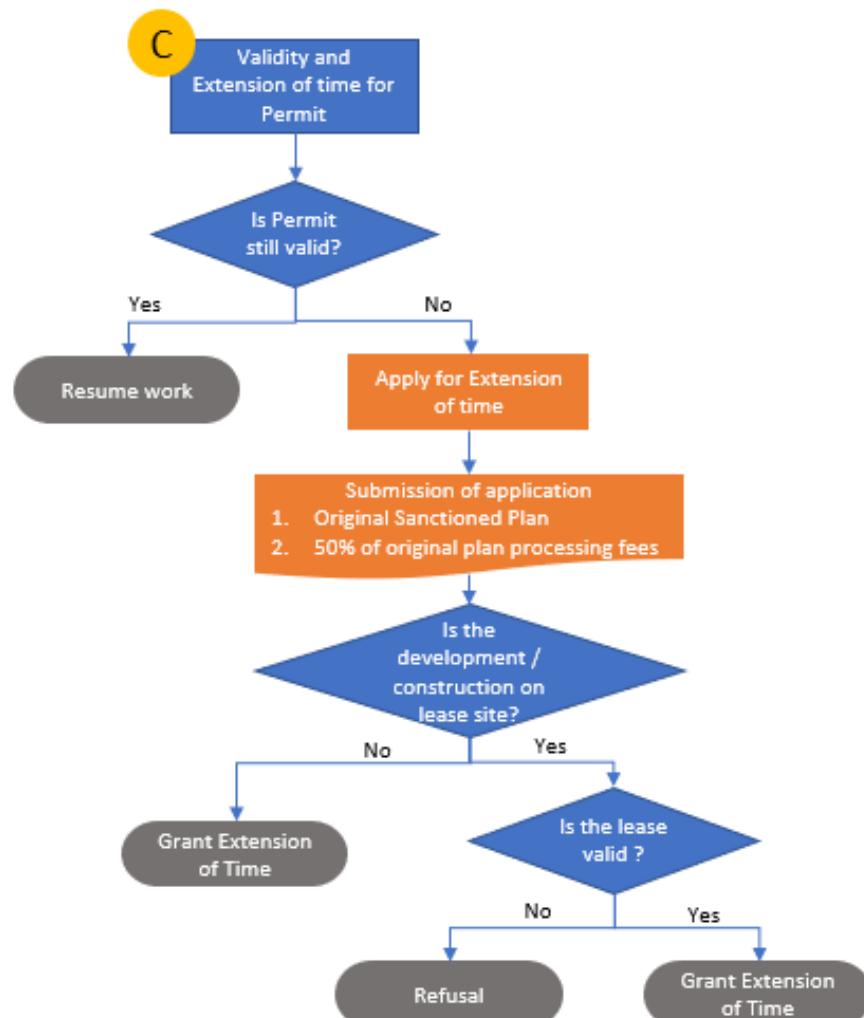


Figure 9 Process Flow for Validity and Extension of Time

3.3.9 Notice of Completion

3.3.9.1 The applicant shall submit a notice of completion as per **ANNEX N** along with the sanctioned plans and deviations if any shall be detailed out with specific colours in the completion drawings. The documents to be submitted along with notice of completion for occupancy permit shall be as specified in Table 4. All documents shall be for the completed works on site.

Table 4 List of Documents to be provided for Occupancy Permit

| SI No. | Documents | Occupancy Permit |
|--------|---|--------------------------|
| (1) | (2) | (3) |
| i) | Subdivision/layout plan | Y, as and where required |
| ii) | Key plan | Y |
| iii) | Site plan | Y |
| iv) | Building plan along with sections and elevations | Y |
| v) | Structural drawings, details and design calculations | Y |
| vi) | Landscape plan | Y, as and where required |
| vii) | Parking plan | Y, as and where required |
| viii) | Services Plans (certificate from lift/escalator inspector - check) | Y |
| ix) | Specifications | Y |
| x) | Applicant/Ownership documents | Y |
| xi) | Certificate for completed supervision of work (ANNEX O) | Y |
| xii) | Certificate for completed work by building constructor (ANNEX P) | Y |
| xiii) | Indemnity Bonds (ANNEX F and ANNEX G) | Y |
| xiv) | Valid time extension (wherever applicable) | Y |
| xv) | Photographs of the site with date-time stamp | Y |
| xvi) | NOCs (ANNEX E) | Y |
| xvii) | Receipts of all applicable fees and charges including labour cess | Y |

| SI No. | Documents | Occupancy Permit |
|--------|---|------------------|
| (1) | (2) | (3) |
| xviii) | Execution plans and their details of all facilities and services which have been developed as per sanctioned plan | Y |

3.3.9.2 The applicant shall at least complete the following works before sending the notice of completion:

- a) flooring that is hard surface and finished floors for common areas or/and public use areas;
- b) electrical wiring;
- c) toilets and plumbing work;
- d) parking and landscaping as required;
- e) installation of board with details regarding plot identification and ownership;
- f) internal and external finishing (plastering may not be mandatory);
- g) boundary wall and gates (may not be insisted unless requested by the owner in writing);
- h) buildings shall be lockable that is, all external doors and windows shall be provided with doorknobs and locks. In case grill is provided in the windows the fixing of glass in the windows pane shall not be mandatory;
- i) kitchen in a residential building;
- j) lift in case of high rise and special buildings;
- k) any other special provision as mentioned in the lease deed/Memorandum of Understanding (MoU);
- l) all fire prevention, life safety and fire protection works/installation as specified in building plans; and
- m) accessibility features where applicable.

3.3.10 *Inspection for Occupancy Permit*

3.3.10.1 Inspection of site shall be carried out for grant of occupancy permit and shall be made within 7 working days from the receipt of notice of completion.

3.3.10.2 Deficiencies and required modifications at the site or in the documents/drawings/plans submitted with the notice of completion shall be communicated in writing to the applicant within 21 working days from the date of submission/resubmission of the notice of completion.

3.3.10.3 The applicant shall make the required modifications in the plans and resubmit the plans. After approval of the revised plans, the modifications shall be made on the site.

3.3.10.4 Compliance against all notified deficiencies shall be ensured before issuance of the occupancy permit.

3.3.10.5 Notice of completion for occupancy permit shall stand automatically rejected in case the objections are not removed by the applicant within a period of 60 days from the date of communication and to the satisfaction of the authority. In special circumstances, depending on the size and nature of modifications required, the BO may consider extending the time limit

of 60 days to the applicant, while recording the reasons for the extension. Suitable action for removal of an unauthorized construction with fee shall be undertaken by the BO.

3.3.11 Grant or Refusal of Occupancy Permit

3.3.11.1 Occupancy permit (**ANNEX Q**) shall be granted within 30 working days from the date of submission/resubmission of the notice of completion in case there are no modifications and/or objections to the submitted plans. The entire process for obtaining occupancy permit has been illustrated in Figure 10.

3.3.11.2 The applicant shall immediately notify the BO in case there is non-receipt of grant or refusal of occupancy permit after 30 days of submission of notice of completion. Further, if there is no communication from BO within 15 working days from the date of notification from the applicant, the building shall be deemed to be permitted for occupancy, subject to the conditions mentioned in **3.3.9.2** of these regulations. Nothing shall be construed to authorize any person to do anything in contravention of or against these regulations and the terms of lease or titles.

3.3.11.3 Occupancy permit may be refused if the plans contravene any provisions of these regulations or any other relevant acts. In such a case, the BO shall intimate the applicant and the RBP in writing, giving reasons and quoting the relevant provisions which the completion drawings have contravened. All reasons and objections shall be intimated in the first instance.

3.3.11.4 The occupancy permit shall clearly state the use/type of occupancy of the building.

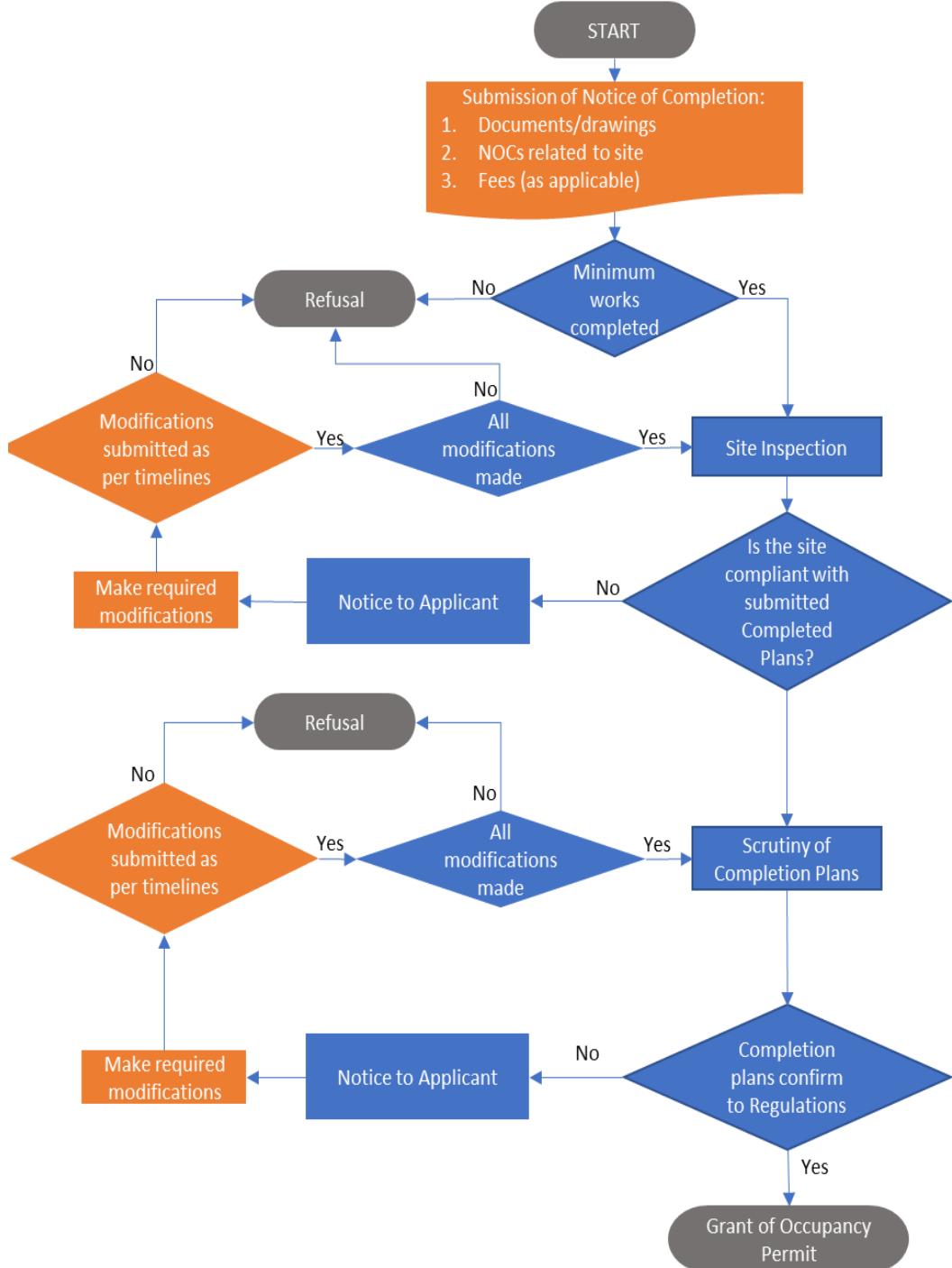


Figure 10 Process Flow for Occupancy Permit

3.3.11.5 In case of a development project, the Authority shall issue a completion certificate instead of occupancy permit on completion of all development works as per the sanctioned plans.

3.3.12 Permit for Temporary Construction/Installation

3.3.12.1 BO may issue permit for temporary construction/installation for a period not exceeding six months. However, this permit may be renewed wherever required. Such permission may be given for the construction of the following:

- a) Temporary structures for storage of construction materials as well as storage of machinery at site;
- b) Transit accommodation for persons to be rehabilitated at a different location; and
- c) Temporary shelters for construction workers, site office for the supervision of construction work, laboratory for testing building materials, guard room and toilets at the construction site.

3.3.13 Part Occupancy Permit of Buildings

3.3.13.1 BO may issue part occupancy permit (**ANNEX R**) for a building/development or part thereof before the entire work covered by building permit and/or development permit is completed, for a specific time period, provided such portion or portions may be functional safely prior to full completion of building without endangering life or public welfare.

3.3.13.2 Occupancy permit may also be issued by the BO in parts depending on the size, nature and phasing of the project/scheme. Minimum covered area to be completed for such part occupancy permit shall be as specified in Table 5 and the following shall be applicable:

Table 5 Minimum Covered Area Requirements

| SI No. | Size of Plot | Minimum Covered Area (As Percentage of Total Permissible FAR) |
|---------------|---|--|
| (1) | (2) | (3) |
| i) | Up to 5,000 m ² | 50 |
| ii) | Exceeding 5,000 m ² but not exceeding 10,000 m ² | 40 |
| iii) | Exceeding 10,000 m ² but not exceeding 20,000 m ² | 35 |
| iv) | Exceeding 20,000 m ² but not exceeding 1,00,000 m ² | 30 |
| v) | Exceeding 1,00,000 m ² but not exceeding 2,00,000 m ² | 25 |
| vi) | Exceeding 2,00,000 m ² but not exceeding 4,00,000 m ² | 20 |
| vii) | Above 4,00,000 m ² | 15 |

- a) In case the lease provides completion of the project in a specific time period, the applicant shall not require further time extension if the part occupancy permit is obtained as specified in Table 5.
- b) Part occupancy may be allowed for independent block(s)/building(s), provided all mandatory provisions of services have been completed, in accordance with **3.3.9.2** of these regulations in that independent block(s)/building(s) and is segregated for security during construction of other adjoining block(s)/building(s).

3.3.13.3 Provisions related to Notice of Completion (documents, minimum requirements of construction, NOCs), inspections, etc shall be as provided for the grant of occupancy permit.

3.3.14 Change of Occupancy Permit

3.3.14.1 The Authority may permit the change in occupancy type or use of building, provided:

- a) Zoning regulations and policy of the Authority allows the proposed use/occupancy type for the concerned building.
- b) The land development and/or building works have been completed as per sanctioned plans and occupancy permit has been obtained accordingly.

3.3.14.2 Public objections/suggestions shall be invited and appropriate decision for disposal of objections/suggestions shall be made before permitting the change in occupancy.

3.3.14.3 In case where third-party interest has been created in the building or in the project/scheme area, BO shall follow the procedures as laid down in the RERA act, Apartment act and other applicable acts, as and where required.

3.3.15 Revocation of Development, Building and Occupancy Permit

3.3.15.1 Permits may be revoked, with reasons issued under the provisions of these regulations, wherever there has been any false information and/or misrepresentation and suppression of any material fact in the application on which the permit was based or violation of permit or in case of non-compliance thereof. However, a reasonable opportunity of being heard or represented shall be provided to the applicant before revoking any permit.

3.3.16 Appeal against Refusal of Permit

3.3.16.1 Any applicant aggrieved by an order of refusal of a permit or its sanction or revocation under these regulations or directions, may appeal to the Appellate Authority within 60 days from the date of communication of such order. Such appeal shall be accompanied by a self-certified copy of the order appealed against, and receipt of the appeal fee which shall be 50 percent of the original plan processing fee.

3.3.16.2 The appeal may be referred after 60 days of communication of such order, if the applicant convinces the Appellate Authority within 30 days after the lapse of the previous period (that is 60 days) that he/she was prevented by enough causes from not filing of appeal.

3.3.16.3 The decision of the Appellate Authority on the appeal shall be final, conclusive and binding. The Appellate Authority shall provide an opportunity of hearing to all concerned parties.

3.3.16.4 The Appellate Authority shall be the Chairman of the authority.

3.3.17 NOC from Fire Authority

3.3.17.1 The BO after technical scrutiny shall send two sets of building plans to the concerned Fire Authority for issue of NOC for the buildings in accordance with 7.1 of these regulations.

3.3.17.2 Building plans shall clearly mark and indicate all fire prevention, life safety and fire protection measures proposed in the building. The plan shall be duly signed by relevant Registered Building Professional (RBP).

3.3.17.3 The Fire Authority shall examine the building plan and furnish NOC to BO along with signed and stamped copies of examined building plans.

3.3.17.4 On completion of all fire prevention, life safety and fire protection work as identified in building plans, the RBP shall check the installation and certify the same. This certificate shall be submitted to the Fire Authority for NOC, which shall then be submitted to the BO along with the 'Notice for Completion' for grant of occupancy certificate.

3.4 Violations and Penalties

3.4.1 Any person who contravenes any of the provisions of these regulations or any requirements of obligations imposed on them through these regulations, shall be guilty of an offence. The BO shall levy a penalty as per the notified policy or take other actions as per these regulations and other relevant regulations/policies.

3.4.2 The land development and/or building works violating any applicable statutory rules and regulations may be sealed and demolished or brought within the limits as prescribed in such rules and regulations at the expense of the applicant.

3.4.3 In the event of violation of the provisions of these regulations, the RBP responsible for the services rendered for preparing documents/drawings/plans, supervision of the construction and/or land development, and/or for development permit, building permit, Notice of Completion and occupancy permit shall be liable to penalties as prescribed by the Authority including cancellation of registration of the concerned RBP or make such recommendation to the statutory body governing such profession. However, the BO shall provide an opportunity to be heard or represent, to the RBP before initiating any punitive action.

3.4.4 Any penalty or compounding of an offence shall not relieve the applicant and/or RBP from the duty of carrying out the requirements or obligations as per the provisions of these regulations.

3.4.5 In case any applicant fails to comply with the obligations of these regulations, the BO may take all appropriate actions as provided in law to fulfil those requirements and obligations. In such cases, all expenses shall be borne by the applicant and if not paid on demand, the BO shall recover the same as revenue arrears.

3.5 Unsafe Buildings

3.5.1 Every building reported to be unsafe or damaged shall be examined, and a written record of such examinations shall be maintained by the BO. All unsafe buildings shall be considered to constitute danger to public safety and shall be restored by repairs or demolished or dealt with as otherwise directed by the BO.

3.5.2 The following provisions shall apply to unsafe buildings:

- a) A legal notice shall be given to the applicant or occupier of any unsafe building or portion thereof, stating the defects as per the legal procedure. The notice shall provide a specific time period to vacate the building or complete specified repairs/improvements or demolish and remove the building or portion thereof.
- b) If in the opinion of the BO, there is an imminent danger to human life or health, the decision of the BO shall be final. The BO shall forthwith or with such notice as may be possible, promptly cause such building or portion thereof to be rendered safe by retrofitting/strengthening to the same degree of safety or removed. For this purpose, the BO may at once enter such structure or land on which it stands, or abutting land or structure, with such assistance and at such cost as may be deemed necessary. The BO may also get the adjacent structures vacated and protect the public by an appropriate fence or such other means as may be necessary.
- c) The permission for demolition of a building shall be obtained as per **3.7** of these regulations.
- d) If any person does not comply with the orders of vacating a building, the BO may request the police to remove the person from the building and the police shall take all necessary actions for removal.

- e) In case the owner/occupier fails, neglects, or refuses to comply with the notice to repair or to demolition of the said building or portion thereof, the BO shall cause the danger to be removed whether by repair or demolition of the building or portion thereof.
- f) After vacating the building, the building or a portion thereof may be sealed.
- g) All expenses shall be borne by the owner/occupier and if not paid on demand, BO shall recover the same as revenue arrears.

3.6 Third Party Audit

3.6.1 The BO shall create a mechanism for appointment of third party technical audit agency (TPTAA) and/or third party quality assurance (TPQA) agency for high rise and special buildings.

3.6.2 The BO shall select and notify TPTAA for its area of jurisdiction. The selection criteria of TPTAA shall ensure that the following criteria are met:

- a) experience of similar kind of works;
- b) the agency shall not have incurred loss for the last 3 years;
- c) the agency shall deploy an optimum number of experts as per the need of the projects;
- d) no conflict of interest prevails in the engagement; and
- e) terms of reference (TOR) are as per the prescribed scope and deliverables.

NOTE — State Government may select such agencies for the entire state and the BO may also use that agency.

3.6.3 The objectives of TPTAA shall be as follows:

- a) schedule the field visits in the cities across the States/UTs after proper coordination at State/ULB level;
- b) examine project documentation with respect to sanctioned covenants;
- c) review of land requirement/availability, site preparation and other statutory clearances;
- d) review of project implementation plan and material procurement process;
- e) review of approved quality monitoring plan;
- f) review of safety and health aspects;
- g) examine convergence with the Central/State scheme;
- h) report on quality assurance;
- i) remedial measures to improve quality of the project;
- j) file report in a timely manner; and
- k) follow-up action of the report, which would be ascertained in the next report.

3.6.4 The applicant shall appoint a selected TPTAA and inform the BO. The appointed TPTAA shall carry out the technical audit or monitoring at the following stages:

- a) at plinth level;
- b) at 50 to 60 percent of work progress; and
- c) at completion stage.

3.6.5 The TPTAA shall prepare a detailed report as per **ANNEX S** and **ANNEX S-1** (see Note) and suggest corrective measures if any. This report shall be submitted to the applicant and BO. The applicant shall take corrective actions as suggested in the report and submit a compliance report to the BO.

NOTE — The format is indicative; the information will vary for different type of projects. The information may be added/deleted as appropriate.

3.7 Demolition of a Building

3.7.1 Demolition permit (**ANNEX T**) is applicable for any development/building of size 100 m² or greater marked for demolition. The demolition permit application shall be made in accordance with **3.3.1.1** of these regulations.

3.7.2 The applicant shall ensure that a safe procedure for demolition of buildings is adopted. This is critical to ensure that any associated hazards such as collapse of structure, falling material, flying material, impact/hit by material, collapse of equipment/machinery, noise, entrapment, fall from height, electrocution, fire, explosion etc. are avoided.

3.7.3 All essential services shall be located to perform dislocation before demolition.

3.7.4 Demolition process shall follow:

- a) safety provisions for protection against fire in accordance with Chapter 7 'Fire and Life Safety' of these regulations and provisions of Part 4 'Fire and Life Safety' of NBC 2016;
- b) systematic waste disposal in accordance with **11.2** of these regulations;
- c) the owner/occupier shall notify the concerned departments/agencies related to utilities having service connections within the building, such as water, electricity, gas, sewer and other connections and obtain an NOC issued by the concerned departments/agencies related to the disconnection of utilities and services; and
- d) provisions given in of Part 7, 'Construction Management, Practices and Safety' of NBC 2016.

3.7.4.1 The BO has the Authority to cancel the demolition permit if any part of the process is not followed.

3.7.5 A copy of the demolition permit and/or methods of operations shall be maintained at the job site for the duration of the demolition operation.

3.7.6 A plan of procedure for the demolition work shall be prepared by the RBP, highlighting the sequence of demolition activities. The detailed plan shall take care of following:

- a) process shall not adversely affect the structural integrity of the adjacent or adjoining building;
- b) proposed methods for handling heavy, bulky or awkward components;
- c) the need for specific lifting arrangements to be detailed to facilitate safe lifting;
- d) the handling, lifting, storing, stacking and transportation of components, depending on their size, shape and weight;
- e) provision of safe access and safe working areas;
- f) the equipment to be used for the work, including the size, type, position and coverage of the proposed demolition crane(s) shall be indicated on a site plan, and locations such as unloading points and storage areas (if any) shall be shown;
- g) plan for disposing demolition waste shall be in accordance with **11.2.1** of these regulations; and

- h) a risk assessment plan.

3.8 Permit for Signage

3.8.1 Applicant shall erect, alter or maintain a sign after obtaining a permit for the same from the Authority which shall be subject to the following conditions:

- a) Written permit shall not be granted or renewed at any one time, for a period exceeding three years from the date of grant of such permit or renewal.
- b) Written permit or the renewal granted by the Authority shall become void,
 - i) if any sign or the part thereof collapses due to an accident or any other causes;
 - ii) if any addition is made except for the purpose of making it secure under the direction of the Authority;
 - iii) if any change is made in the sign or part thereof;
 - iv) if any addition or alteration is made to the building or structure upon or over which the sign is erected and if such addition or alteration involves disturbance of the sign or any part thereof; or
 - v) if the building or structure upon or over which the sign is erected fixed or restrained becomes demolished or destroyed.
- c) A signage shall not be placed/installed in any form, shape or manner that it obstructs a means of egress, nor be placed in such manner as to interfere with any opening required for lighting and ventilation. Light and ventilation of buildings, if any, situated near the signs and hoardings, shall also not be obstructed in any way.
- d) Advertisements displayed shall not be of any objectionable or obscene nature.
- e) No signage shall be provided in/over group housing.
- f) Advertising signage or outdoor display structures shall not be permitted on buildings of architectural, aesthetical, historical or heritage importance as may be decided by the Authority, or on government buildings. In case of government buildings, only such advertising signages or outdoor display structures may be permitted that relate to the activities of the said buildings and related programs.
- g) Every signage along with its supports shall be designed to safely withstand wind, dead, seismic and other loads as specified in Part 6 'Structural Design', Section 1 'Loads, Forces and Effects' of NBC 2016. For advertising signs, application shall be submitted through a structural engineer along with necessary drawings and structural calculations.
- h) Well illuminated, clear and readable signages shall be placed at an appropriate and consistent height. They shall be designed, located and illuminated in accordance with Part 10 'Landscape Development, Signs and Outdoor Display Structures', Section 2 'Signs and Outdoor Display Structures' of NBC 2016.
 - i) In case of public buildings and group housing, signage for the persons with disabilities at all level/grade changes, entry points to buildings and public conveniences and facilities; including braille and tactile signage used for the benefit of the visually impaired; shall be designed, located and illuminated as per provisions given in Part 3 'Development Control Rules and General Building Requirements' of NBC 2016. In addition, information with text may be supplemented with graphical symbols to facilitate comprehension for everyone.

- j) The signages shall be made of robust materials and be easy to change, clean and repair. Signs and sign support structures, together with their supports, braces, and anchors, shall be maintained at all times. Display surface of the same shall always be kept neatly painted or posted. They shall be maintained and inspected in accordance with Part 10 'Landscape Development, Signs and Outdoor Display Structures', Section 2 'Signs and Outdoor Display Structures' of NBC 2016.
- k) Signage shall be erected in a manner that it does not confuse or obstruct the view of or interfere with exit/entry signs or with official traffic signs, signals or devices.
- l) Hoarding sign on the highways/roads/flyovers shall not be put without the permission of the Authority maintaining/in-charge of highways/roads/flyovers.
- m) Signs shall not be nailed or tied to trees or any other woody vegetation.
- n) In the public interest, the Authority shall have the right to suspend the permit even before the expiry period, upon which the applicant shall remove the signs.

3.8.2 Application for Permit

3.8.2.1 Every person intending to erect, alter or display an advertising sign for which a permit is required, shall make application to the Authority in the form as given in **ANNEX U**. The application shall be signed by the applicant of the site upon which such sign is or is to be situated. It shall include the following information:

- a) Full specifications showing the length, height and weight of the sign, the location where it is to be erected, the manufacturer's name and address and where applicable, the number of lights and other details of electrical provisioning within the same.
- b) Such application shall be accompanied by a location plan indicating the position of the sign on the site drawn to a scale of 1:500 and by full detail drawing drawn to a scale of 1:20 or an exact multiple thereof including, if required by the Authority, an elevation showing the sign in relation to the facade.
- c) In the case of roof signs, projecting signs or ground signs, in addition to the foregoing, the size of all members of supporting frameworks and anchorages, and, if required by the Authority, the necessary design calculations shall be furnished with the application.
- d) Any other particulars as may be desired by the Authority as covered in Part 10 'Landscape Development, Signs and Outdoor Display Structures', Section 2 'Signs and Outdoor Display Structures' of NBC 2016.
- e) In the case of sky signs, necessary information as desired by the Authority may be supplied.

3.8.2.2 The Authority may, on the receipt of an application for permit, either sanction or refuse such a permit or sanction with modifications as deemed necessary and shall communicate decision to the applicant. If within 30 days of receiving an application for a permit, the Authority fails to intimate in writing to the applicant, the permit along with the plans shall be deemed as sanctioned.

3.8.2.3 When a sign has to be altered, information only on such plans and statements, as may be necessary, shall be included in the application. However, the changing of movable parts of an approved sign that is designed for such changes, shall not be deemed an alteration provided the conditions of the original approval and the requirements of this part are not violated.

3.8.3 Existing Advertising Signs

3.8.3.1 Advertising signs in existence at the date of notification of these regulations and covered by a valid licence or permit issued by the Authority shall not require to be approved under these regulations until such licence or permit has expired, provided it is maintained in good and safe condition.

3.8.3.2 For existing advertising signs, application shall be submitted through a structural engineer along with necessary drawings and structural calculations. The wind load taken in the design calculations shall be in accordance with Part 6 'Structural Design', Section 1 'Loads, Forces and Effects' of NBC 2016.

3.8.4 Exemptions

3.8.4.1 No permit shall be required for signs and outdoor display structures of the following types:

- a) If the signs are exhibited within the window of any building, provided it does not affect light and ventilation of the building.
- b) If it relates to the trade or business carried on within the land or building upon which such advertisement is exhibited or to any sale, entertainment or meeting or lettering of such land or building or any effects therein; or to the trade or business carried on by the owner of any tramcar, omnibus or other vehicle upon which such advertisements is exhibited, provided it is not more than 1.2 m².
- c) In addition, no permit shall be required for wall signs, temporary signs and ground signs as specified in Part 10 'Landscape Development, Signs and Outdoor Display Structures', Section 2 'Signs and Outdoor Display Structures' of NBC 2016. Such exemptions, however, shall not be construed to relieve the owner of the sign from the responsibility of erection and maintenance in compliance with these regulations.

3.8.5 Unsafe and Unlawful Signs

3.8.5.1 Notice of unsafe and unlawful signs

When any sign becomes insecure, or in danger of falling, or otherwise unsafe, or if any sign is unlawfully installed, erected or maintained in violation of any of the provisions of these regulations, the owner thereof, or the person or firm maintaining the same, shall upon written notice of the Authority, forthwith in the case of immediate danger and in any case within not more than three days, make such sign conform to the provisions of these regulations or shall remove it. If within three days the order is not complied with, the Authority may remove such sign at the expense of the owner.

3.8.5.2 Notwithstanding the above, it shall be the responsibility of the owner to ensure the safety of the advertising signs, even without a reference from the Authority. The owner shall also ensure to remove the remnant structures of the abandoned sign.

3.8.5.3 Any sign which in the opinion of the Authority is an obscene, repulsive, revolting, or objectionable character; or prejudicial to the Authority; or savouring undesirable political propaganda; or of a nature calculated to produce pernicious or injurious effect on public or any particular class of persons; or is displayed in such a place, in such a manner or by any such means as, in the opinion of the Authority, could be likely to affect injuriously the amenities of, or to disfigure any neighbourhood, shall not be permitted under any circumstances.

3.9 Online Single Window Clearance

3.9.1 All administrative functions for permits as given in this section of these regulations may be performed through an online single window approval system with the use of electronic form(s). Integration with other departments' system/portal as required for the purpose of

NOCs, etc may also be ensured. Without prejudice to the generality of the provision above, the functions shall include all or any of the following:

- a) Receipt or acknowledgement of applications (see Note 1) and payments;
- b) issue of notices, permits, orders or directions;
- c) scrutiny, enquiry or correspondence for grant of sanction/refusal of permits,
- d) filing of documents;
- e) calculation and payment of fees and any charges;
- f) maintenance of registers and records;
- g) any other function that the Authority may deem fit in public interest; and
- h) communication with the applicant .

3.9.2 Each application shall be allotted a unique identification number and it shall be ensured that complete information about this is posted on the website of the Authority.

3.9.3 Status of the approval, stage of development, observations, etc shall be posted on the website where the details of the application is posted. Information about this shall also be made available through SMS sent to registered mobile number of the applicant and the RBPs associated with the project.

3.9.4 In cases where an online system is still in the process of being adopted, local authorities shall ensure that regular communication is maintained, and application status is constantly updated to the Applicant via an email and/or Short Message Service (SMS). Further, all forms shall be accepted by the CO; duly signed by the Applicant and RBP (as and where required) in triplicate. Multiple payment options shall be provided to the Applicant in terms of online transaction/Demand Draft/Cheque and cash to smoothen the process.

ANNEX B

(Clause 3.3.1.1, Table 1, Table 2, Table 3, Table 11)

CERTIFICATE FOR ENGAGEMENT OF RBP**TO WHOMSOEVER IT MAY CONCERN**

This is to certify, that with respect to the development/redevelopment/construction/reconstruction/ alteration/demolition (*select as applicable*) at

..... (*mention complete address*), the following building professionals have been engaged by me towards carrying out development/redevelopment/construction/reconstruction/alteration/demolition (*select as applicable*) works.

| RBP | Name | Registration Number | Contact Details | Date of Engagement | Signature of the RBP |
|-------------------------------|---------|---------------------|-----------------|--------------------|----------------------|
| Architect | | | | | |
| Engineer | | | | | |
| Structural engineer | | | | | |
| Geotechnical engineer | | | | | |
| Supervisor | | | | | |
| Town planner | , | | | | |
| Landscape architect | | | | | |
| Urban designer | | | | | |
| Engineer for utility services | | | | | |
| Building Constructor | | | | | |

Signature of Applicant:

Name:

Address:

.....

Phone number:

Email:

Date:

-
- 1) Only professional who would be engaged shall be named.
 - 2) Strike out whichever is not applicable.

ANNEX C

(Clause 3.3.1.1, Table 1, Table 3)

APPLICATION FOR OBTAINING DEVELOPMENT PERMIT/BUILDING PERMIT

To

.....
.....
.....

(insert name and address)

Madam/Sir,

I hereby request that I intend to develop/redevelop/construct/reconstruct/alter (*select as applicable*) the land/building (*select as applicable*) at.....

..... (*mention complete address*), in accordance with these regulations.

I submit herewith plans along with required documents verified by..... (*mention name of Registered Building Professional*), (*mention Registration Number of Registered Building Professional*) as my appointed..... (*mention the designation of Registered Building Professional such as the Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer*).

I request that the development/building (*select applicable*) plans may be sanctioned, and Permit may be granted to execute the work.

Signature of Applicant:

Name of the Applicant:

Address of Applicant:

.....
.....

Phone number:

Email:

Date and Place:

ENCLOSURES

| | |
|--|--------------------------|
| Subdivision/layout plan | <input type="checkbox"/> |
| Key plan | <input type="checkbox"/> |
| Site plan | <input type="checkbox"/> |
| Building plan | <input type="checkbox"/> |
| Structural plans, sections, details, design calculations* | <input type="checkbox"/> |
| Services plans | <input type="checkbox"/> |
| Specifications | <input type="checkbox"/> |
| Application for obtaining development permit/building permit | <input type="checkbox"/> |
| Certificate for subsurface investigation* | <input type="checkbox"/> |
| Certificate of structural design sufficiency\$ | <input type="checkbox"/> |
| Engagement of RBP | <input type="checkbox"/> |
| Applicant/ownership documents | <input type="checkbox"/> |
| Indemnity Bonds | <input type="checkbox"/> |
| Valid time extension (wherever applicable) | <input type="checkbox"/> |
| Photographs of the site with date-time stamp | <input type="checkbox"/> |
| NOCs and plans (as per requirement) | <input type="checkbox"/> |
| Receipts of all applicable fees and charges | <input type="checkbox"/> |
| SDBR Report* | <input type="checkbox"/> |
| Stage 1 Planning Clearance* | <input type="checkbox"/> |

* To be submitted for high rise and special buildings and buildings in unstable areas such as on hill slopes, during stage 2 of the permit process, that is, after obtaining planning clearance.

\$ In case of high rise and special buildings, these documents are to be submitted during stage 2 of the permit process. Whereas in case of others, these are to be submitted along with the application for the Building Permit.

ANNEX D

(Clause 3.3.1.1, Table 1, Table 3, Table 11)

CERTIFICATE FOR STRUCTURAL DESIGN SUFFICIENCY

(*to be issued on RBP (structural engineer) letter head*)

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the structural design, structural drawings and details of the building at

..... (*mention complete address*), have been prepared by me (the undersigned), as stipulated in National Building Code of India and its Part 6 'Structural Design' and other relevant regulations. I also certify that the design is in accordance with the findings of subsurface investigation report¹ and satisfies the safety requirements for all situations including natural disasters, etc.

.....
Signature of Registered Engineer/Structural
Engineer

Registration Number:

.....
Signature of the Applicant

Name:

Address:

Phone number:

Email:

Date:

¹ Incase the Subsurface investigation has not been done for a particular site, this point may be removed from the certificate issued.

ANNEX E

(Clause 3.3.1.1, Clause 3.3.2.6, Table 1, Table 2, Table 3, Table 4)

INDICATIVE LIST OF NOCs/APPROVALS

Table 6 Indicative List of NOCs/Approvals

| SI No. | Agencies from Whom NOCs/Clearances may be required (Wherever Applicable) |
|---------------|---|
| (1) | (2) |
| i) | Airport Authority of India (AAI) |
| ii) | National Monuments Authority of India |
| iii) | Ministry of Environment, Forest and Climate Change (MoEFCC) |
| iv) | Fire Service Department |
| v) | Designated Authorities under Factories Act |
| vi) | Designated Authorities under Cinema Regulation Act |
| vii) | Urban Art Commission |
| viii) | Heritage Committee |
| ix) | Pollution Control Board |
| x) | Designated Coastal Regulation Zone Authority |
| xi) | Clearance from Metro Rail Corporation (MRC) |
| xii) | Lessor in case of leased sites |
| xiii) | Chief Controller of Explosives |
| xiv) | Service departments |
| xv) | Town Planning Department |
| xvi) | Clearance from Defence, Border Roads Organization |
| xvii) | Public Works Department (PWD) |
| xviii) | National Highway Authority of India (NHAI) |
| xix) | Departments/Agencies responsible for the maintenance of the public utilities (If the allotted site falls in the proximity of their establishment or has any departmental utilities or conveniences or infrastructure, etc. within, below or above the ground or on the periphery of the site which has the possibility of being affected while undertaking the construction.) |

| SI No. | Agencies from Whom NOCs/Clearances may be required (Wherever Applicable) |
|---------------|---|
| (1) | (2) |
| xx) | Railways |
| xxi) | Police (For construction of religious structures) |
| xxii) | District Magistrate |
| xxiii) | Inspectorate of Boilers and Smoke Nuisance |
| xxiv) | Atomic Energy Regulatory Board |

ANNEX F

(Clause 3.3.1.1, Table 1, Table 3, Table 4)

INDEMNITY BOND 1

(On a stamp paper)

To

.....
..... (*insert name and address*)

Madam/Sir,

I/We (include successor and assigns) hereby indemnify the Authority and all functionaries of the Authority, against any risk, damage and danger which may occur to adjoining development and building(s) and within the building on account of the development/redevelopment/construction/reconstruction/alteration/demolition (*select as applicable*) to be carried out at (*mention complete address*).

I/We (include successor and assigns) undertake to indemnify any such amount to the full extent which may be required to be paid to anyone having rights in the adjoining properties on account of the development/redevelopment/construction/reconstruction/alteration/demolition (*select as applicable*) by way of compensation or otherwise and further pay all costs and expenses which the Authority may have to spend in defending any action in the Court of Law.

I/We (include successor and assigns) promise to undertake all necessary security measures for their safety.

This indemnity bond is executed at (*mention place*) on (*mention date*) day of (*mention month*) in witness of (*mention name of witness 1*) and (*mention name of witness 2*).

.....
Signature of Witness 1

.....
Signature of Witness 2

.....
Signature of Applicant

Name:

Name:

Name:

Address:

Address:

Address:

.....
Phone number:

.....
Phone number:

.....
Phone number:

Email:

Email:

Email:

Date:

Date:

Date:

ANNEX G

(Clause 3.3.1.1, Table 1, Table 3, Table 4)

INDEMNITY BOND 2

(On a stamp paper)

To

.....

.....(insert name and address)

Madam/Sir,

I/We (include successor and assigns) hereby indemnify the BO/Authority and all functionaries of the Authority against any risk, damage and danger which may occur to occupants and users of the development/redevelopment/construction/reconstruction/alteration/demolition (**select as applicable**) to be carried out on the

.....(mention address).

I/We (include successor and assigns) undertake to indemnify any such amount to the full extent which may be required to be paid to anyone having rights over the development/redevelopment/construction /reconstruction/alteration/demolition (**select as applicable**) by way of compensation or otherwise and further pay all costs and expenses which the BO/Authority may have to spend in defending any action in the Court of Law.

I/We (include successor and assigns) promise to undertake to take necessary security measures for their safety.

This indemnity bond is executed at(mention place) on(mention date) day of(mention month) in witness of(mention name of witness 1) and(mention name of witness 2).

.....
Signature of Witness 1

.....
Signature of Witness 2

.....
Signature of Applicant

Name:

Name:

Name:

Address:

Address:

Address:

.....
Phone number:

.....
Phone number:

.....
Phone number:

Email:

Email:

Email:

Date:

Date:

Date:

ANNEX H

(Clause 3.3.1.1, Table 1, Table 2, Table 3)

FEES AND CHARGES

The application for development permit, building permit, occupancy permit and demolition permit shall be filed along with the fees prescribed in Table 7, Table 8 and Table 9 respectively.

Table 7 Plan Processing Fees for Development Permit

| Sl No. | Plot Area | Fees (Calculated using Telescopic Method) |
|---------------|--------------------|--|
| (1) | (2) | (3) |
| i) | Up to 1 ha | ₹ ____/- m ² |
| ii) | >= 1 ha up to 5 ha | ₹ ____/- m ² |
| iii) | Greater than 5 ha | ₹ ____/- m ² |

Table 8 Plan Processing Fees for Building and/or Demolition Permit

| Sl No. | Proposed Building Use | Fees (Per sqm of BUA) |
|---------------|---------------------------------|------------------------------|
| (1) | (2) | (3) |
| i) | For all buildings | ₹ ____/- m ² |
| ii) | Government buildings/ utilities | Nil |

Table 9 Plan Processing Fees for Occupancy Permit

| Sl No. | Proposed Building Use | Fees (Per sqm of BUA) |
|---------------|------------------------------|------------------------------|
| (1) | (2) | (3) |
| i) | For all buildings | ₹ ____/- m ² |

These fees shall be updated from time to time by the Authority. The Authority shall use the computation criteria as mentioned in Table 7, Table 8 and Table 9.

In addition to the above fees, the Authority may also levy one or more special charges as provided in Table 10. These charges shall be levied only once for respective land/building.

Table 10 Special Charges

| Sl No. | Special Charges (As Applicable) | Purpose |
|---------------|--|---|
| (1) | (2) | (3) |
| i) | Betterment levies | Provisioning of infrastructure facilities |
| ii) | City development charges | |

| SI No. | Special Charges (As Applicable) | Purpose |
|---------------|---|--|
| (1) | (2) | (3) |
| iii) | Infrastructure development charges | |
| iv) | Infrastructure strengthening charges | |
| v) | Charges for proof checking | Undertaking structural/material proof checking |
| vi) | Location based charges | Location of plot/building in specific area |
| vii) | Charges for additional FAR | Providing additional development rights |
| viii) | Construction and demolition waste charges | - |
| ix) | Charges for development/construction without permission | - |

ANNEX I

(Clause 4.2.1, Table 1, Table 2, Table 3, ANNEX U)

REQUIREMENTS OF VARIOUS DOCUMENTS TO BE SUBMITTED TO THE AUTHORITY

Table 11 Requirements of various Documents

| SI No. | Documents | Scale | Requirements |
|---------------|-------------------|---|--|
| (1) | (2) | (3) | (4) |
| i) | Engagement of RBP | - | Certificate in ANNEX B |
| ii) | Key Plan | Not less than 1: 10 000 | <p>It shall show the boundary locations of the site with respect to neighbourhood landmarks and roads, along with depiction of natural drains, rivers and other water-bodies and the X-Y coordinates of the site.</p> <p>The minimum dimension of the key plan shall not be less than 75 mm.</p> |
| iii) | Site Plan | Not less than 1: 500 for a site up to 1 ha. Not less than 1: 1000 for a site more than 1 ha. | <p>The specifications of the plan shall be as follows:</p> <ul style="list-style-type: none"> a) the boundaries of the site and of any contiguous land belonging to the applicant thereof; b) the position of the site in relation to neighbouring street; c) the name of the streets, on which the building is proposed to be situated, if any; d) all existing buildings standing on, over or under the site including service lines; e) the position of the building and of all other buildings (if any) which the applicant intends to erect upon his/her contiguous land referred to in (a) in relation to: <ul style="list-style-type: none"> i) the boundaries of the site and in case where the site has been partitioned, the boundaries of the portion owned by the applicant and of the portions owned by others; ii) all adjacent streets, buildings (with number of storeys and |

| SI No. | Documents | Scale | Requirements |
|---------------|-------------------------|----------------------|---|
| (1) | (2) | (3) | (4) |
| | | | <p>height) and premises within 12 m</p> <ul style="list-style-type: none"> iii) of the site and of the contiguous land (if any) referred to in (a); and iv) if there is no street within 12 m of the site, the nearest existing street; f) the means of access from the street to the building, and to all other buildings (if any) which the applicant intends to erect upon his/her contiguous land referred to in (a); g) parking plan; h) landscape plan; i) space to be left about the building to secure a free circulation of air, admission of light and access for scavenging purposes; j) the width of the street (if any) in front and of the street (if any) at the side or near the buildings; k) the direction of north point relative to the plan of the buildings; l) any physical features, such as wells, drains, etc; m) calculation of covered area on each floor with respect to plot area; n) municipal waste collection spaces; and o) other such particulars as may be prescribed by the Authority. |
| iv) | Subdivision/Layout Plan | Not less than 1: 500 | <p>The specifications of the plan shall be as follows:</p> <ul style="list-style-type: none"> a) scale used and north point; b) location of all proposed and existing roads with their existing/proposed/prescribed widths within the land; |

| SI No. | Documents | Scale | Requirements |
|--------|---------------------------|---|---|
| (1) | (2) | (3) | (4) |
| | | | <ul style="list-style-type: none"> c) dimensions of plot along with building lines showing the setbacks with dimensions within each plot; d) location of drains, sewers, public facilities and services, and electrical lines, etc; e) a table indicating size, area and use of all the plots in the subdivision/layout plan; f) a statement indicating the total area of the site, area utilized under roads, open spaces for parks, playgrounds, recreation spaces and development plan reservations, schools, shopping and other public places along with their proportion with reference to the total area of the site proposed to be subdivided; and g) in case of plots which are subdivided in built-up areas in addition to the above, the means of access to the subdivision from existing streets. |
| v) | Building Plan and Details | <p>1:100 NOTE — The requirement of 1:100 is permitted to be flexible for specific details needed for further illustration; and, for drawings in electronic form.</p> | <p>The specifications of the plan shall be as follows:</p> <ul style="list-style-type: none"> a) include floor plans of all floors together with the covered area clearly indicating the size and spacing of all framing members and sizes of rooms and the position of staircases, ramps and lift wells; b) show the use or occupancy of all parts of the buildings; c) show the exact location of essential services, for example, Water Closet (WC), sink, bath and the like; d) include at least one elevation from the front showing height of the building, rooms and the height of parapet; |

| SI No. | Documents | Scale | Requirements |
|---------------|------------------|--------------|---|
| (1) | (2) | (3) | (4) |
| | | | <ul style="list-style-type: none"> e) include at least one section through the staircase. f) include the structural arrangements with appropriate sections showing type/arrangement of footings, foundations, basement walls; structural load bearing walls, columns and beams, and shear walls; and arrangement/spacing of framing members, floor slabs and roof slabs with the materials used for the same. g) show all street elevations; h) give dimensions of the projected portions beyond the permissible building line; i) include terrace plan indicating the drainage and the slope of the roof; and j) give indications of the north point relative to the plan. |
| | | | <p>For high rise/special buildings, the following additional information shall be indicated in the Building Plan during stage 1 of the permit process:</p> <ul style="list-style-type: none"> a) access to fire appliances/vehicles with details of vehicular turning circle and clear motorable accessway around the building; b) size (width) of main and alternative staircases along with balcony approach, corridor, ventilated lobby approach; c) location and details of lift enclosures; d) location and size of fire lift; e) smoke stop lobby/door, where provided; f) refuse chutes, refuse chamber, service duct, etc; g) parking plan; |

| SI No. | Documents | Scale | Requirements |
|---------------|--|--------------|--|
| (1) | (2) | (3) | (4) |
| | | | <ul style="list-style-type: none"> h) refuge area, if any; i) details of building services — air conditioning system with position of fire dampers, mechanical ventilation system, electrical services, boilers, gas pipes, etc; j) details of exits including provision of ramps, etc, for hospitals and special risks; k) location of generator, transformer and switchgear room; l) smoke exhauster system, if any; m) details of fire alarm system network; n) location of centralized control, connecting all fire alarm systems, built-in-fire protection arrangements and public address system, etc; o) location and dimensions of static water storage tank and pump room along with fire service inlets for mobile pump and water storage tank; p) location and details of fixed fire protection installations such as sprinklers, wet risers, hose-reels, drenchers, etc; q) location and details of first-aid firefighting equipment/installations; and r) features relating to accessibility for the elderly PwDs, shall be in accordance with these regulations. s) details of telecommunication lines, systems and other related facilities |
| vi) | Structural plans, sections, details, design calculations | - | Structural plans, sections, details, design calculations duly signed by engineer/structural engineer |

| SI No. | Documents | Scale | Requirements |
|---------------|---|--------------|--|
| (1) | (2) | (3) | (4) |
| vii) | Services Plans | - | Details of building and plumbing services, and plans, waste collection and disposal plan where applicable, elevations and also sections of private water supply, sewage disposal system, rainwater harvesting system, wastewater recycling facility, drainage plans, if any |
| viii) | Specifications | - | Both general and detailed, giving type and grade of materials to be used, duly signed by the registered architect, engineer, structural engineer or supervisor |
| ix) | Certificate for Subsurface Investigation | | Subsurface Investigation Report in ANNEX K . |
| x) | Certificate for Structural Design Sufficiency | - | Certificate in ANNEX D signed by the engineer/structural engineer and the applicant jointly, to the effect that the building is safe against various loads, forces and effects including due to natural disasters such as earthquakes, landslides, cyclones, floods, etc as per NBC 2016 and its Part 6 'Structural Design' and other relevant Indian Standards. The engineer/structural engineer shall also have the details to substantiate their design. |
| xi) | Notice for Commencement of Development/Construction | - | Certificate in ANNEX M signed by the applicant for commencement of building work under the supervision of the architect/ engineer/ structural engineer/supervisor. |
| xii) | Certificate for Supervision of Work | - | Certificate in ANNEX O signed by the architect/engineer/structural engineer/supervisor and the applicant jointly, to the effect that the building has been constructed according to the sanctioned plans, specifications, details and structural drawings, and that the construction has been done under the supervision of the architect/engineer/structural engineer/supervisor, and the guidance and records of supervision have been maintained. |

| SI No. | Documents | Scale | Requirements |
|---------------|--|--------------|--|
| (1) | (2) | (3) | (4) |
| xiii) | Certificate for completed work by building constructor | - | Certificate in ANNEX P signed by the building constructor and the applicant jointly, to the effect that the building has been constructed according to the sanctioned plans, structural drawings and details issued to the site and that the work has been completed with high level of workmanship observing due diligence and all the materials have been used strictly in accordance with the general and detailed specifications. |
| xiv) | Notice of Completion/Partial Completion | | Certificate in ANNEX N signed by the architect/engineer/structural engineer/supervisor and the applicant jointly, to the effect that the land is fit for construction for which it has been developed or redeveloped or the building is fit for use for construction/reconstruction for which it has been, constructed and enlarged. |

ANNEX J

(Clause 3.3.1, Table 2)

APPLICATION FOR OBTAINING DEMOLITION PERMIT

To

.....
.....
.....

(insert name and address)

Madam/Sir,

I hereby request that I intend to demolish the building/structure at (mention complete address), in accordance with these regulations.

I submit herewith demolition plans along with required documents verified by (mention name of Registered Building Professional), (mention Registration Number of Registered Building Professional) as my appointed (mention the designation of Registered Building Professional the Engineer/Structural Engineer.)

I request that the demolition plans may be sanctioned, and permit may be granted to execute the work.

Signature of Applicant:

Name of the Applicant:

Address of Applicant:

.....
.....

Phone number:

Email:

Date and Place:

ENCLOSURES

- | | |
|---|--------------------------|
| Application | <input type="checkbox"/> |
| An engineering survey of the structures/buildings prepared by RBP | <input type="checkbox"/> |
| Engagement of RBP | <input type="checkbox"/> |
| Receipts of all applicable fees and charges | <input type="checkbox"/> |
| NOCs from all essential utility services (supply of gas, water, sewerage, telecommunications, electricity). | <input type="checkbox"/> |
| Demolition plan | <input type="checkbox"/> |

ANNEX K

(Clause 3.3.1.3, Table 3, Table 11)

CERTIFICATE FOR SUBSURFACE INVESTIGATION

(to be issued on RBP (Geotechnical engineer) letter head)

TO WHOMSOEVER IT MAY CONCERN

This is to certify, that with respect to the development/redevelopment/construction/reconstruction (*select applicable*) of the

.....
..... (*mention complete address*), we have carried out subsurface investigation at site and have performed various tests required to determine engineering properties of soil substrata and ground water based on which we have given recommendations about the type of foundation, soil bearing capacity and the depth at which the foundations shall be placed, considering the structural system and loads supplied by the structural engineer to enable the engineer/structural engineer to design the foundations and other structures below ground, as stipulated in National Building Code of India and its Part 6 'Structural Design', Section 2 'Soils and Foundations', and other relevant Indian Standards.

I am enclosing a copy of the report of subsurface investigation carried out as above and submitted to the Structural Engineer.

.....
.....
Signature of registered Engineer/ Structural
Engineer/ Geotechnical Engineer

.....
.....
Signature of the Applicant

Registration Number:

Name:

Address:
.....
.....
.....

Phone number:
.....

Email:
.....

Date:
.....

ANNEX L

(Clause 3.3.3.3)

GRANT OF SANCTION/REFUSAL OF DEVELOPMENT PERMIT/BUILDING PERMIT

Grant of Sanction/Refusal of Development Permit/Building Permit

(to be issued on BO's letter head)

..... *(insert regulation number)*

To,

.....
..... *(insert name and address)*

With reference to your application *(mention application number)*
dated *(mention relevant date)* for the grant of permit for the
development/ redevelopment/construction/reconstruction/alteration *(select as applicable)* of
the
land/building
at.....

.....
(mention address), sanction has been granted/refused *(select as applicable)* by the Authority.

Development Permit/Building Permit has been refused because of the reasons given below.

- 1.
- 2.
- 3.

(insert office stamp)

(insert office communication No.)

.....
Signature of the Building Official (BO)

Name of BO:

Address of BO:

.....
Email:

Phone number:

Date:

ANNEX M

(Clause 3.3.7.1, Table 11)

NOTICE FOR COMMENCEMENT OF DEVELOPMENT/CONSTRUCTION/DEMOLITION

TO WHOMSOEVER IT MAY CONCERN

This is to bring to your kind notice that the development/redevelopment/construction/reconstruction/ alteration/demolition work (*select as applicable*) at.....

.....*(mention complete address)*, will commence on*(mention relevant date)* under the supervision of*(mention name of RBP)*,*(mention registration number of RBP)* as my appointed.....*(mention the designation of Registered Building Professional such as the Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer)* and in accordance with the development/building/demolition permit number,*(mention vide no)* dated*(mention relevant date)*.

Signature of Applicant:

Name of the Applicant:

Address of Applicant:

.....
.....
Phone number:

Email:

Date and Place:

ANNEX N

(Clause 3.3.9.1, Table 11)

NOTICE OF COMPLETION/PARTIAL COMPLETION

(retain as applicable)

To

.....

.....(insert name and address)

This is to bring to your kind notice that the development/redevelopment/construction/reconstruction/ alteration (*select as applicable*) work at(mention address), has been supervised by me and has been completed on(mention relevant date) according to the plans sanctioned,(mention vide number) dated(mention relevant date) and subsequent changes approved via letter

-(mention vide no) dated(mention relevant date)
-(mention vide no) dated(mention relevant date)
-(mention vide no) dated(mention relevant date)

The work has been completed to my best satisfaction. The workmanship and all the materials (type and grade) used have been strictly in accordance with general and detailed specifications subject to compliance with the minimum parameters specified in the National Building Code of India and these regulations. No provisions of the code or these regulations, no requisitions made, conditions prescribed, or orders issued thereunder have been transgressed during the work. The land is fit for construction for which it has been developed or redeveloped or the building is fit for use for construction/reconstruction for which it has been constructed, altered and enlarged.

I hereby also enclose documents/plans as specified under enclosures.

Permission to occupy or use the building may be granted. Any subsequent change from completion drawings shall be the responsibility of the owner.

.....

Signature of Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer

Name of Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer:

Registration Number of Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer:

Designation of the Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer:

Address of Architect/Engineer/Structural Engineer/Supervisor/Town Planner/Landscape Architect/Urban Designer:

Email:

Phone:

Date:

Signature of the Applicant:.....

Date:

ENCLOSURES

| | |
|---|--------------------------|
| Subdivision/layout plan | <input type="checkbox"/> |
| Key plan | <input type="checkbox"/> |
| Site plan | <input type="checkbox"/> |
| Building plan along with sections and elevations | <input type="checkbox"/> |
| Structural drawings, details and design calculations | <input type="checkbox"/> |
| Landscape plan | <input type="checkbox"/> |
| Parking plan | <input type="checkbox"/> |
| Services Plans (certificate from lift/escalator inspector - check) | <input type="checkbox"/> |
| Specifications | <input type="checkbox"/> |
| Certificate for completed structural design work as per structural safety requirements | <input type="checkbox"/> |
| Certificate for completed supervision of work | <input type="checkbox"/> |
| Certificate for completed work by building constructor | <input type="checkbox"/> |
| Applicant/Ownership documents | <input type="checkbox"/> |
| Indemnity Bonds | <input type="checkbox"/> |
| Valid time extension (wherever applicable) | <input type="checkbox"/> |
| Photographs of the site with date-time stamp | <input type="checkbox"/> |
| NOCs and plans | <input type="checkbox"/> |
| Receipts of all applicable fees and charges | <input type="checkbox"/> |
| Execution plans and their details of all facilities and services which have been developed as per sanctioned plan | <input type="checkbox"/> |

ANNEX O

(Clause 3.3.9.1, Table 4, Table 11)

CERTIFICATE FOR SUPERVISION OF WORK*(to be issued on appointed RBP (architect / engineer) letter head)*

This is to certify that development / redevelopment / construction / reconstruction / alteration of land / building (select as applicable) at.....

..... (*mention complete address*),

a) the building / structure has been constructed as per the structural design, structural drawings and details of the building submitted to you with the development / building permit number (*mention vide no*) dated (*mention relevant date*), and subsequent changes approved via letter

- (*mention vide no*) dated (*mention relevant date*)
- (*mention vide no*) dated (*mention relevant date*)
- (*mention vide no*) dated (*mention relevant date*)

b) the construction has been done under our supervision and guidance and records of supervision have been maintained.

Any subsequent changes from the completion drawings shall be the responsibility of the Applicant.

Signature of Applicant

Name:

Address:

Phone number:

Email:

Date:

Signature of registered Architect / Engineer / Structural Engineer / Supervisor / Town Planner / LandscapeArchitect / UrbanDesigner and registration no.

Name:

Address:

Phone number:

Email:

Date:

ANNEX P

(Clause 3.3.9.1, Table 4, Table 11)

CERTIFICATE FOR COMPLETED WORK BY BUILDING CONSTRUCTOR

(*to be issued on building constructor letter head*)

This is to certify that development / redevelopment / construction / reconstruction / alteration
(*select as applicable*) at

..... (*mention complete address*), has been

- a) executed by us according to the sanctioned plans, drawings and details issued to the site by the engineer / structural engineer / engineer for utility services (*insert name of RBP*); and
- b) completed with high level of workmanship observing due diligence and all the materials have been used strictly in accordance with the general and detailed specifications given in these regulations.

.....
Signature of Applicant

.....
Signature of building constructor or their representative

Name: Name:

Address: Address:

.....
Phone number: Phone number:

Email: Email:

Date: Date:

ANNEX Q
(Clause 3.3.11.1)
OCCUPANCY PERMIT
(to be issued on BO's letter head)

With reference to your application for development/redevelopment/construction/reconstruction/alteration (*select as applicable*) at
..... (*mention complete address*), completed under the supervision of the Registered Building Professional (RBP) (*mention name of RBP*), (*mention registration number of RBP*) has been inspected by me. The building can be permitted/not permitted (*select as applicable*) for (*mention activity or use of the building for which the occupancy permit is given*) use.

Occupancy Permit has been refused because of the reasons given below.

- 1.
- 2.
- 3.

One set of completion drawings duly certified is returned herewith.

(*insert office stamp*)

.....
Signature of the Building Official (BO)

Name of BO:

Address of BO:

.....
Email:

Phone number:

Date:
.....

ANNEX R

(Clause 3.3.13.1)

PART OCCUPANCY PERMIT

(to be issued on BO's letter head)

With reference to your application, development/redevelopment/construction/reconstruction/alteration (*select as applicable*) of (*mention completed parts of building*) at (*mention complete address*), partly completed under the supervision of the Registered Building Professional (RBP) (*mention name of RBP*), (*mention registration number of RBP*) has been inspected by me. The building can be permitted/not permitted (*select as applicable*) for part occupancy (*mention activity or use of the building for which the part occupancy permit is given*) use.

Part Occupancy has been refused because of the reasons given below.

- 1.
- 2.
- 3.

One set of completion drawings duly certified is returned herewith.

(*insert office stamp*)

.....
Signature of the Building Official (BO)

Name of BO:

Address of BO:

.....
Email:

Phone number:

Date:

ANNEX S
(Clause 3.6.5)
QUALITY ASSURANCE INSPECTION FORM

| | |
|-------------------------------------|--|
| Name of TPTAA Agency | |
| Date of Visit | |
| Current Visit No. | |
| Previous Visit No. with date | |

| SI No. | Particulars | Status | |
|----------------------------------|---|---------------|----------|
| A. PARTICULARS OF PROJECT | | | |
| 1. | Name of the State/UT | | |
| 2. | Name of the city | | |
| 3. | Name of the project | | |
| 4. | Project code | | |
| 5. | Implementing agency | | |
| 6. | Location of the project | | |
| 7. | Description of work a) Carpet/Built-up area (BUA) b) Number of units in one block c) Number of blocks d) Total number of units e) Type of structure f) Number of storeys/floors | | |
| 8. | Date of approval of project | | |
| 9. | Duration of project | | |
| 10. | Date of commencement | Scheduled | Actual |
| 11. | Date of completion | Scheduled | Expected |

| SI No. | Particulars | Status |
|---|---|---------------|
| | | |
| 12. | Inspection undertaken by (Name with contact details) | |
| 13. | Name of the representative of BO present during visit | |
| 14. | Name of building constructor's representative (where applicable) present during visit | |
| 15. | Name of community representative(where applicable) | |
| 16. | State any deviation from sanctioned Detailed Project Report (DPR) | |
| 17. | Compliance of tender conditions matching to statutory requirements of DPR with respect to <ul style="list-style-type: none"> a) Compliance to time limit b) Compliance to price escalation c) Compliance to legal clauses d) Compliance to liquidated damages e) Compliance to penalties | |
| 18. | Any other comment | |
| B. HEALTH AND SAFETY ASPECTS (ON - SITE) | | |
| 1. | Whether drinking water facility is provided on site? | |
| 2. | Whether there are adequate number of toilets provided and maintained for site staff/workers? | |
| 3. | Whether there is a board indicating the safety norms to be observed? | |
| 4. | Whether the use of following is being done by site staff <ul style="list-style-type: none"> a) Safety helmets b) Safety shoes | |

| SI No. | Particulars | Status |
|--------|--|--------|
| | c) Safety goggles d) Safety jackets, etc. | |
| 5. | Whether safety railings and safety tapes have been provided around excavation trenches/upper floors/ ducts/lift well? | |
| 6. | Whether approved quality and type of shoring-strutting-scaffolding are provided for excavation trenches/pits/building work? | |
| 7. | Whether 'first aid' kit is available at site? | |
| 8. | Whether fire extinguishers are available at site? | |
| 9. | Whether ' blasting ' is being done on site? If yes, whether necessary permissions have been obtained and required precautions have been taken for control blasting? | |
| 10. | Whether any safety-officer is employed? | |
| 11. | Any other comment | |

C. QUALITY ASSURANCE IN THE PROJECT

| | | |
|----|--|--|
| 1. | Whether authenticated copy of DPR, contract document, sanctioned plans, structural and service drawings and details, SDBR, and copies of specifications are available at site? | |
| 2. | Whether the inspection registers, site order book and quality control test registers are maintained at the site properly and endorsed by the RBP-in-charge? | |
| 3. | Whether list of ISI marked/approved materials to be used is available at site? | |
| 4. | Is there a provision in Contract/Tender to provide 'test facilities on site'? | |
| 5. | Whether testing facilities to check quality of material is available at site? if yes, attach list of equipment. | |

| SI No. | Particulars | Status |
|---------------|--|---------------|
| 6. | <ul style="list-style-type: none"> a) Whether the structural designs are approved/proof checked by the Authority? b) Name of the approving Authority for structural design. c) Whether the certificate for structural design sufficiency for disaster resistance design and compliance is endorsed by the structural engineer on the structural drawings, especially in case of multi-storeyed construction? d) Whether the work is being executed as per the approved drawings. | |
| 7. | Whether manufacturer's test certificate for cement, steel, pipes, etc have been obtained with supply, and records are being maintained? | |
| 8. | Whether all mandatory tests of construction material, road work, sanitary work, plumbing work, electrical work and concrete in foundations, beams, columns and slabs, etc. are carried out at stipulated frequency? | |
| 9. | Whether regular tests of materials and construction products are being got done from accredited labs also? If yes, details of such labs. | |
| 10. | Whether sub-surface investigation of the site have been done before the structural design and sub soil parameters have been accounted for in the structural design/drawings? If yes, attach copy of sub-surface investigation report. | |
| 11. | Whether centering/shuttering is checked for staging and propping, line and level, dimensions, cleaning, etc and its quality approved before each stage and record maintained. | |
| 12 | Specific control on RCC work like mixing by full bag capacity hopper fed mixer, control | |

| SI No. | Particulars | Status |
|---------------|---|---------------|
| | of slump, placing/ compaction with vibrator. (proportioning with boxes not permitted) | |
| 13. | Whether cement register is maintained and checked at site. Comment on method of stacking. | |
| 14. | Whether concrete mix is nominal or design mix? (Nominal mix not permitted for quality concrete). | |
| 15. | What is the mode of concrete mixing (batch mix/manual)? In case of manual mixing, whether mixing is by weight or by volume of ingredients? (volumetric mixing not permitted). | |
| 16. | Whether mixer/vibrator as specified is available at site with adequate means to run them during concreting? | |
| 17. | Whether RMC is being used in work? If yes, mention details of control and checks done at plant site. Comment on quality of aggregates, slump test, cube test etc. | |
| 18. | <p>Suitability of water for construction</p> <ul style="list-style-type: none"> a) Source of water b) Has water been tested and approved by RBP-in-charge before construction? c) Has water been tested subsequently as per the requirement? | |
| 19. | <p>Quality of work and workmanship:</p> <ul style="list-style-type: none"> a) RCC work (concrete, Reinforcement detailing, cover to reinforcement). Whether columns are in plumb (check for verticality) b) Masonry (joint details, verticality). Check adequate RCC bands are provided c) Shuttering (type of material-pucca/katcha, support spacing) | |

| Sl No. | Particulars | Status |
|---------------|---|---------------|
| | <p>d) Bar bending and stirrups bending, placement and cover to reinforcement bars</p> <p>e) Plastering</p> <p>f) Doors and windows</p> <p>g) Seepage, if any</p> <p>h) Cracks, if any</p> <p>i) Honey combing, if any</p> <p>Or any other</p> | |
| 20. | Whether floor slope (especially) in bath, WC, kitchen, terrace and balcony etc. are proper? | |
| 21. | Whether dampness/leakages noticed? If yes, state location and probable reasons. | |
| 22. | Whether remedial measures are undertaken to stop dampness and leakages? if any. | |
| 23. | Whether service lines (electrical, plumbing, others) if any, provided before commencement of concrete? | |
| 24. | Whether disaster resistant features have been incorporated? | |
| 25. | Whether precautions taken for dewatering and protecting site from flooding as applicable? | |
| 26. | Whether sample units/items are completed and approved by BO before start of mass finishing work? | |
| 27. | Whether adequate plinth height (above the general ground level) is provided to the ground floor of the building to avoid possibility of rainwater and reptiles in the building. | |
| 28. | Comments on tests already done but not found satisfactory (specify action to be taken) | |
| 29. | Frequency of visit by BO | |

| SI No. | Particulars | Status | |
|--|--|---------------------------|-----------------------|
| 30. | Any other comments | | |
| 31. | Overall assessment of quality (in view of structural stability, non-structural work and workmanship) * <i>video/photographs of the ongoing works maintained by the RBP may be referred.</i> | | |
| D. PROGRESS - BUILDING COMPONENTS | | | |
| 1. | Numbers of units sanctioned in the project | | |
| 2. | Numbers of units completed | | |
| 3. | Numbers of units in progress | | |
| 4. | Stages of progress: a) Foundation/plinth level b) Superstructure (framework) level c) Brickwork completed d) Finishing level e) Total units completed | (Specify number of units) | |
| 5. | Numbers of units not started | | |
| 6. | Reason for non-starter of units, if any | | |
| 7. | Numbers of units occupied | | |
| 8. | Reasons for non-occupation of units (If any) - specific reasons to be given | | |
| 9. | Size of unit (carpet area) | Sanctioned | As per Implementation |
| 10. | Overall physical progress of units (in percent) | | |
| 11. | Whether the building plan(s) conform to these regulations and part 4, part 6, part 7 and part 8 of NBC 2016? | | |
| 12. | Whether authenticated building plans and revisions if any, are available? | | |

| SI No. | Particulars | Status |
|---------------|---|---------------|
| 13. | Deviation, if any | |
| 14. | Any innovative/cost effective/green technology has been used? | |
| 15. | Any other comment | |

E. PROGRESS- CIVIC INFRASTRUCTURE COMPONENTS

| | | |
|----|--|--|
| 1. | Whether contract for infrastructure components (that is, water supply, sewerage, drainage, roads, SWM etc.) have been awarded? a) If no, timeline for award of contract for infrastructure works. b) If Yes, state the progress of work in percent i) Water supply ii) Sewerage iii) Drainage iv) Roads v) Solid waste management vi) Electrification vii) Any other component (as per sanctioned components) | |
| 2. | Deviation if any as per sanctioned DPR | |
| 3. | Comments on quality of construction of infrastructure works | |
| 4. | Whether the proposed infrastructure components are independent and/or integrated with city level infrastructure? | |
| 5. | Whether transit accommodation has been provided. If not, what measures have been taken for the displaced families? | |
| 6. | Overall physical progress of civic infrastructure (in percent) | |
| 7. | Cost reduction in infrastructure components (to be reported in case of deviation from sanctioned quantity) | |

| SI No. | Particulars | Status |
|---|--|-----------------------------|
| F. SOCIAL INFRASTRUCTURE COMPONENTS | | |
| 1. | Whether Contract for social amenities have been awarded? a) If no, timeline for award of contract for social amenities b) If Yes, state the progress of work | |
| 2. | Deviation if any as per sanctioned DPR | |
| 3. | Comments on quality of construction of social amenities | |
| 4. | Overall physical progress of social infrastructure (in percent) | |
| 5. | Overall physical progress of the project (in percent) | |
| G. PHYSICAL PROGRESS OF THE PROJECT/PACKAGES | | |
| 1. | Is there an approved program/schedule of work and whether the same is available at site office? | |
| 2. | Overall percent progress at the time of inspection vis-à-vis expected as per contract. | |
| 3. | Package wise percent of progress | (Attach package-wise Annex) |
| 4. | Details of milestones as per contract vis-à-vis their achievement | |
| 5. | Reasons for delay | |
| H. VARIATIONS | | |
| 1. | Are there any major variations because of: a) Specifications b) Quality c) Quantity d) Designs (architectural/structural) e) Period of construction (increase/decrease) | |

| Sl No. | Particulars | Status |
|---|--|--------|
| I. COST VARIATION and TIME-OVERRUNS | | |
| Cost variation: | | |
| 1. | Whether there is cost variation? | |
| 2. | If yes what are the reasons: a) Change in quantities b) New/Additional items of work c) Price escalation Any other (to be specified) | |
| Time Overruns: | | |
| 1. | Whether there is time overrun? | |
| 2. | If yes what are the reasons: a) Delay in issue of work order b) Delay in signing agreement c) Delay in handing over site of work to the Constructor d) Delay in actual start of work by the constructor e) Delay in procurement of material (give reasons) f) Delay due to lack of interdepartmental coordination Any other (to be specified) | |
| J. REMEDIAL MEASURES TO IMPROVE PROGRESS AND QUALITY | | |
| Undertaken by Implementation agency to improve the: | | |
| 1. | Physical progress | |
| 2. | Financial progress | |
| 3. | Quality management | |
| 4. | Comments and suggestions of TPTTA on above | |
| K. OTHERS | | |

| SI No. | Particulars | Status |
|---------------|--|---------------|
| 1. | <p>Overall observation on the project (with adequate photographs covering project to a large extent including quality issues as applicable)</p> <ul style="list-style-type: none"> a) Critical observations b) Action suggested by TPTTA | |
| 2. | <p>Action taken report on previous report:</p> <ul style="list-style-type: none"> a) Observations of TPTTA b) Action suggested by TPTTA c) Action taken by Implementation Agency d) Whether TPTTA is satisfied with the action | |
| 3. | TPTTA's Overview of the Project (in 400-500 words) in a separate sheet | |

ANNEX S-1

(Clause 3.6.5)

DETAILED QUALITY ASSURANCE INSPECTION FORM

| Sl. No. | Component | Whether in Progress (Yes/No) | Whether Inspected (Yes/No) | Comments |
|------------------------------------|--|---|---|-----------------|
| BUILDING WORK: | | | | |
| 1. | Earthwork | | | |
| 2. | Concrete work (Sub-structure/up to plinth) | | | |
| 3. | RCC work (Above plinth/super structure) | | | |
| 4. | Brick/Block work | | | |
| 5. | Stonework | | | |
| 6. | Marble work | | | |
| 7. | Woodwork | | | |
| 8. | Steel work | | | |
| 9. | Flooring | | | |
| 10. | Roofing | | | |
| 11. | Finishing | | | |
| 12. | Internal services | | | |
| 13. | External services | | | |
| CIVIC INFRASTRUCTURE WORKS: | | | | |
| a. Water supply | | | | |
| 1. | GSR/UGSR | | | |
| 2. | ELSR/OHT | | | |
| 3. | Intake-Jack-well | | | |
| 4. | WTP | | | |
| 5. | Pipelines | | | |

| Sl. No. | Component | Whether in Progress (Yes/No) | Whether Inspected (Yes/No) | Comments |
|-------------------------------|--|---|---|-----------------|
| 6. | Pump sets. | | | |
| 7. | Rainwater harvesting pits | | | |
| 8. | Sump | | | |
| 9. | Tube wells | | | |
| b. Sewerage | | | | |
| 1. | Sewer trap connect chamber | | | |
| 2. | Collection network pipes | | | |
| 3. | Inspection chambers | | | |
| 4. | Sewerage pump station (SPS) | | | |
| 5. | SPS to STP Pipeline | | | |
| 6. | STP | | | |
| 7. | Septic tank | | | |
| 8 | Soak-pit | | | |
| c. Storm water drains: | | | | |
| 1. | Drains | | | |
| 2. | Open channel | | | |
| 3. | Closed RCC Pipes | | | |
| 4. | In-situ RCC box-pipes | | | |
| 5. | Type of grating/ <i>Jali</i> | | | |
| 6. | Inspection chambers | | | |
| 7. | Point of disposal (<i>nallah</i> , canal, river, creek) | | | |
| d. Roads and culverts | | | | |
| 1. | Roads | | | |
| 2. | Pavements | | | |

| Sl. No. | Component | Whether in Progress (Yes/No) | Whether Inspected (Yes/No) | Comments |
|---|-----------------------------|---|---|-----------------|
| 3. | Jogging tracks | | | |
| 4. | Plantation | | | |
| 5. | Restoration | | | |
| 6. | Culverts (masonry/RCC) | | | |
| e. Electrification | | | | |
| 1. | H.T. supply lines | | | |
| 2. | L.T. supply lines | | | |
| 3. | Transformer | | | |
| 4. | Street lighting | | | |
| f. Solid waste management | | | | |
| 1. | S. W. collection system | | | |
| 2. | Dust bins/containers | | | |
| 3. | S. W. transport system | | | |
| 4. | Temp. store yards | | | |
| 5. | S.W. disposal area | | | |
| g. Compound wall | | | | |
| 1. | Compound/Boundary wall | | | |
| 2. | Entrance gate | | | |
| h. Miscellaneous | | | | |
| 1. | Retaining wall | | | |
| 2. | Any other (to be specified) | | | |
| REPORT ON SOCIAL INFRASTRUCTURE WORKS: | | | | |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |

ANNEX T

(Clause 3.7.1)

DEMOLITION PERMIT

(*to be issued on BO's letter head*)

With reference to your application, demolition at.....

.....
.... (*mention complete address*), completed under the supervision of the Registered Building Professional (RBP) (*mention name of RBP*),
..... (*mention registration number of RBP*) has been inspected by me.
The building can be permitted/not permitted (*select as applicable*) for demolition,

Demolition Permit has been refused because of the reasons given below.

- 1.
- 2.
- 3.

(*insert office stamp*)

.....
Signature of the Building Official (BO)

Name of BO:

Address of BO:

.....
Email:

Phone number:

Date:
.....

ANNEX U

(Clause 3.8.2.1)

SPECIMEN FORM FOR APPLICATION FOR PERMIT TO ERECT, RE-ERECT OR ALTER ADVERTISING SIGN

1. Type of sign _____
2. Location¹ _____
a) Building/premises _____
b) Location of building/premises with respect to neighbouring streets _____
3. Dimensions and details of the sign¹ _____
4. Materials used for different parts _____
5. Electrical and lighting details¹ _____
6. Structural details showing also supporting framework and anchorages¹ _____
7. Mode of operation _____

Name and address of the applicant

Name and address of the owner of the building/premises

Signature_____

Signature_____

Date_____

Date_____

¹ Plans as desired in ANNEX I and as per the format ANNEX V in case of hard copies are enclosed.

ANNEX V
(ANNEX U)

SPECIFICATIONS FOR COLOURING OF PLANS

All plans, whether prints or soft copies shall follow the colour connotations as specified in Table 12.

Table 12 Colouring of Plans

| SI No. | Item | Site Plan | Building Plan |
|---------------|--------------------------------|--------------------|----------------------|
| (1) | (2) | (3) | (4) |
| i) | Plot lines | Thick black | Thick black |
| ii) | Existing street | Green | - |
| iii) | Future street, if any | Green dotted | - |
| iv) | Permissible building lines | Thick dotted black | - |
| v) | Open spaces | No colour | No colour |
| vi) | Existing work | Black (outline) | Black |
| vii) | Work proposed to be demolished | Yellow hatched | Yellow hatched |
| viii) | Proposed work (see note 1) | Red filled in | Red |
| ix) | Drainage and sewerage work | Red dotted | Red dotted |
| x) | Water supply work | Black dotted thin | Black dotted thin |

NOTES –

(1) For entirely new construction this need not be done; this shall apply for extension of an existing work.

(2) For land development, subdivision/layout plan, suitable colouring notations shall be used which shall be indexed.

LAND DEVELOPMENT

Explanatory Note:

This chapter addresses various aspects related to land development or redevelopment in an area.

- 1) *It has been divided into three key sections- Land Use; Layout Plans; and Density.*
- 2) *The section 'Land Use' outlines classification of land use zones, some concerns regarding land development/redevelopment and buffer zones to be considered before development.*
- 3) *The section 'Layout Plans' shows indicative layout pattern and highlights other aspects related to such plans.*
- 4) *The section 'Density' recommends population densities for different development types.*
- 5) *Annex W covers aspects related to Compensatory FAR (CFAR), Transferable Development Rights (TDR) and Purchasable FAR.*
- 6) *The Authority shall prepare a detailed policy/regulation for providing the TDR to the owners of the plot, transfer procedure of TDR and utilization mechanism of TDR in its area of jurisdiction depending on the local conditions.*
- 7) *The few suggestive guidelines for TDR policy/regulation to be considered are provided as under:*
 - a) *TDR value in terms of FAR area to be determined and calculated for the donor plot based on permissible use and applicable FAR at the time of TDR application to the BO/Authority;*
 - b) *TDR value in terms of FAR area to be traded on the receiving plot(s) depending on the permissible use, applicable FAR and maximum permissibility;*
 - c) *extent of tradeable FAR to be utilized on the receiving plot(s);*
 - d) *prevailing circle rate of the collector (by the registration department) or the sector rate of the Authority, whichever is applicable, for the donor plot(s) and receiving plot(s); and*
 - e) *procedure of providing the DRC certificate.*

4 LAND DEVELOPMENT

4.1 Land Use

4.1.1 The Authority shall regulate land development through a set of land use zones, sub zones and associated core and support activities defined in the master plan and subsequently detailed in the zonal and layout plans. All plots shall be developed in conformity to the land use specified in the master plan. A list of land use classification is provided in Table 13.

Table 13 Classification of Land Use Zones and Sub Zones

| SI No. | Land Use Zones | Alpha Numeric Code | Land Use Sub Zones |
|--------|---------------------------------|--------------------|--|
| (1) | (2) | (3) | (4) |
| i) | Village abadi/Village extension | A-1 | Existing village abadi |
| | | A-2 | Proposed extension of village abadi |
| ii) | Built-up area | B-1 | Existing urban built-up area |
| iii) | Residential | R-1 | Low density |
| | | R-2 | Medium to high density |
| | | R-3 | High density |
| | | R-4 | Special residential areas such as Foreign mission, government housing colonies, etc. |
| iv) | Commercial | C-1 | Convenient or neighbourhood shopping centres |
| | | C-2 | Sector/local shopping centre |
| | | C-3 | Sub city centre/district centre |
| | | C-4 | Commercial Business District (CBD)/city centre |
| | | C-5 | Bazaar street and informal or weekly market |
| | | C-6 | Wholesale market/mandi/regulated market/terminal market/warehouse/logistic park/hubs |
| v) | Industrial | I-1 | Household and non-polluting industry |
| | | I-2 | Service and light industry |
| | | I-3 | Medium and heavy industry |

| SI No. | Land Use Zones | Alpha Numeric Code | Land Use Sub Zones |
|---------------|----------------------------------|---------------------------|---|
| (1) | (2) | (3) | (4) |
| | | I-4 | Hazardous/noxious industry |
| | | I-5 | Special industrial zone/Special Economic Zones (SEZ's)/industrial park |
| vi) | Utilities and services | U-1 | Distributive services such as Fire, Telecom etc. |
| | | U-2 | Security services |
| | | U-3 | Public services such as under-ground reservoir, Water Treatment Plant (WTP), Sewage Treatment Plant (STP) and Solid Waste Management (SWM). |
| | | U-4 | Energy generation and distribution services and power corridors |
| vii) | Public and semi-public | PS-1 | Government/semi-government/public offices |
| | | PS-2 | Corporate or other private offices |
| | | PS-3 | Education/research and health/medical institutions |
| | | PS-4 | Social, cultural and religious institutions |
| | | PS-5 | Information Technology (IT) city and IT park |
| | | PS-6 | Community facilities and other public buildings |
| | | PS-7 | Cremation and burial grounds |
| viii) | Mixed use | M-1 | Mixed residential use |
| | | M-2 | Mixed commercial use |
| | | M-3 | Mixed public/semi-public use |
| | | M-4 | Mixed industrial use |
| ix) | Transportation and communication | T-1 | Roads (elevated/flyovers/underpasses/cloverleafs/interchanges/traffic islands) |

| SI No. | Land Use Zones | Alpha Numeric Code | Land Use Sub Zones |
|---------------|---------------------------|---------------------------|---|
| (1) | (2) | (3) | (4) |
| | | T-2 | Railways (All railway lines, stations, junctions, terminals and depots) |
| | | T-3 | Multi Modal Transport (MMT) hubs/Transit-Oriented Development (TOD) areas/parking areas |
| | | T-4 | Bus terminal, truck terminal and bus depot |
| | | T-5 | Airport/heliport |
| | | T-6 | Seaports/dockyards |
| | | T-7 | Waterways |
| | | T-8 | Container depots/Integrated Freight Complexes (IFC) |
| | | T-9 | Ropeways |
| x) | Sports | S-1 | Stadium and sports complex |
| | | S-2 | Sports college, sports academy |
| | | S-3 | Sports city |
| | | S-4 | Adventure sports complexes |
| xi) | Recreational and green | RG-1 | Parks and playgrounds |
| | | RG-2 | Multipurpose open spaces (<i>Maidan</i>) |
| | | RG-3 | City forest and green belts |
| | | RG-4 | River front/Lakefront development |
| xii) | Environmentally sensitive | SA-1 | Forest/sanctuaries/national parks |
| | | SA-2 | Biodiversity park |
| | | SA-3 | Natural conservation zone |
| | | SA-4 | Eco-sensitive zone |
| | | SA-5 | Water bodies (riverstreams/lakes/canals/wetlands) |

| SI No. | Land Use Zones | Alpha Numeric Code | Land Use Sub Zones |
|---------------|---------------------------|---------------------------|---|
| (1) | (2) | (3) | (4) |
| | | SA-6 | River flood plains/mangroves |
| xiii) | Agriculture | PA-1 | Agriculture/horticulture/urban agriculture |
| | | PA-2 | Other primary activities |
| xiv) | Heritage and conservation | HC-1 | Heritage zone/heritage village |
| | | HC-2 | Heritage buildings/structures |
| xv) | Special development | SD-1 | Aero-city, integrated industrial townships, hi-tech township, free trade zone, theme-based development areas, Coastal Regulation Zone (CRZ) , government restricted or protected areas, etc. |

4.1.1.1 Any development/redevelopment activity shall be in consonance with the Master Plan.

4.1.2 Subsequent to the master plan, the Authority shall prepare detailed plans for the development of physical infrastructure such as roads, drainage, sewerage, water supply, electricity, waste management, parks and open spaces, etc. The Authority should also demarcate the master plan into distinct fire zones in accordance with **7.3** of these regulations. Infrastructure for fire services shall be planned in consultation with the fire service department.

4.1.3 The Authority, while developing the land use plan, shall conduct a Multi-Hazard Risk and Vulnerability Assessment (MHRVA) of the area. This study shall encompass the calculation of risk arising from various potential hazards within the region and geotechnical, geophysical, and hydrological studies to gain a holistic understanding of the region's vulnerabilities. Areas with sharp and deep slopes, cliffs, major drainage, water channels, river flood plains, mangroves, wetlands, high tides, mining activities, and adjacent to active fault lines, which are prone to erosion, landslides, avalanches, floods, waterlogging, and other environment hazards shall not be proposed for habitation. In case any development is proposed in such areas, it shall only be done after due assessment of likely impact on environment. In addition, the following conditions shall apply:

- a) In waterlogged areas, such activity shall be proposed only after reclamation of land;
- b) In slopes, such activity can be proposed only if the natural slope of the proposed area, without cut and fill, is less than 30°.
- c) Only parks and playgrounds shall be permitted at reclaimed landfill sites.

- d) No habitation shall be proposed within 500 m of landfill sites ².
- e) River flood plains, mangroves, wetlands and water bodies including Nallahs/trunk drains shall be protected by a green buffer as given below -
 - i) River flood plains – 200 m from HFL
 - ii) Lakes and wetlands – 50 m
 - iii) Other water bodies including nallahs/trunk drains (mostly within city limits) – 30 m
- f) Areas left out after mining activity in the form of open pits shall be used only for water storage or water recharging.
- g) Mining areas if used as landfill sites, may be converted only as green areas in the form of park and playgrounds/greenbelts after proper landfill treatment.

4.1.4 Environmentally sensitive areas, heritage and conservation areas shall be identified, and the Authority shall make policies for the protection, conservation and development of these areas.

4.1.5 Land use plans shall target compact development ensuring better utilization of land resources and minimize trip generated by motorized vehicles. Public transport and non-motorized transport (pedestrian and cyclists) modes shall be encouraged in land use plan proposals.

4.1.5.1 Authorities may consider utilizing land resource mobilization tools as described in **ANNEX W**.

4.1.6 The Authority shall target to achieve efficient management of growth and land development by integrating urban and rural realms into the same framework for land use planning.

4.1.7 Master plans should encourage use of urban agriculture like green roofs, neighbourhood and community farms, vertical/stack farming or large farm operations, within the greenbelts of planned urban areas.

4.1.8 The buffer zones as specified in Table 14 shall be applicable for all master plans.

² Manual of Municipal Solid waste management, MoHUA and Solid Waste Management (SWM) Rules, 2016 as amended from time to time

Table 14 Buffer Zones for Development

| Sl No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|---------------|-------------------------|--|---|
| (1) | (2) | (3) | (4) |
| i) | Eco-Sensitive Zones | Guidelines for declaration of Eco-Sensitive Zones around national parks and wildlife sanctuaries, MoEF, 2011 | <ul style="list-style-type: none"> a) Delineation of eco-sensitive zones are site-specific, however, as a general principle, the width of this zone could go up to 10 km around the protected areas. b) In case where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are even beyond 10 km width, these should be included in the Eco-sensitive Zone. |
| ii) | Railway Land | Para 827 of the Indian Railways Works Manual, Government of India, 2000 | A 30 m buffer between the railway boundary and the nearest edge of a building constructed on adjacent land shall be left, the exact space to be left being governed by local conditions. |
| iii) | Aerodrome | Ministry of Civil Aviation (Height Restrictions for Safeguarding of Aircraft Operations) Rules, 2015 | <p>The buffer zone is applicable within 20 km radius of Airport on the height of the buildings, for which NOC is required from AAI for any construction activity.</p> <ul style="list-style-type: none"> a) Aviation imposes height restrictions only. b) The airport should be 20 km away from green area such as wildlife sanctuaries/zos/bird sanctuaries and should not have restricted activities such as butcheries, sewage and no garbage storage around airports. |
| iv) | Industrial Area/SEZ | Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2014. Ministry of Urban Development | In sensitive areas such as forests, mangroves, coral reefs, archeologically important systems, sensitive ecosystems, etc, SEZs shall not be planned. A buffer zone of 1000 m shall be maintained from such sensitive areas and a greenbelt with tree density of 1000 trees/acre shall be developed in the said buffer zone. |

| SI No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|---------------|----------------------------------|---|---|
| (1) | (2) | (3) | (4) |
| v) | Mining and Quarrying | Proforma for Environmental Appraisal of Mining Projects, MoEFCC | <p>Buffer zone in case of Mining Lease (ML) area, is to be considered as:</p> <ul style="list-style-type: none"> a) 5 km all around the periphery of the core zone for ML area up to 25 ha. b) 10 km all around the periphery of the core zone for ML area above 25 ha. |
| vi) | Petrochemical and Gas Industries | The Petroleum and Natural Gas Rules, 1959 | <ul style="list-style-type: none"> a) Gas pipeline shall not be located within 15 m of any private dwelling or any industrial building or place of public assembly, unless it is provided with at least 300 mm of cover over the pipeline as specified in Petroleum And Natural Gas Regulatory Board Notification, 2009, as amended from time to time. b) Gas or oil well shall not be drilled at any point, within a minimum distance, as prescribed by the Central Government, of any railway, pipeline or other right of way, surveyed road, dwellings, industrial plant, air-craft runway, buildings used for military or public purposes, or within 3 km of any mine, whether active or abandoned, unless the special permission of the Central Government is obtained in advance. c) About 90 m x 90 m buffer shall be maintained along the active oil wells, petroleum storage tanks, encompassing all the safety norms for precautions against fire. |
| vii) | Heritage Related | Ancient Monuments and Archeological Sites and Remains Act, 2010 (AMASR) | Every area, beginning at the limit of the protected area/monument, extending to 100 m in all directions shall be the prohibited area and extending up to 200 |

| Sl No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|---------------|--|--|---|
| (1) | (2) | (3) | (4) |
| | | | m in all directions shall be regulated area. In case of World Heritage Sites, this buffer zone shall be of 1000 m. |
| viii) | Natural Hazard Zones such As River Flood Plains And Water Bodies, Wetlands, etc. | National Disaster Management Guidelines-Management of floods, NDMA | <ul style="list-style-type: none"> a) The area likely to be affected by floods up to a 10-year frequency may be kept reserved only for gardens, parks, playgrounds, etc. Residential or public buildings, or any commercial buildings, industries, and public utilities shall be prohibited in this zone. b) In an area liable to flooding in a 25-year frequency flood, residential buildings may be permitted with certain stipulation of construction on stilts (columns), minimum plinth levels, prohibition for construction of basements and minimum levels of approach roads, etc. |
| ix) | Coastal Regulation Zone (CRZ) | Guidelines for updation of Coastal Zone Management Plan (CZMP) prepared as per CRZ notification, 2011 to be aligned with CRZ notification, 2019. | Buffer zones in/around CRZ shall be based on the classification of CRZ as specified in the guidelines. |
| x) | Nuclear Plants | URDPFI Guidelines, 2014. Ministry of Urban Development; National Disaster Management Guidelines- Chemical Disasters (Industrial) NDMA | <ul style="list-style-type: none"> a) 500 ha of buffer shall be an exclusion zone all around the power station and shall be maintained as a vacant space and developed as a green belt area. b) The area within 5 km radius of the plant shall be designated as sterilized zone. No restriction shall be imposed by the plant on organic development activities of population in the annulus between 1.50 and 5 km. Administrative actions shall |

| SI No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|---------------|-------------------------------------|---|--|
| (1) | (2) | (3) | (4) |
| | | | <p>ensure that there is no influx of large population in this area.</p> <p>c) Population Restriction:</p> <ul style="list-style-type: none"> i) Population density within 10 km radius of the plant shall be less than two-third of state average; ii) Population within sterilised zone shall be less than 20,000; iii) Population centres above 10,000 persons shall be more than 10 km away from the plant; and iv) Population centres above 1,00,000 persons shall be more than 30 km away from the plant. |
| xi) | Electric Line | Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010 | A green corridor shall be proposed along the existing and proposed High Tension (HT) lines with the provision of a service road. Master plan may also propose power line corridors for urban areas and no other development and building construction activities/uses shall be proposed in these power corridors. |
| xii) | Burial/Cremation Grounds | | Habitation shall not be proposed within 90 m distance from burial or cremation grounds. This 90 m wide area may be proposed for parks, playgrounds and service utilities. |
| xiii) | Defence/Firing Range Establishments | 'The Work of Defence Act, 1903', 'The Civil Defence Act, 1968' and 'The Cantonments Act, 2006' | The land use for urban activities and restrictions for building construction near the defence establishment/area and fire range shall be in accordance with the provisions mentioned in these acts and guidelines. |
| xiv) | Government Buildings | - | The plan shall clearly demarcate the security zone for high importance government establishments and |

| SI No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|---------------|---|---|---|
| (1) | (2) | (3) | (4) |
| | With High Importance | | buildings, as and where required. A low-rise development (not exceeding 10 m in height) shall be proposed within 200 m radius from the security zone or high importance government establishments/buildings. |
| xv) | International Border/Line of Control (LoC)/Line of Actual Control (LAC) | - | Security buffer zones of minimum 500 m width shall be prescribed all along the international border/LoC/LAC and no land use for urban/rural development activities shall be proposed near of this zone. The local authority may take an appropriate decision in this regard in consultation with the security forces in the area. |
| xvi) | Industrial Zones | - | Industrial zones shall have a minimum 30 m wide green belt separating industrial zones from residential areas |
| xvii) | Prisons | Model Prison Manual, 2016 | There shall be no building construction within the 100 m of the boundary wall of the prison. |
| xviii) | Landfill Site | MoEFCC rules and notifications, as applicable for various types of landfill sites | As per the norms for different types of landfill sites |
| xix) | Fault Line | | 20 m on both sides of the fault line. However, the local authority may decide wider buffer area along the active fault lines in Seismic Zones IV and V. Lifeline and emergency buildings such as hospitals, telecommunication buildings, bus stations, railway stations/buildings, airports, ports, food storage, power stations, fuel stations, fire stations, etc should be avoided within 1 to 3 km area of the fault line. |
| xx) | Highways | | Buffer as given below shall be provided on both sides of the highways in non-urbanizable areas: |

| Sl No. | Development Type | Guideline/Manual/Notification | Buffer Zones as per the Guidelines/Manual/Notification (Subject to Amendment from Time to Time) |
|--------|------------------|-------------------------------|---|
| (1) | (2) | (3) | (4) |
| | | | a) Expressways – 100 m b) National Highways – 50 m c) State Highways – 30 m |

4.2 Layout Plans

4.2.1 Layout plan shall provide all details as per **ANNEX I** of these regulations.

4.2.2 Setbacks, open spaces/landscape, means of access, FAR, ground coverage, building height, parking and proposed land use shall be provided for each site/plot as per Chapter 5 ‘Development and Building Controls’ of these regulations.

4.2.3 For plots more than 3000 m² an indicative layout pattern is provided in Figure 11.

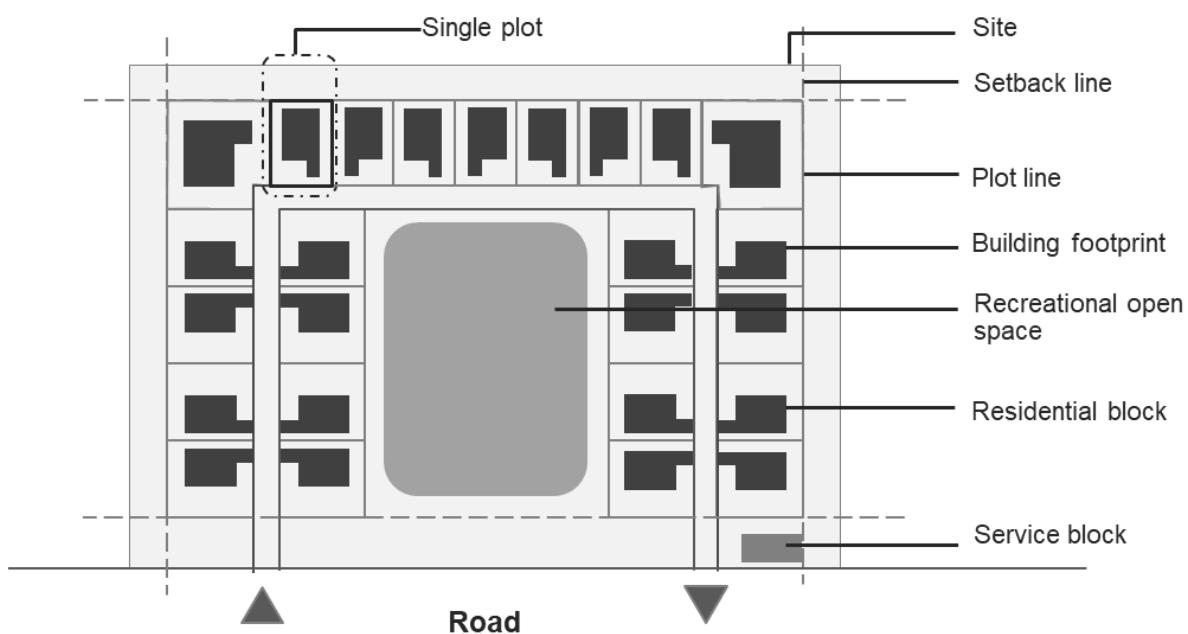


Figure 11 Typical Layout for Plots with Area More than 3000 m²

4.2.4 For single plots, a sample layout pattern is provided in Figure 12.

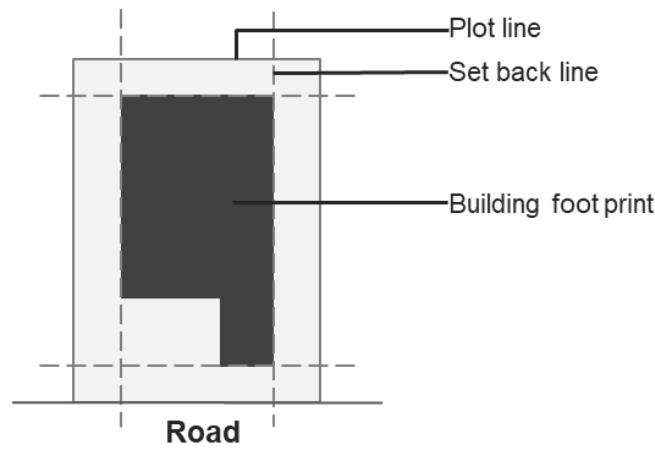


Figure 12 Typical Layout for a Single Plot

4.3 Density

4.3.1 Recommended population densities for different settlement types are specified in Table 15.

Table 15 Population Density for Different Settlements

| SI No. | Population Range | Population Density in Persons Per Hectare (pph) |
|--------|------------------------|---|
| (1) | (2) | (3) |
| i) | Up to 50,000 | 75-125 |
| ii) | 50,001- 5,00,000 | 100-150 |
| iii) | 5,00,001- 10,00,000 | 125-175 |
| iv) | 10,00,001- 1,00,00,000 | 125-175 |
| v) | More than 1,00,00,000 | More than 200 |

ANNEX W

(Clause 4.1.5.1)

RESOURCE MOBILIZATION FOR LAND DEVELOPMENT

A-1 Compensatory Floor Area Ratio (CFAR) A-1.1 CFAR may be provided by the Authority to the landowner in lieu of land parcel, which is to be acquired partly or fully for the following public purposes:

- a) development and construction of roads, drains, traffic and transport infrastructure;
- b) laying of service utilities such as water supply line, sewer lines, communication lines, electric lines, gas lines, etc;
- c) development of greenbelts and public parks/playgrounds; and
- d) any other infrastructure services as decided by the Authority.

A-1.2 CFAR shall not be permitted for land being acquired by the Authority for green/open spaces, roads and roadway infrastructure, public facilities and other utilities as per the already sanctioned master plan/zonal plan.

A-1.3 The Authority shall notify areas where CFAR shall not be allowed based on the existing status of the built environment, infrastructure and land use development policies of the master plan/zonal plan.

A-1.4 The Authority may provide CFAR either in the remaining part of the same plot or on other plot as per the requirements.

A-1.5 CFAR is not tradeable.

A-1.6 If CFAR is provided on the remaining part of the same plot, the following conditions shall apply:

- a) In case where a part of the plot is transferred to the Authority, the owner may be allowed to use the permissible FAR and ground coverage of the total plot on rest of the plot.
- b) If the land use in a portion of the plot is under transportation, greenbelt, park and/or playground, where FAR is less than 1.0 or FAR and ground coverage is not permissible, that portion of the plot shall be transferred to the Authority. The owner shall be allowed FAR of 1.0 for the transferred land in the form of CFAR on the other remaining plot(s).
- c) In both the above cases, the land use of remaining plot shall not change.
- d) The additional FAR shall not exceed 25 percent of the permissible FAR on the remaining plot.
- e) In case the land use of the remaining plot is proposed for more than one multiple use in the master/zonal plan, the CFAR shall be divided proportionately.

A-1.7 If CFAR is provided on the other plot, then following conditions shall apply:

- a) In case where it is not possible to use the CFAR on the same plot, the Authority may allow the owner to use permissible FAR of the transferred plot on other receiving plot(s) in part or in full for the same land use.
- b) If land use of the transferred land as per master plan/zonal plan is under transport, greenbelt, park and/or playground, where FAR is less than 1.0 or FAR and ground coverage is not permissible, the owner shall be allowed FAR of 1.0 for the transferred land in the form of CFAR on the other receiving plot(s).

- c) In both the above cases, the land use of receiving plot shall not change, and the total FAR shall not exceed 1.50 times the permissible FAR on the remaining plot.

A-1.8 The Authority shall ensure compliance of the provisions of RERA Act, Apartment Act and other relevant acts as amended from time to time, and as and where required while permitting the utilization of CFAR.

A-2 Transferable Development Rights (TDR)

A-2.1 The FAR credits under TDR shall be issued by the BO in the form of a certificate called Development Right Certificate (DRC). DRC shall be issued by the Authority to the owner/applicant only after surrender of a plot in a part or full, as required. The DRC shall contain the following information:

- a) the FAR credit in m² of the built-up area (as calculated for FAR and permissible use) to which the owner is entitled. The FAR credits shall have the accuracy up to two decimal places;
- b) plot location, area and permissible use from which the DRC is generated (donor plot);
- c) plot location, area and permissible use where the FAR credits issued for TDR shall be used (receiving plot);
- d) the maximum validity (which shall not be more than 10 years); and
- e) details of development rights transferred and remaining.

A-2.1.1 The DRC is transferrable in full or part thereof.

A-2.2 The owner of a plot may surrender their plot in part or full to the Authority for the following purposes:

- a) development and construction of roads and roadway infrastructure, public utility and amenities;
- b) development of greenbelt, parks and playground and other open spaces as prescribed in the master plan/zonal plan;
- c) unutilized FAR of any heritage site;
- d) development of low income housing; and
- e) any other public purpose duly approved and notified by the state/central government.

NOTE — DRC shall not be granted for activities/uses as prescribed in regulation **A-2.2 (a) and (b)** in any sanctioned layout plan of plotted development.

A-2.3 TDR shall not be permissible in the following circumstances:

- a) for earlier land acquisition or development for which compensation has been already paid partly or fully by any means;
- b) where award of land has already been declared and which is valid under the Land Acquisition Act, 1894 or the Right to Fair Compensation & Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 unless lands are withdrawn from the award by the Appropriate Authority according to the provisions of the relevant Acts;
- c) if the compensation in the form of FAR has already been granted to the owner/applicant;
- d) in cases where layout has already been sanctioned prior to these Regulations and layout roads are incorporated as Development Plan roads;

- e) where lawful possession by mutual agreement/or contract has been taken; and
- f) for existing *Nallah*, natural water bodies such as rivers, streams, ponds, lake and tank, etc.

A-2.4 Mechanisms for TDR

A-2.4.1 For Construction— If the Authority has acquired a land from the owner in a portion or full in the form of TDR, they may grant transfer or sell construction rights to the owner of a plot.

A-2.4.2 For Conservation— The Authority shall be responsible for using TDR to control and distribute development across the urban areas within the urban boundaries for the conservation of heritage and natural conservation areas as provided in master/zonal plan. The Authority shall permit an area equivalent to FAR of 1.0 for heritage and natural conservation areas to be tradable for residential purpose on other residential plots.

A-2.5 Stages of TDR

A-2.5.1 The first stage includes generation of FAR credits in the form of CFAR where the owner surrenders a portion of plot or the whole plot to the Authority without any monetary compensation and free from encumbrances. This plot becomes the donor plot and may have more than one land use proposed in the master/zonal plan.

A-2.5.2 The second stage includes utilization of these FAR credits on a different plot over and above the usual FAR available for receiving plot in accordance with the prevailing building regulations. The utilization of TDR shall be calculated as per the following formula:

$$\text{Permissible utilization of TDR} = \frac{\text{Land Rate of Donor Plot (per } m^2\text{)}}{\text{Land Rate of Receiving Plot (per } m^2\text{)}} \times \text{FAR credits as per DRC in } m^2$$

NOTE — To understand TDR utilization between plots with different land rate, see A-2.7.

A-2.5.3 The FAR credits to be issued for TDR of a particular plot shall be determined on the basis of prevailing circle rate as notified by the collector or the sector rate of the Authority, whichever is applicable.

A-2.5.4 The total FAR on the receiving plot shall not exceed 1.50 times the permissible FAR.

A-2.6 TDR utilization

A-2.6.1 The Authority shall be responsible for the rate of FAR credit generation, land use restriction, land rates and time limitation for withholding TDR.

A-2.6.2 The Authority shall maintain a transparent inventory of available plots as well as traded DRCs of receiving and donor plots for TDR.

A-2.6.3 FAR credits generated from roadway infrastructure, green/open spaces, natural conservation areas and other public utilities shall be used only for residential use.

A-2.6.4 FAR credits generated from other land uses shall be used for the same land use permissible in other areas/on other plots.

A-2.6.5 Utilization of TDR shall not be permitted on receiving plots which are:

- a) areas in special development zones;
- b) on housing scheme plots for slum dwellers for which CFAR is permissible;
- c) areas where the FAR is less than 1.0;
- d) plot(s) permitted for purchasable FAR;
- e) greenbelts, natural protected areas, CRZs, water bodies; and

- f) areas having developmental prohibition or restrictions imposed by any notification issued under the provisions of any central/state Acts.

A-2.7 Example for TDR utilization: Lateral transfer of land from one plot(s) to another plot(s)

In case a portion of 100.00 m² from plot A under residential land use zone is acquired by the Authority for road or roadway infrastructure expansion, the owner shall be eligible to receive FAR credits for TDR if the Authority has designated Plot A as a donor plot. The owner can transfer/sell the development right to another residential land use plot B designated as a receiving plot by the Authority within its jurisdiction. The utilization credits transferred from donor plot to receiving plot shall vary based on difference in the land rates. Considering the land rates of plot A and plot B are ₹ 1000 per m² and ₹ 500 per m² respectively, thus, the amount of land transferred from plot A to B as per the utilization formula shall be:

$$\text{Permissible Utilization of TDR} = \frac{\text{Land Rate of Donor Plot (per m}^2\text{)}}{\text{Land Rate of Receiving Plot (per m}^2\text{)}} \times \text{FAR credits in m}^2 \text{ as per DRC}$$

$$\text{Therefore, TDR} = \frac{1000}{500} \times 100.00$$

$$\text{TDR} = 200.00 \text{ m}^2$$

A-3 Purchasable FAR

A-3.1 The Authority shall notify areas where purchasable FAR may be permitted on plots of different land uses based on the status of traffic density, width of road, availability of physical infrastructure, distance from the protected area, heritage sites, planned population density and urban design considerations. The Authority shall notify the permissible FAR and the maximum extent of Purchasable FAR separately for different land uses.

A-3.2 Purchasable FAR is an enabling provision and shall not be permitted to any applicant as a matter of right.

A-3.3 Purchasable FAR shall not be permitted on an occupied building.

A-3.4 Purchasable FAR for any use shall be permitted only on plots abutting to 24 m wide roads or more.

A-3.5 Purchasable FAR shall be permitted to the Applicant only in the following cases:

- a) on a vacant plot; or
- b) on a plot where construction is yet to begin as per the sanctioned building plan; or
- c) to construct a new additional building(s) within the limits of permissible ground coverage; or
- d) to construct additional floors(s), in cases where building structure was originally designed for additional FAR but permission was obtained for reduced FAR.

A-3.6 The BO shall not permit or compound any construction beyond the limit of purchasable FAR. They shall ensure demolition and removal of extra construction, if any, before considering the permission of purchasable FAR.

A-3.7 The BO shall ensure compliance of the provisions of RERA, Apartment Act and other relevant acts as amended from time to time, as and where required and while permitting the purchasable FAR.

A-3.8 Purchasable FAR shall be permitted with the following conditions:

- a) Construction shall not be permitted beyond the maximum permissible ground coverage limit.

- b) Additional parking facility equivalent to the purchasable FAR shall be provided as per the provisions of these regulations.
- c) Increase in the building height shall be within the limit of permissible height.
- d) Technical feasibility shall be duly checked and verified by registered structural engineer and a response shall be submitted to the Authority along with the proposal of purchasable FAR.
- e) BO shall obtain an assessment report from the engineer in charge of the Authority for planned and available physical infrastructure.
- f) Use of purchasable FAR shall be governed by the terms and conditions of applicable lease deed and there shall not be any change in the permissible use.
- g) Additional proportionate residential units may be permitted on the purchasable FAR for group housing.

A-3.9 The applicant shall submit an application for revised building plans, as per **3.3.1.1** of these regulations.

A-3.10 Purchasable FAR shall not be permitted in the following cases:

- a) unitary residential buildings or plotted development;
- b) industrial and commercial land use requiring storage and handling of hazardous materials;
- c) land under greenbelt, parks and playgrounds; and
- d) lands under agricultural and reservation zones.

A-3.11 Calculation Method for the Rate of Charges of Purchasable FAR

Rate assessment for purchasable FAR shall be calculated in proportion to the land requirement for the additional covered area. The fraction of land value shall be charged from the applicant based on the following formula:

$$C = Le \times Rc \times P$$

where,

C = Charge;

Le = Proportionate land required against purchasable FAR, that is $(F_p \times 100)/FAR$.

F_p = Allowed additional covered area as per purchasable FAR in m²;

FAR = Sum of Permissible Floor Area Ratio and Purchasable FAR as per these regulations.

Rc = Prevailing sector rate or allotment rate of related plot, whichever is higher.

P = Value of purchasable factor for different land uses which shall be as given below:

| | |
|-------------------------------------|------|
| Group Housing | 0.40 |
| Commercial | 0.60 |
| Institutional /Institutional green* | 0.30 |
| Industrial | 0.30 |
| Green/sport/recreational Areas | 0.20 |

NOTE —The Authority may decide a different value of purchasable factor for a specific permissible use

DEVELOPMENT AND BUILDING CONTROLS

Explanatory Note:

- 1) *The chapter is structured in eight key sections, that is, means of access; approach to a building/amenity; setbacks; FAR, ground coverage, and building heights; subdivision and amalgamation of plots in approved layout plan; open spaces; off-street parking facilities and urban design features.*
- 2) *The regulations are applicable primarily basis the land use classification (as given in Chapter 4 of these Standardized Regulations), type of development, etc.*
- 3) *Development control regulations are relevant to both layouts/plots as well as buildings.*
- 4) *Provisions regarding setbacks, ground coverage and FAR are recommendatory and the State/local governments may modify the same based on local conditions and requirements like population densities, parking, traffic load, services, availability of fire fighting facilities etc.*

5 DEVELOPMENT AND BUILDING CONTROLS

5.1 Means of Access

5.1.1 Every plot/building shall abut a duly formed public/private means of access, that is a road/street free from all encumbrances and obstructions.

5.1.2 Every person who erects a building shall not at any time erect or cause or permit to erect any building which in any way encroaches upon or diminishes the area set apart as means of access required in accordance with these regulations. No buildings shall be erected so as to deprive any other building of the means of access.

5.1.3 Means of access shall be

- a) levelled, metalled, flagged, paved and well-lit;
- b) lighted and properly maintained;
- c) laid with water supply line;
- d) shaded, if required;
- e) well drained and channelled to prevent water logging and flooding; and
- f) free from any other use, in compliance with the fire and life safety regulations.

5.1.4 The minimum Right of Way (RoW) requirements for means of access are specified in Table 16.

Table 16 Minimum RoW for Different Types of Developments

| SI No. | Type of Development | RoW, Min (m) |
|--------|----------------------------|--------------|
| (1) | (2) | (3) |
| i) | Residential plotted | 9 |
| ii) | Low rise group housing | 12 |
| iii) | High rise group housing | 24 |
| iv) | Other land use (low rise) | 12 |
| v) | Other land use (high rise) | 18 |
| vi) | Mixed use | 24 |

NOTES

1. A development layout shall have minimum two entry/exit roads.
2. Minimum RoW for residential may be 6 m, incase the area of the layout plot is less than 3000 sqm.

5.1.5 In case of a land-locked plot, the owner may require access through an adjoining plot or plots which shall be nearest to the public street. The owner of the land locked plot is entitled to a right of way from other plot under the Indian Easement Act, 1882, as amended from time to time.

5.1.6 Plots which do not abut on a street/road as specified in **5.1.4** of these regulations, shall abut/front on a means of access, the width and other requirements of which shall be as given in Table 17.

Table 17 Width and Length of Means of Access for All Plots

| SI No. | Minimum Width (m) | Length of Means of Access for Residential Plots (m) | Length of Means of Access for Other Plots (m) |
|---------------|--------------------------|--|--|
| (1) | (2) | (3) | (4) |
| i) | 6.00 | Up to 75 | - |
| ii) | 7.50 | Up to 150 | - |
| iii) | 9.00 | Up to 200 | - |
| iv) | 12.00 | Up to 400 | Up to 200 |
| v) | 15.00 | Up to 600 | Up to 400 |
| vi) | 18.00 | Up to 1,000 | Up to 600 |
| vii) | 24.00 | above 1,000 | Above 600 |

NOTE — If development is only on one side of the means of access, the prescribed widths may be reduced by one metre in each case. In no case, the means of access for a plot shall be lesser in width than the internal means of access provided in the layout.

5.1.7 Access from Highways/Arterial Roads

5.1.7.1 Direct access from highways or roads greater than 52 m in width shall be permitted only for highway amenities like petrol pumps, motels, trauma centres, highway patrol car parking, law enforcement stations and helpline booths. Such roads shall be clearly identified in the master plan/zonal plan in accordance with the provisions of the relevant State Highway Act, and The National Highway Act, 1956 as amended from time to time.

5.1.7.2 For all other buildings, the access to the plot from the highway shall be only through a service road/lane as per the stipulation of the highway authority.

5.1.7.3 Parking spaces shall be provided for ambulance and highway patrol cars at the petrol station located on highways.

5.1.8 For high rise buildings and special buildings, the following provisions shall apply:

- a) The road shall not terminate in a dead end; except in the case of residential buildings, up to a height of 30 m.
- b) The approach to the building and open spaces on all its sides shall be minimum 6 m in width with a turning radius of minimum 9 m for movement of fire tenders weighing up to 45 t. The same shall be hard surface capable of taking the mass of fire tender, weighing up to 45 t. For heavier fire tenders, the minimum width, turning radius and the hard surface capable of taking the fire tender loads shall be as per the requirement laid down by the fire department. The layout for the open space for fire tender movement shall be done in consultation with the Chief Fire Officer of the city, which shall be kept free of obstructions and shall be motorable. This open space around the building shall not be used for parking.
- c) The main entrance to the plot shall allow easy access to the fire engine and shall be minimum 6 m wide with a vertical clearance of 5 m. The entrance gate shall

fold back against the compound wall of the premises, thus leaving the exterior accessway within the plot free for movement of fire tender.

5.1.9 *Intersection of Roads*

5.1.9.1 For road intersections and junctions, the rounding off or cut off treatment shall be done at the corners depending upon the width of roads, the traffic generated and the sighting angle to provide clear sight distance.

5.1.9.2 The intersection shall be universally accessible, and the design shall reduce the number and severity of potential conflicts between cars, buses, trucks, bicycles and pedestrians.

5.1.10 For easy turning of vehicles, cul-de-sac may be permitted only in residential areas provided the following conditions are met:

- It is a straight road.
- End of the cul-de-sac shall be higher in level than the level of its starting point.
- The turning space of cul-de-sac shall not be less than 81 m^2 in area.

NOTE— On a road with minimum width of 9 m and length 50-200 m, the cul-de-sac shall be measured from the centreline of the intersecting street to the centre of cul-de-sac as shown in Figure 12.

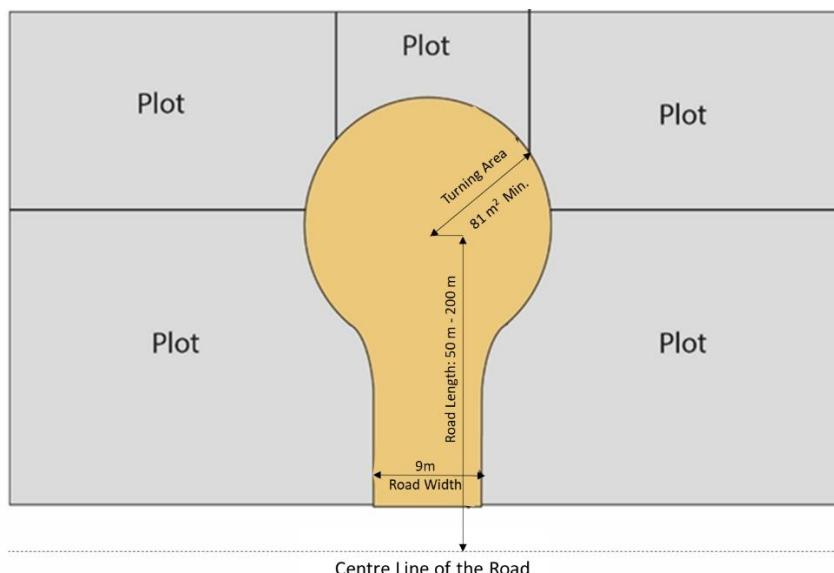


Figure 13 Typical Representation of Cul-de-sac

5.1.11 Relaying and resurfacing of road shall be done only after removing the existing layer so that the road height is maintained.

5.1.12 *Footpaths*

5.1.12.1 The minimum width of a footpath shall be in accordance with Table 18 below with a clear headroom of 2.20 m.

Table 18 Minimum Footpath Width

| SI No. | Type of Development | Minimum Width (m) |
|--------|---------------------|-------------------|
| (1) | (2) | (3) |
| i) | Residential areas | 1.80 |

| SI No. | Type of Development | Minimum Width (m) |
|--------|---|-------------------|
| (1) | (2) | (3) |
| ii) | Commercial/mixed use areas | 2.50 |
| iii) | Commercial/mixed use with shopping frontages | 4.00 |
| iv) | Bus stops | 3.00 |
| v) | Other developments (institution, industry, etc) | 3.50 |

5.1.12.2 The footpath shall be clear of all obstructions, both horizontal and vertical, as also shown in Figure 14. These will also include kiosks, bus stops, utility ducts, utility poles, electric, water or telecom boxes, trees, street furniture or signage etc.

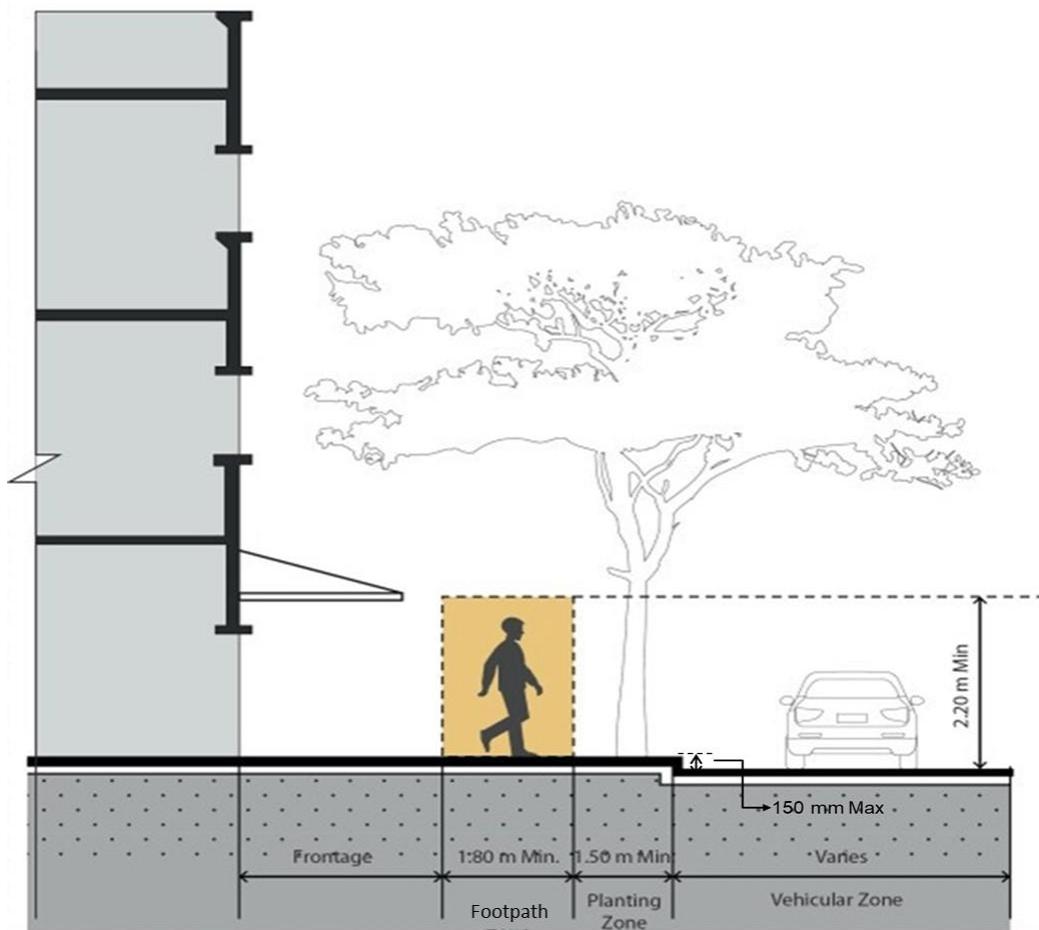


Figure 14 Typical Representation of Footpath with Frontage and Planting Zone

5.1.12.3 Maximum height of a footpath from the road surface (including kerb, walking surface, top-of-paving) shall not exceed 150 mm.

5.1.12.4 For roads with ROW 12 m and above, footpath shall be provided. The neighbourhood streets or local streets having width less than 12 m shall be made pedestrian friendly by providing footpaths or using modern traffic calming designs to keep vehicular speeds within limits.

5.1.12.5 Footpaths shall be provided on both sides of the road and above the level of the carriageway separated by kerbs.

5.1.12.6 Footpaths shall not have a gradient exceeding 1:20 and the surface shall be smooth, levelled, anti-skid, continuous and provided with kerb, kerb ramps and tactile ground surface indicators (TGSIs). These shall comply with the requirements given in Part 3, 'Development Control Rules and General Building Requirements' of NBC 2016 other than for width.

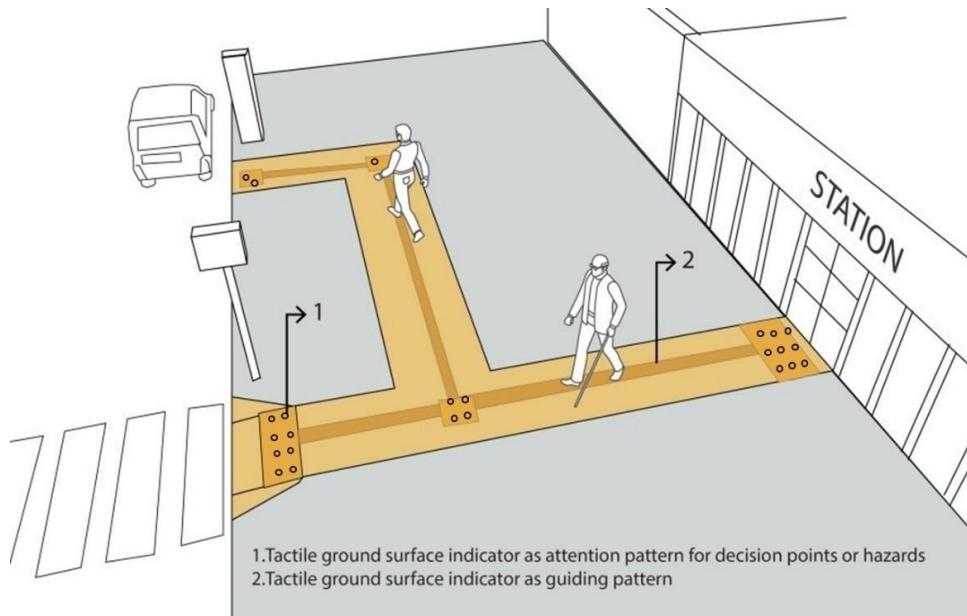


Figure 15 Typical Representation of TGSIs in Transit Areas

5.1.13 The vertical clearance under an elevated walkway such as foot overbridge/skywalk shall not be less than 5.50 m and the minimum clear width of foot overbridge/skywalk shall not be less than 3 m. (Figure 16)

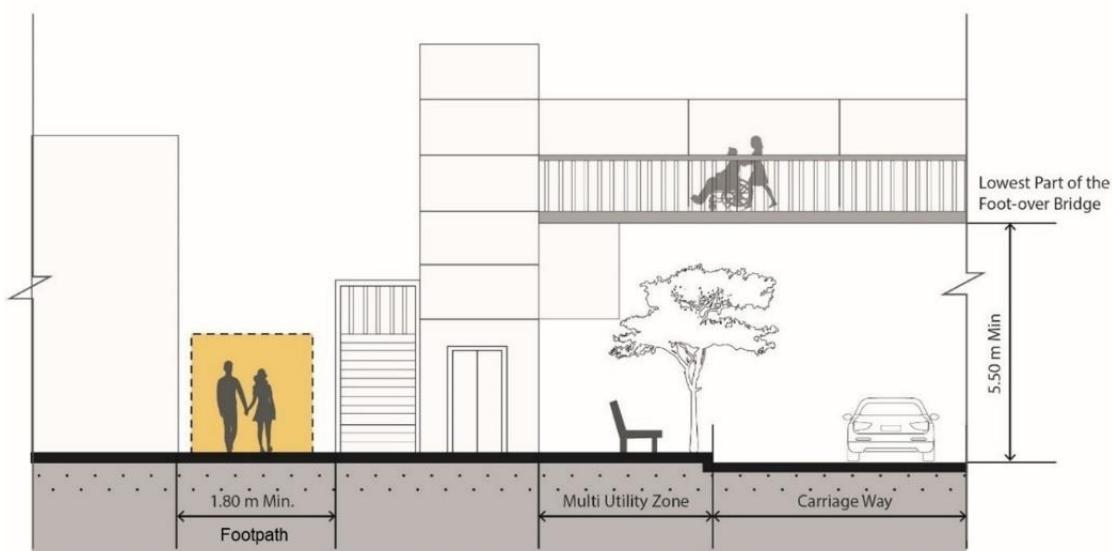


Figure 16 Typical Representation of Pedestrian Zone along with Foot Over Bridge

5.1.14 The safety of cyclists may be encouraged by providing segregated RoW.

5.1.15 Other provisions for pedestrian facilities shall be subject to IRC: 103- 2012, 'Guidelines for Pedestrian Facilities', as amended from time to time.

5.2 Approach to a Building/Amenity

5.2.1 The approach to the buildings from road/street/internal means of access shall be through paved pathways. In case of high rise and special buildings **5.1.8** of these regulations shall apply.

5.2.1.1 Approach to a Public Building/Amenity and Group Housing

- a) Space shall be provided for passenger drop off points for auto rickshaws, taxis, public transport and for large vehicles such as vans, etc, as near as possible to the main accessible entrance. Vehicle drop-off areas should be a minimum of 9 m in length, have a minimum width of 3.60 m and be served by a kerb ramp.
- b) At least one accessible route leading to an accessible entrance of the building/amenity shall be provided from the alighting and boarding points of taxi stands/car park lots for people with disabilities.
- c) The accessible entrance, if different from the main entrance, shall be located adjacent to the main entrance and not at the rear of the building/amenity. The accessible entrance shall be clearly marked with signages, easy to locate and be in accordance with Part 3 ‘Development Control Rules and General Building Requirements’ of NBC 2016.
- d) There shall be an orientation plan next to the main entrance. Further, informative signs shall be located adjacent to the entrance/exit door and be illuminated and clearly visible. The sign shall be placed on the latch side.

5.3 Setbacks

5.3.1 The minimum front, rear and sides setback requirements for different building types with height less than 15 m shall be as per Table 19, Table 20 and Table 21, subject to other requirements given in **5.3.4** of these regulations.

Table 19 Minimum Setbacks for Single Building on a Single Plot (Residential)

| SI No. | Size of Plot (m ²) | Front (m) | Rear (m) | Side (m) |
|--------|--------------------------------|-----------|----------|----------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Up to 50 | 1.50 | 1.50 | 0 |
| ii) | 51- 100 | 2.00 | 1.50 | 0 |
| iii) | 101-200 | 3.00 | 2.50 | 0 |
| iv) | 201-300 | 3.50 | 3.00 | 0 |
| v) | 301-500 | 4.00 | 3.00 | 3.00 |
| vi) | 501 and above | 4.50 | 3.00 | 3.00 |

Table 20 Minimum Setbacks for Single Building on a Single Plot (Other than Residential)

| SI No. | Size of Plot (m ²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|--------|--------------------------------|-----------|----------|--------------|--------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Up to 300 | 3.00 | 3.00 | 0 | 0 |

| | | | | | |
|------|-------------|------|------|------|------|
| ii) | 301-500 | 4.50 | 3.00 | 3.00 | 0 |
| iii) | 501-1,000 | 6.00 | 3.00 | 3.00 | 1.50 |
| iv) | 1,001-2,000 | 6.00 | 4.50 | 3.00 | 3.00 |
| v) | 2,001-5,000 | 7.50 | 6.00 | 4.50 | 3.00 |

Table 21 Minimum Setbacks for Multiple Buildings on a Single Plot (All Uses)

| SI No. | Size of Plot (m ²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|--------|--------------------------------|-----------|----------|--------------|--------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | 1,000-2,000 | 6.00 | 3.00 | 3.00 | 3.00 |
| ii) | 2,001-5,000 | 7.50 | 6.00 | 3.00 | 3.00 |
| iii) | 5,001-10,000 | 9.00 | 6.00 | 6.00 | 6.00 |
| iv) | 10,001-20,000 | 12.00 | 7.50 | 6.00 | 6.00 |
| v) | 20,001-50,000 | 15.00 | 9.00 | 9.00 | 9.00 |
| vi) | 50,001 and above | 16.00 | 12.00 | 12.00 | 12.00 |

5.3.2 The minimum front, rear and sides setback requirements for buildings with height 15 m and above, shall be per Table 22 and Table 23.

Table 22 Minimum Setbacks for Single High-rise Building on a Single Plot (All Uses)

| SI No. | Size of Plot (m ²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|--------|--------------------------------|-----------|----------|--------------|--------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | 1,000-2,000 | 6.00 | 6.00 | 6.00 | 6.00 |
| ii) | 2,001-5,000 | 7.50 | 6.00 | 6.00 | 6.00 |
| iii) | 5,001-10,000 | 9.00 | 6.00 | 6.00 | 6.00 |

Table 23 Minimum Setbacks for Multiple High-rise Buildings on a Single Plot (All Uses)

| SI No. | Size of Plot (m ²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|--------|--------------------------------|-----------|----------|--------------|--------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | 2,001-5,000 | 7.50 | 6.00 | 6.00 | 6.00 |
| ii) | 5,001-10,000 | 9.00 | 6.00 | 6.00 | 6.00 |

| | | | | | |
|------|------------------|-------|-------|-------|-------|
| iii) | 10,001-20,000 | 12.00 | 7.50 | 6.00 | 6.00 |
| iv) | 20,001-50,000 | 15.00 | 9.00 | 9.00 | 9.00 |
| v) | 50,001 and above | 16.00 | 12.00 | 12.00 | 12.00 |

5.3.3 The setbacks approved in schemes, layouts and individual plots prior to notification of these regulations shall remain applicable.

5.3.4 Every setback area provided shall be kept free from any erection thereon and shall be open to the sky, except the following:

- a) Projection in the form of cornice, roof, weather shade and sunshades over windows/ventilators, including any murals or mouldings, up to maximum width of 0.75 m;
- b) planters up to maximum width of 0.60 m;
- c) projected balcony at upper floors of width not more than 1.50 m;
- d) drainage culvert, conduit, catch pit, gully pit, chamber, and gutter;
- e) compound wall, gate, unstoreyed porch/portico, uncovered staircase, canopy not used as a sit out space;
- f) watchmen's booth, parking, electric cabin or substations and other utility structures meant for the services of the building under construction;
- g) suction tank and pump room each up to 2.5 m^2 in area;
- h) casing/enclosures of any material to cover rainwater pipe up to a maximum depth of 0.50 m and maximum width of 0.75 m;
- i) open plinth steps and ramps in front, rear and side setbacks;
- j) open ramps up to one basement level, for movement of vehicles in the side setback only;
- k) sanitary block of 2.4 m in height subject to a maximum of 4 m^2 in the rear open space at a distance of 1.5 m from the rear boundary in low rise buildings, where facilities are not adequate; and
- l) parking lock up garages not exceeding 2.4 m in height in the side or rear open spaces after leaving 7.5 m from any road line or the front boundary of the plot for low rise buildings.

5.3.4.1 In case of high-rise building, the structures/projections given in **5.3.4** may be permitted in the setback area of the plot only after leaving 6 m clear space and 9 m turning radius for fire tender movement in accordance with **5.1.8** of these regulations.

5.4 Floor Area Ratio (FAR), Ground Coverage and Building Height

5.4.1 The development control regulations shall be as specified in Table 24.

Table 24 Development Controls for Different Uses

| SI No. | Use/activity | Minimum Plot Size (m²) | Maximum FAR | Maximum Ground Coverage (Percent) | Maximum Height (m) |
|---------------|--|--|--------------------|--|---------------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Residential | | | | |
| a) | Plotted | 50 | 1.80 | 75 | 15.0 |
| b) | Group housing | 3,000 | 2.50 (see Note) | 35 | No limit |
| c) | Studio apartments | 2,000 | 2.00 | 35 | No limit |
| ii) | Commercial | | | | |
| a) | Convenient/Neighbourhood shopping centre | - | 1.00 | 40 | 15.0 |
| b) | Sector shopping | - | 2.00 | 30 | 24.0 |
| c) | Sub-district centre | - | 3.00 | 40 | 50.0 |
| d) | Central business district | - | 3.00 | 25 | No limit |
| e) | Hotels | - | 3.00 | 30 | No limit |
| f) | Banks | - | 2.00 | 30 | No limit |
| g) | Cinema/multiplex | - | 2.00 | 40 | 30.0 |
| h) | Informal/bazaar market | - | 0.50 | 40 | 10.0 |
| i) | Warehousing/godowns | - | 1.00 | 50 | No limit |
| iii) | Industrial | | | | |
| a) | Flatted industry | 2,000 | 1.20 | 35 | 15.0 |
| b) | Light and service Industry | Less than 400 | 1.25 | 60 | 12.0 |
| | | 401-4,000 | 1.25 | 50 | 15.0 |
| | | 4,001-12,000 | 1.25 | 45 | 24.0 |
| | | Above 12,001 | 1.00 | 40 | No limit |

| SI No. | Use/activity | Minimum Plot Size (m²) | Maximum FAR | Maximum Ground Coverage (Percent) | Maximum Height (m) |
|---------------|---|--|--------------------|--|---------------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| c) | Extensive Industry | 400-4,000 | 1.00 | 50 | 9.0 |
| | | 4,001-12,000 | 1.00 | 45 | 15.0 |
| | | 12,001-28,000 | 1.00 | 40 | 15.0 |
| | | Above 28,001 | 0.80 | 30 | 15.0 |
| iv) | Public/Semi-public | | | | |
| a) | All higher educational institutions, e.g. engineering, management, degree college, research and training centre, film/audio/video studio, university, vocational institute, coaching centres, medical colleges etc. NOTE— The residential units under these uses shall have no height limit. | - | 1.50 | 35 | 30.0 |
| b) | Senior/higher secondary school | - | 1.50 | 40 | 24.0 |
| c) | Nursery school/crèche/primary school | - | 1.50 | 40 | 15.0 |
| d) | Religious buildings | - | 1.50 | 35 | No limit |
| e) | Dispensary/health care and social assistance services, and clinic, clinical lab | - | 1.80 | 50 | 12.0 |
| f) | Hospital in any system of medicine, specialized health centre, trauma centre | - | 2.50 | 35 | 45.0 |

| SI No. | Use/activity | Minimum Plot Size (m²) | Maximum FAR | Maximum Ground Coverage (Percent) | Maximum Height (m) |
|---------------|--|--|--------------------|--|---------------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| g) | Custodial, penal and mental institutions | - | 2.00 | 35 | 30.0 |
| h) | Government, semi-government, corporate offices and other offices. | - | 2.50 | 30 | No limit |
| i) | Museum, art gallery and exhibition centre, art centre | - | 1.50 | 35 | 30.0 |
| j) | IT and IT enabled services, biotech park | - | 2.50 | 30 | No limit |
| k) | Community centre, club building and <i>barat ghar/gym</i> , spa/health club, fire station, police station, post office, library and other such facilities. | - | 1.50 | 35 | 24.0 |
| l) | Guest house/hostel | - | 2.50 | 30 | No limit |
| m) | <i>Dharamshala/lodge</i> | - | 2.50 | 30 | 15.0 |
| n) | Weigh bridge and petrol pump | - | 0.20 | 20 | 6.0 |
| o) | Gas godown | - | 0.25 | 25 | 7.0 |
| p) | Old age home, orphanage, reformatory | - | 1.50 | 35 | 15.0 |
| q) | Convention/conference/socio- cultural/social welfare centre | - | 2.00 | 30 | 30.0 |
| r) | Other utilities | - | 1.00 | 35 | 15.0 |
| v) | Sports | | | | |
| a) | Stadium and sport complexes, sport colleges, sports academies | - | 1.00 | 30 | No limit |

| SI No. | Use/activity | Minimum Plot Size (m²) | Maximum FAR | Maximum Ground Coverage (Percent) | Maximum Height (m) |
|---------------|---|---|---|--|---------------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| b) | Sports city | - | 1.50 | 30 | No limit |
| c) | Adventure sport complexes | - | 1.00 | 30 | No limit |
| vi) | Recreational and Green | | | | |
| a) | Parks and playgrounds | - | 0.15 | 10 | 10.0 |
| b) | Multipurpose open spaces | - | 0.15 | 10 | 10.0 |
| c) | City forest and green belts | - | 0.05 | 5 | 3.0 |
| d) | River front/lakefront development | - | 0.05 | 5 | 3.0 |
| vii) | Transportation and Communication | | | | |
| a) | Bus terminal, ISBT(Inter State Bus Terminal), Light rail/Regional Rapid Transit System (RRTS)/Metro Rail Transit System (MRTS) stations and terminals | - | 2.00 | 30 | No limit |
| b) | Truck terminals/ <i>transport nagar</i> , bus depot, container depots/IFC and workshop | - | 1.00 | 30 | No limit |
| c) | Railways (all stations, junctions, terminals and depots) | - | 1.00 | 50 | No limit |
| d) | Airport/heliport | As per Airport Authority of India | | | |
| e) | Sea ports/dockyards | As per Ports Authority(ies) of India | | | |
| f) | Parking buildings (multi-level/ standalone) | - | Maximum 25 percent of the total covered area of a | 66 | No limit |

| SI No. | Use/activity | Minimum Plot Size (m ²) | Maximum FAR | Maximum Ground Coverage (Percent) | Maximum Height (m) |
|--------|--------------|-------------------------------------|---|-----------------------------------|--------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| | | | parking building may be allowed for non-parking/commercial purposes | | |

5.4.1.1 The land use plan shall also identify buffer zones as specified in Chapter 4 of these regulations.

5.4.1.2 The development controls for special developments and special buildings such as integrated township projects, multiplex and cinema, amusement park, healthcare facilities, educational buildings, liquified petroleum gas godowns, petrol/diesel/CNG filling stations, retirement homes, hostels, night shelters, prison, bus terminals, metro stations, metro depots, Multi Modal Transport (MMT) hubs and electric vehicle (EV) charging stations have been covered in Chapter 10 ‘Requirements for Special Development and Buildings’ of these regulations.

5.4.1.3 In case of mixed land use, norms related to ground coverage and FAR shall be as per the dominant activity. Parking requirement shall be calculated on the basis of proposed activities.

5.4.2 The following are excluded from covered area:

- a) Garden, rockery, well and well structures, plant nursery, water pool, uncovered swimming pool, platform round a tree, tank, fountain, bench, chabutra with open top and sides;
- b) drainage culvert, conduit, catch-pit, gully pit, chamber, gutter and the like;
- c) compound wall, gate, unstoreyed porch and portico, canopy, slide, swing, open staircase and ramps, areas covered by chhajja and the like; and
- d) watchmen’s booth, pump house, garbage shaft, electric cabin or open air substations and other utility structures meant for the services of the building(s).

5.4.3 The following features and structures, when provided for exclusive use, shall be excluded from the FAR calculations and shall not exceed 20 percent of the permissible FAR of the building:

- a) Any cantilever projection including entrance porch, canopy or balcony of a maximum width of 1.50 m;
- b) cornice, roof or weather shade not more than 0.75 m wide;
- c) sunshades over windows/ventilators or other openings not more than 0.75 m wide;
- d) basements if used for storage, services and bank cellar;

- e) stilt used for parking and services;
- f) fire towers, refuge area, fire command centre and fire control room, overhead water tank on top of building/open shafts, cooling towers as per fire norms;
- g) mummy/stair cover over staircase on top floor maximum 3 m height, machine room for lifts and lift well;
- h) covered sky bridges, service floors in high-rise buildings, jogging tracks, swimming pools;
- i) open ramps with no area enclosed below it of usable height, and ramps used as an approach to the entrance of the building and not any other purpose;
- j) atriums without any commercial activity.
- k) electric cabin or substation, maintenance room, air conditioning plant, generator room, of maximum 12 m²;
- l) watchman's booth of maximum size of 1.6 m² with minimum width or diameter of 1.2 m;
- m) guard room of maximum size of 10 m² with minimum width of 1.70 m;
- n) watch towers, pump house, service shafts, space required for location of fire hydrants, chimneys, open shafts, culverts on drains;
- o) water tank, sewage treatment plant, water treatment plant, garbage collection centre;
- p) pergola if not enclosed from 3 or more sides;
- q) loft up to maximum height of 1.50 m;
- r) covered walkways/pathways at ground level not abutting any building; and
- s) toilets for visitors in ground floor.

5.4.3.1 Additionally, basement and podium used exclusively for parking, ramps used for multi-level car parking, and staircases which are fire exits shall be completely exempted from FAR calculation.

5.4.4 The FAR applicable in an area may be increased by the Authority based on the growth of the city. If FAR of a developed area is increased, the following shall apply:

- a) The revision in FAR shall be made via an official notification. The notification shall list the areas on which it is applicable and any increase in building height, if permitted.
- b) The master plan of the area, specifically the service plan, shall be revised to support in incremental development.
- c) All plots wherein a new development is proposed shall submit a fresh application for building permit irrespective of any approval taken before the date of notification. The application shall be in accordance with new notifications, revised guidelines of the master plan and all applicable acts and guidelines such as RERA etc.
- d) Additional FAR cannot be sanctioned on occupied properties.

5.4.5 Height Exemptions

5.4.5.1 The following roof structures shall not be included in the height of the building:

- a) roof tanks and their supports (with support height not exceeding 1 m);

- b) ventilating, air conditioning, lift rooms and similar service equipment;
- c) mummy/stair cover not exceeding 3 m in height;
- d) chimneys, parapet walls and architectural features not exceeding 1.20 m in height; and
- e) lightning arrestors and solar panels installed on the terrace/roof.

5.5 Subdivision and Amalgamation of Plots in Approved Layout Plan

5.5.1 Subdivision of a plot may be permitted under any land use. However, such plot shall be accessible separately and independently through a public means of access.

5.5.2 The minimum size of the subdivided plot shall be 50 m².

5.5.3 Additional population density or DUs shall not be permitted for the subdivided plot.

5.5.4 Front and rear setbacks of the subdivided plots shall remain as per the original plot so that the building line does not change.

5.5.5 The land use of subdivided plot shall remain the same as of the original plot.

5.5.6 The Authority may impose subdivision charges.

5.5.7 In case of lease hold plot, the subdivision shall be permitted only after lessor's consent.

5.5.8 Plots allotted on bid/auction shall be subdivided only if permitted in lease conditions.

5.5.9 Amalgamation of two or more plots may be permitted if they are contiguous, belong to the same owner and have the same land use.

5.5.10 Amalgamation and subdivision of plots allotted for low income housing shall not be permitted.

5.5.11 Subdivision and amalgamation of any plot in the sanctioned layout plan shall be considered as a change in the layout plan.

5.6 Open Spaces

5.6.1 Open spaces are provided at four levels:

- a) master plan – these are city level open areas;
- b) zonal Plan – these are open spaces provided at Zone level;
- c) layout Plan – these are provided at a project level; and
- d) plot/building level – open spaces as mentioned in **6.1.4** of these regulations.

5.6.2 Land proposed for recreational areas, parks/green belts/playgrounds and other open spaces in the master plan and zonal plan shall not be included in the calculation of mandatory open spaces that have to be provided in a layout plan. However, the open spaces in the layout plan may be merged with the open spaces of master plan and zonal plan.

5.6.3 In any layout plan, open spaces shall be provided for recreational activities such as parks/green belts, playgrounds, etc.

5.6.4 Minimum 15 percent of the total area shall be provided as open space in residential layout plans and 10 percent of the total area shall be provided as open spaces in other layout plans.

5.6.5 Any open space except those at plot/building level shall not be less than 450 m² with minimum width of 10 m.

5.6.6 All open spaces shall be clearly demarcated and properly developed to prevent water logging and flooding.

5.6.7 Every open space shall have an access.

5.6.7.1 In addition to the above-mentioned open space requirements, there may be other kind of open spaces for a building or a block of buildings on a plot, which shall be in accordance with **5.6.8** and **5.6.9** of these regulations. Open spaces can merge with setback area. In case of multiple buildings on a plot, all open spaces around buildings may not be in the form of setback area.

5.6.7.2 The requirements for greenbelts and landscaping in open spaces shall be as per **5.8.5** of these regulations.

5.6.8 *Open Spaces in a Plot*

5.6.8.1 If a single high rise/special building is proposed on a plot, then the minimum open space requirements shall be same as the setback requirements given in **5.3** of these regulations.

5.6.8.2 In case multiple high rise/special buildings are proposed on a single plot,

- a) When two or more independent buildings (not part of a block of buildings) are planned, then in such cases following open space shall be provided:
 - i) 6 m wide open space shall be provided around the building, if the building height is upto 40 m; and
 - ii) 9 m wide open space shall be provided around the building, if the building height is more than 40 m.
- b) If multiple high rise buildings in the form of block of buildings are proposed on a plot, then open space shall be provided on minimum 2 sides of the block of buildings. The minimum open space (including set back area) of 6 m shall be provided for the buildings up to 40 m height and of 9 m for buildings more than 40 m height. However, minimum setback area requirement of the plot shall be maintained.

The height of taller of the buildings placed adjacent to each other shall govern the open space requirements.

5.6.8.3 When a low-rise building is proposed (a) between two high rise buildings (independent or blocks) or (b) next to a high rise building or (c) next to a low rise special building as specified in **7.1 b**, then the minimum open space between the buildings shall be 6 m. The open space on the other sides of the high rise buildings shall be governed by the height of building as specified in **5.6.8.2**.

5.6.8.4 The open space shall be measured from the outer wall of the buildings.

5.6.8.5 The mandatory open space required for fire tender movement shall be as specified in **5.1** and **5.3.4.1** of these regulations.

5.6.9 *Exemption to Open Spaces*

5.6.9.1 The exemptions as specified in **5.3.4** of these regulations, shall be also applicable in open spaces.

5.7 *Off-Street Parking Facilities*

5.7.1 Parking may be provided in either one or in combination of the following:

- a) open area;
- b) area under stilt;
- c) in basements;
- d) separate building for parking;

- e) separate plot for parking; and
- f) podium parking.

5.7.2 Parking may be at single level or multi-level and may be mechanized or conventional.

5.7.3 The minimum area required for parking different types of vehicles is as given in Table 25.

Table 25 Size of Parking Spaces as per Vehicle Type

| SI No. | Vehicle Type | Minimum Parking Area |
|--------|---------------------------------------|----------------------|
| (1) | (2) | (3) |
| i) | Car/Taxi parked in individual parking | 3.00 m x 6.00 m |
| ii) | Car/Taxi parked in shared parking | 2.75 m x 5.00 m |
| iii) | Two-wheeler | 1.25 m ² |
| iv) | Bicycle | 1.00 m ² |
| v) | Trucks/ Buses | 3.75 m x 9.00 m |

5.7.3.1 Calculation for parking areas shall be based on equivalent car space (ECS) requirements.

5.7.3.2 Indicational/directional signage shall be given along the driveway showing the way leading to the parking spaces and plots.

5.7.3.3 Area for each ECS, inclusive of circulation and operation, shall be 23 m² for open parking, 28 m² for stilt floor covered parking and 32 m² for basement and podium parking.

5.7.3.4 Area for each ECS in mechanized parking, inclusive of circulation and operation, shall be as per the design requirements.

5.7.4 Minimum parking area to be provided based on building use/activity shall be as given in Table 26.

Table 26 Minimum Parking Area for Different Category of Building Uses/Activities

| SI No. | Use/Activity | Minimum Parking Area |
|--------|--|--|
| (1) | (2) | (3) |
| i) | Residential | |
| a) | Plotted | 1.0 ECS/150 m ² area of permissible FAR |
| b) | Group housing | 1.0 ECS/75 m ² area of permissible FAR |
| ii) | Commercial | |
| a) | Convenient/neighbourhood shopping centre | 1.5 ECS/100 m ² area of permissible FAR |
| b) | Sector shopping | 2.0 ECS/100 m ² area of permissible FAR |

| Sl No. | Use/Activity | Minimum Parking Area |
|---------------|---|--|
| (1) | (2) | (3) |
| c) | Sub district centre | 2.0 ECS/100 m ² area of permissible FAR |
| d) | Central business district | 2.5 ECS/100 m ² area of permissible FAR |
| e) | Hotels | 2.0 ECS/100 m ² area of permissible FAR |
| f) | Banks | 2.0 ECS/100 m ² area of permissible FAR |
| g) | Cinema/multiplex | 2.0 ECS/100 m ² area of permissible FAR |
| h) | Informal/bazaar market | 1.0 ECS/100 m ² area of permissible FAR |
| i) | Warehousing/godowns | 1.0 ECS/100 m ² area of permissible FAR |
| iii) | Industrial | 1.0 ECS/100 m ² area of permissible FAR |
| iv) | Public/Semi-Public | |
| a) | All higher educational institutions, e.g. engineering, management, degree college, research and training centre, film/audio/video studio, university, vocational institute, medical colleges etc. | 2.0 ECS/100 m ² area of permissible FAR |
| b) | Senior/higher secondary school | 2.0 ECS/100 m ² area of permissible FAR |
| c) | Nursery school/crèche/primary school | 1.0 ECS/150 m ² area of permissible FAR |
| d) | Religious buildings | 1.0 ECS/100 m ² area of permissible FAR |
| e) | Dispensary/health care and social assistance services, and clinic, clinical lab | 2.0 ECS/100 m ² area of permissible FAR |
| f) | Hospital in any system of medicine, naturopathy centre, nursing home, specialized health centre, trauma centre | 2.0 ECS/100 m ² area of permissible FAR |
| g) | Government, semi-government, corporate offices and other offices. | 2.0 ECS/100 m ² area of permissible FAR |
| h) | Museum, art gallery and exhibition centre, art centre. | 2.0 ECS/100 m ² area of permissible FAR |
| i) | IT and IT enabled services, biotech park | 2.0 ECS/100 m ² area of permissible FAR |
| j) | Community centre, club building and <i>barat ghar</i> /gym, spa/health club, fire | 2.0 ECS/100 m ² area of permissible FAR |

| SI No. | Use/Activity | Minimum Parking Area |
|---------------|--|--|
| (1) | (2) | (3) |
| | station, police station, post office, library and other such facilities. | |
| k) | Dharamshala/lodge/guest house/hostel | 2.0 ECS/100 m ² area of permissible FAR |
| l) | Old age home/orphanage/reformatory | 2.0 ECS/100 m ² area of permissible FAR |
| m) | Convention/conference/socio cultural/social welfare centre | 2.0 ECS/100 m ² area of permissible FAR |
| n) | Other utilities | 1.0 ECS/100 m ² area of permissible FAR |
| v) | Sports | |
| a) | Stadium and sport complexes, sport college, sports academies | 2.0 ECS/100 m ² area of permissible FAR |
| b) | Sport city | 2.0 ECS/100 m ² area of permissible FAR |
| c) | Adventure sport complexes | 2.0 ECS/100 m ² area of permissible FAR |
| vi) | Recreational and green | 5 percent of the open area reserved for parking |
| vii) | Transportation and communication | 2.0 ECS/100 m ² area of permissible FAR |

5.7.5 For low income housing, space for two-wheeler shall be provided at the rate of one for each tenement.

5.7.6 Parking spaces shall be paved and clearly marked for different types of vehicles.

5.7.7 In public/group housing, designated accessible parking spaces for elderly and PwD shall be provided near the main entrance. The distance of the accessible parking space from the main entrance shall not be more than 30 m. Other requirements for such accessible parking shall be as follows:

- a) Directional signs consisting of arrows combined with the international symbol of accessibility shall be placed along the route leading to the accessible parking lot.
- b) Where indoor parking is provided, a suitable passenger lift or separated pedestrian ramp shall be provided for easy access from the parked vehicle to the main entrance of the building or buildings served by the car parking.
- c) In such cases parking shall be located within 30 m of the lift lobby.
- d) The minimum requirements as specified in Table 27, concerning the number of parking places shall apply.

Table 27 Designated Accessible Parking Space Requirement

| SI No. | Total Number of Parking Spaces for All Vehicles | Minimum Designated Accessible Parking Spaces |
|---------------|--|--|
| (1) | (2) | (3) |
| i) | Up to 10 | 1 |
| ii) | Up to 25 | 2 |
| iii) | Up to 50 | 3 |
| iv) | Up to 100 | 4 |
| v) | Up to 200 | 6 |
| vi) | Above 200 | 6 for 100 and one for each additional 100 parking spaces |

- e) In specialized facilities such as health care facilities, shopping areas and recreational facilities, a greater number of designated accessible parking spaces shall be considered.
- f) International symbol of accessibility shall be displayed vertically at a minimum height of 2.10 m at approach and entrances to car parking to indicate the provision of accessible parking lot for PwD within the vicinity.
- g) The dimensions and other requirements for accessible parking space shall be in accordance with, Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.
- h) Maximum slope of the ramp for the vehicles shall be 1:10.
- i) Every 40 m length of continuous ramp, a flat surface of minimum 6 m length shall be provided.
- j) If podium is accessible to fire tender, minimum 7.50 m wide ramp shall be required for fire engine access with maximum slope of 1:10.

5.7.8 In mercantile/industrial/storage-type buildings where loading and unloading activity for heavy machinery or goods take place, an additional space measuring 3.50 m x 7.50 m shall be provided for loading and unloading activities, for each 1,000 m² of floor area or fraction thereof.

5.7.9 If the total parking space required by these provisions is provided by a group of property owners for their mutual benefits, such use of this space may be construed as meeting the off-street parking requirements under these provisions, subject to the approval of the Authority.

5.7.10 The ramps for underground parking, podium parking and multi-level parking in buildings shall follow the requirements specified in Table 28.

Table 28 Minimum Width of Ramps for Different Types of Vehicles

| SI No. | Vehicle Type | Minimum Clear Width of One-way Ramp (m) | Minimum Clear Width of Two-way Ramp (m) |
|---------------|--------------------------------|--|--|
| (1) | (2) | (3) | (4) |
| i) | Light motor vehicle (LMV) | 3.00 | 6.00 |
| ii) | Light Commercial Vehicle (LCV) | 4.50 | 9.00 |
| iii) | Heavy Motor Vehicle (HMV) | 6.00 | 12.00 |

5.7.11 Other provisions for parking shall be as follows:

- a) Access to the parking shall be well defined and conducive to its uses. Off-street parking space shall be provided with adequate vehicular access to a street; and the area of drives, aisles and such other provisions required for adequate manoeuvering of vehicle shall be exclusive of the parking space stipulated in these provisions.
- b) Basement parking lots shall be clearly demarcated, structured legibly and access to vertical cores shall be clearly planned and marked for identification.
- c) Surface parking shall be planned in a manner that it does not hinder the pedestrian movement.
- d) All buildings with a height of 30 m and above or total covered area more than 10,000 m² shall have additional parking space earmarked for ambulance and fire tender. Such spaces shall be clearly indicated by painting on the floor, the purpose for which the parking space is reserved.
- e) Parking plans shall be prepared for group housing, commercial, institutional and all public buildings.
- f) Minimum 5 percent of parking space shall be reserved for electric and hybrid vehicle parking with duly designed parking station/point in all group housing projects and public buildings.
- g) In case of educational buildings and hospitals, a lay bay of minimum 5 m width shall be provided outside the front boundary wall along its length within the plot area, for visitor parking. However, this requirement shall not be mandatory for nursery and pre-primary schools.

5.7.12 Parking in podium shall be as follows:

- a) A podium for parking may be permitted in a plot area of 1,500 m² or more.
- b) Topmost podium slab which is open to sky may be landscaped and/or be used as recreational open space; subject to provision of 1.6 m high parapet wall.
- c) Uses proposed in (a) and (b), shall not be counted towards FAR.
- d) A podium, if provided with ramp, may be permitted in one or more levels, however the total height of the podium shall not exceed 30.0 m above ground level.

- e) In case a podium is not provided with ramp, but provided with car lift only, the same may also be permitted in one or more levels, however, the total height shall not exceed 9.0 m above ground level.
- f) Requirements for ramp for vehicles:
 - i) One way ramp of clear width of minimum 3.0 m and two way ramp with clear width of minimum 6.0 m shall be provided for LMV.
 - ii) One way ramp of clear width of minimum 4.5 m and two way ramp with clear width of minimum 9.0 m shall be provided for LCV.
 - iii) One way ramp of clear width of minimum 6.0 m and two way ramp with clear width of minimum 12.0 m shall be provided for HMV.
 - iv) Ramp slope shall be maximum 1 in 8.
 - v) After a 40 m length of continuous ramp, a flat surface of minimum 6.0 m length shall be provided.
 - vi) If podium is accessible to fire tender, minimum 7.5 m wide ramp shall be required for fire engine access with maximum slope of 1 in 10.
- g) One WC, two urinals and two washbasins for every 500 cars or part thereof, shall be provided on each podium floor. At least one accessible toilet complying with the requirements given in Part 3 'Development Control Rules and General Building Requirements' of NBC 2016 shall be provided, preferably near the accessible parking. Provision for driver's rest room for non-residential building shall be made.
- h) Podium shall not be permitted in required minimum setback areas.
- i) Podium, if accessible to fire tender, shall be so designed so as to take the load of fire tender weighing up to 45 t minimum or as per the requirement laid down by the Fire Department.
- j) Requirement of accessibility for elders and persons with disabilities shall be ensured in compliance to Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.
- k) Buildings having height more than 15 m above ground level shall necessarily be accessible by fire tender, as follows (Figure 17):
 - i) For buildings having floor footprint area less than 10,000 m², fire tenders shall have access to at least one-third of the perimeter of building which shall be minimum 6 m wide and having 9 m turning radius.
 - ii) For buildings having floor footprint area more than 10,000 m², fire engine shall have access to at least to half of the perimeter of building which shall be minimum 6 m wide and having 9 m turning radius.
- l) If the podium is not accessible by fire tender; the podium may be such that it is not extended beyond the building footprint to an extent more than 11 m on the side where fire tender access is provided as shown in Figure 18 and Figure 19. Such restriction shall not apply in case podium is accessible by fire engine as shown in Figure 20.
- m) Minimum 6 m driveway width and 9 m width at turning shall be available for fire tender movement all around the podium.

NOTE – The width and turning radius of ramp for fire tender access, and requirements of motorable open space for fire tender movement given above pertain to fire tender weighing up

to 45 t and its operability. For heavier fire tenders, these shall be as per the requirement laid down by the Fire Department.

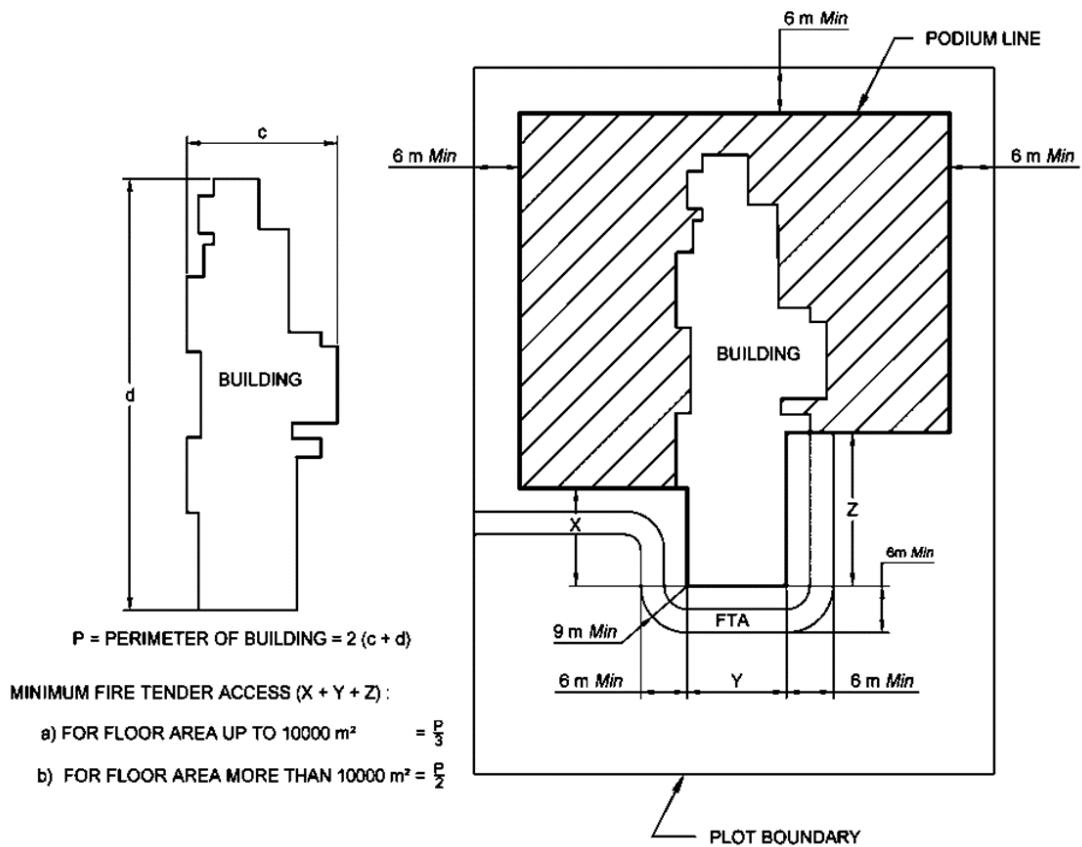


Figure 17 Emergency Vehicle Access Requirement in case Podium is Not Accessible by Fire Tender

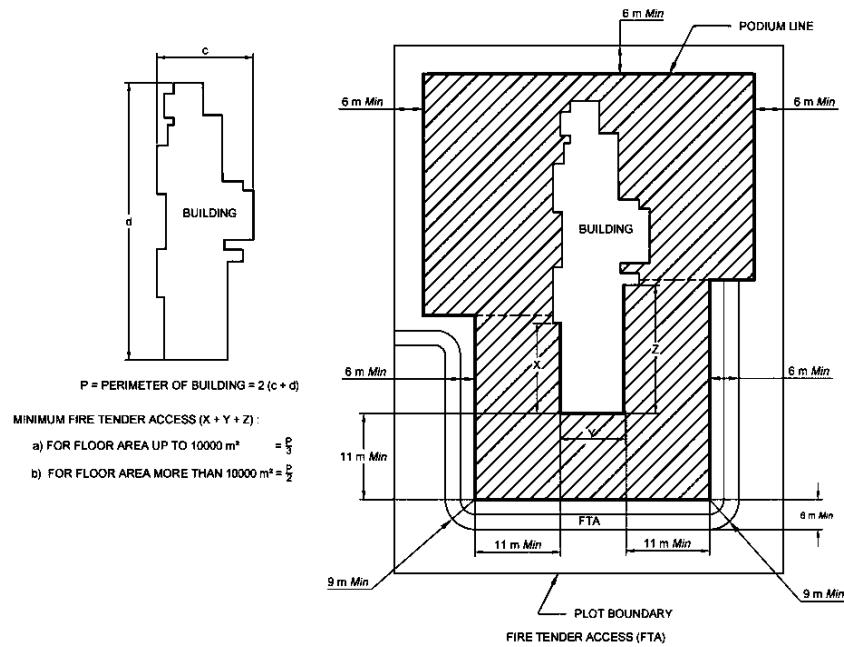


Figure 18 Extent of Podium Projection Allowed Beyond Building on Side Having Fire Tender Access (If Podium is Not Accessible by Fire Tender)

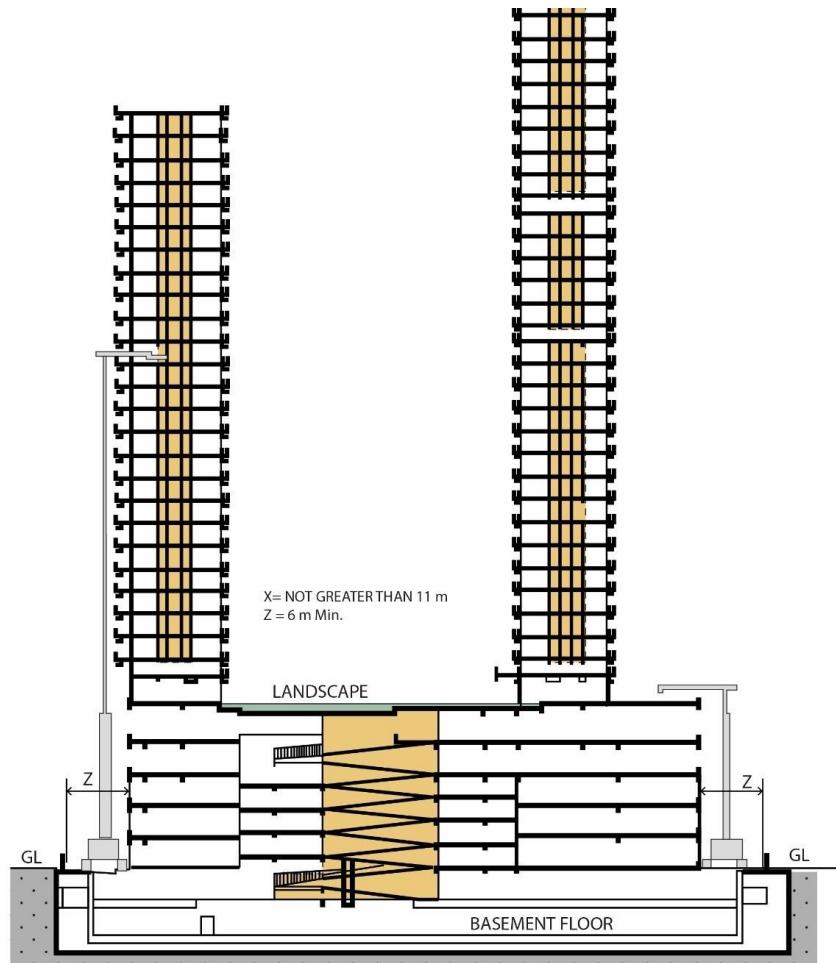


Figure 19 Podium Projection (if Podium is Not Accessible by Fire Tender)

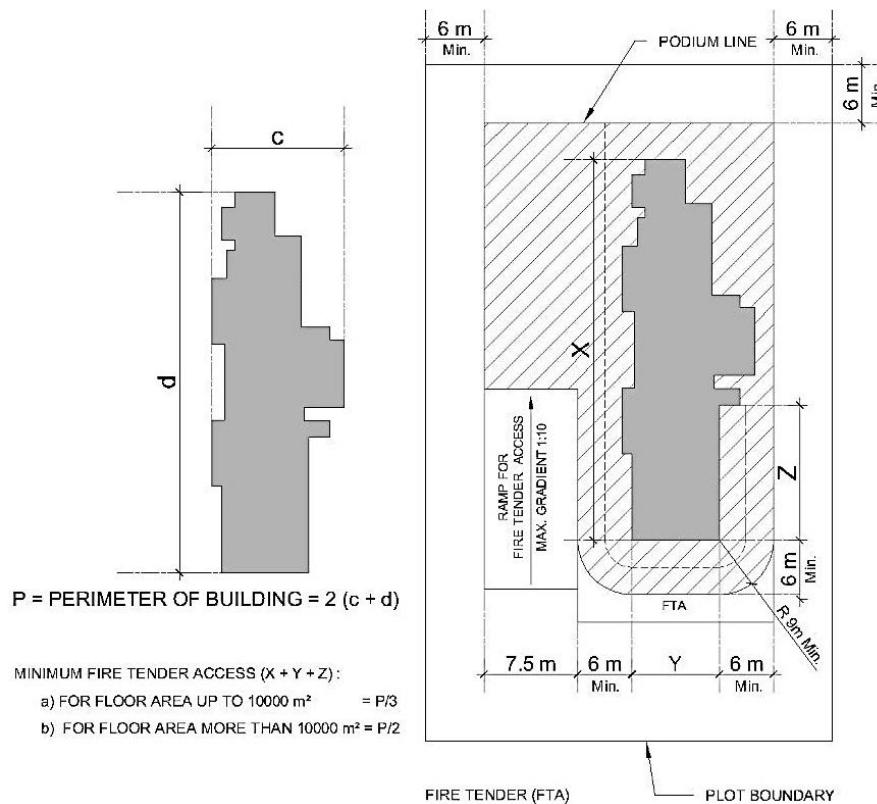


Figure 20 Fire Tender Access Requirement (if Podium is Accessible by Fire Tender)

5.7.13 Provisions for fire protection and life safety of public parking areas shall be in accordance with Part 4 'Fire and Life Safety' of NBC 2016.

5.8 Urban Design Features

5.8.1 Public Art

5.8.1.1 Public art may be in the form of murals, frescos, statues, sculptures, installation art, etc and may be made of any material and have any colour and texture. It may be placed in piece or pieces, and may be located in the public buildings, government offices, college campus, traffic islands, public parks and other open spaces in such a way that it shall not obstruct visibility and create any public hazard.

5.8.1.2 Public art may be located either within the plot boundary or within the building. If provided within the plot boundary, the public art piece or pieces shall be so located that it does not interfere with the movement of the fire tender and does not compromise the functionality of building/plot and safety of the occupants.

5.8.1.3 The Authority may issue guidelines on public art from time to time.

5.8.1.4 The Authority may identify major roads to have specific architecture controls related to height, façade, colour scheme, signage and street furniture. This can be done for roads having commercial and institutional establishments on both sides and/or for commercial areas.

5.8.2 Public Spaces

5.8.2.1 All public spaces shall be easily accessible, well levelled, properly illuminated and shall be evenly spread across the city and neighbourhoods.

5.8.2.2 All street furniture, signage, tree plantation, auto rickshaw stands, cycle rickshaw stands, bus stops, hawker zones, public toilets, paid on-street parking, street lighting shall be placed in parallel to the footpath after leaving a minimum clear width of footpath as per **5.1.12** of these regulations.

- a) Medians and pedestrian refuge islands shall be provided on streets wider than 24 m and they may be landscaped for storm water management wherever possible.
- b) Shaded zones may be provided at least every 50 m along the road. Fully shaded walking zones may be achieved by means of a retracted façades or pergolas.

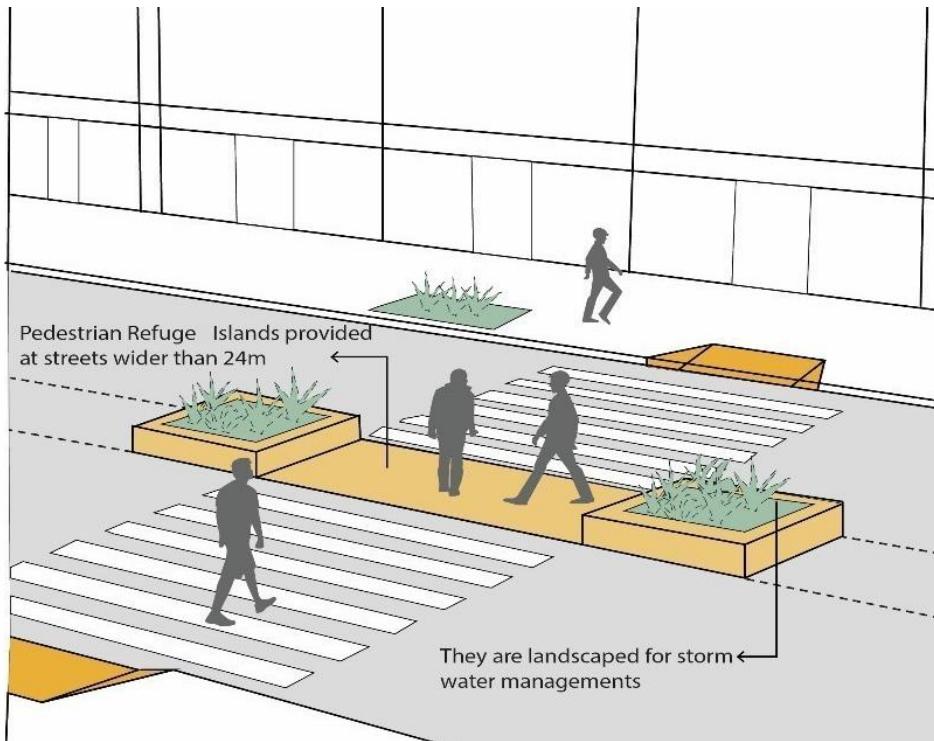


Figure 21 Median and Pedestrian Islands

- c) Information about the location of the nearest public transport, public toilets and interest points within the community shall be installed at least at every second crossing. Additionally, the information may be provided by audio via an accessible mobile application.

5.8.3 Unhindered Access and Pedestrian Movement

5.8.3.1 Major work centres, where large number of pedestrian networks originate and culminate shall provide adequate facilities for the pedestrians.

5.8.3.2 At the site design and block design level, the following measures shall be considered for reducing transportation demand and promoting walkability

- a) Vertical mixing of housing and community-based uses shall be ensured for vibrancy and safety.
- b) For blocks where any one side is greater than 200 m in length, a public access cut-through for pedestrians and non-motorized transport (NMT) shall be provided.
- c) The setbacks and boundary wall for commercial properties shall be designed to promote safety and encourage pedestrian communication.

5.8.4 All street furniture shall be kept clear of the footpaths. Street furniture may consist of diversity of elements such as light post, seating spaces, kiosks, hawker zones, dustbins, information panels, spit bins, bus stops, traffic signs, information signs, direction signs, parking meters, etc. The street furniture design and placement shall be done in accordance with provisions in IRC 103: 'Guidelines for Pedestrian Facilities', IRC 35: 'Code of Practice for Road Markings' and IRC 67: 'Code of Practice for Road Signs', as amended from time to time.

5.8.5 Greenbelts and Landscaping

5.8.5.1 Planting of trees on roads and in open spaces shall be done carefully to take advantage of both shades and sunshine without obstructing the flow of wind circulation and sight. Their advantage for abating glare and for providing cool and/or warm pockets in developed areas shall also be taken.

5.8.5.2 Before the start of every project, all existing trees shall be identified, numbered and marked on a survey plan and kept intact as much as possible.

5.8.5.3 The development in any plot or land shall preserve the existing trees as far as possible. Removal of any tree shall be compensated with the plantation of a new tree in the ratio of 1:3.

5.8.5.4 The plots having institutional, commercial, office/Industrial units/group housing shall be required to plant a minimum number of trees in their premises as specified in Table 29.

Table 29 Specifications for Landscaping for Different plots

| SI. No. | Plot Size (m²) | Number of Trees to be Planted | Minimum Pervious Area |
|--------------------|----------------------------------|--|---|
| (1) | (2) | (3) | (4) |
| i) | Up to 10,000 | One tree per 100 m ² of open space out of which minimum 50 percent shall be in the category of evergreen trees. | 25 percent of open area. In case of industrial plots, no soft landscaping is required |
| ii) | More than 10,000 | | 50 percent of open area |

5.8.5.5 Plantation provision for plotted development and group housing shall be as per landscape Master Plan and following minimum norms shall be followed:

- a) Alternate variety of evergreen and ornamental trees shall be planted at 10 m centre to centre on roads wider than 18 m.
- b) Ornamental trees shall be planted at every 6 m centre to centre on 9 m to 18 m wide roads.

5.8.5.6 Requirement of trees for residential plots other than group housing shall be as given below:

- a) two trees in every plot for plot size above 100 m² and up to 300 m²; and
- b) two trees for 300m² area plus one tree for every additional 100 m² or part thereof for plot sizes more than 300 m².

5.8.5.7 Other requirements for greenbelts and landscaping shall be as follows:

- a) Evergreen trees which are quick growing and provide dense good shade shall be planted.
- b) Preference shall be given to planting native species. Non-native species of trees such as Eucalyptus, Australian Acacia, Lantana, Lucena, Mast tree (False Ashoka) shall be avoided.
- c) 10 percent trees planted along roads and in open spaces, parks shall be fruit-bearing/shade trees.
- d) Ornamental and low-rise trees or shrubs shall be planted on the medians of roads with a view to control glare.

- e) Trees shall be placed in such a way that they do not obstruct street lighting as well as line of sight to traffic signals.
- f) At urban intersections, the trees shall be at least 3 m away from the intersections for right viewing distance.
- g) Where the road is more than 30 m wide, a double avenue of trees with the outer avenue near the edge of RoW line may be used.
- h) Trees shall be placed such that they do not obstruct the fire tender movement and on-street parking.

The landscape planning, design and development, where applicable, shall be prepared in accordance with Part 10 'Landscape Development, Signs and Outdoor Display Structures', Section 1 'Landscape Planning, Design and Development' of NBC 2016.

5.8.6 Uses Permissible Below Flyovers

5.8.6.1 The following uses may be permitted below flyovers:

- a) landscaped garden, park, promenades;
- b) public convenience, municipal store for maintenance of landscaped area;
- c) parking, provided there is sufficient space for the same and that it does not lead to conflicts with traffic streams; and
- d) urban art design features.

5.8.6.2 The plantation/green space of width not less than 1.0 m shall be developed all along the edge of carriageway below the flyover with width not more than width of pillar, except the accesses wherever necessary or as may be required by the Authority.

5.8.7 Signages and Outdoor Display Structures

5.8.7.1 The requirements for signages and Outdoor display structures shall be in accordance with **3.8.1** of these regulations.

5.8.8 Architectural Control

5.8.8.1 In case any major public building complexes or buildings are coming up in an area near any place of tourist attraction or any other place of importance as decided by the local authority, the aesthetics and the form of the whole scheme may be examined vis-a-vis existing structures so that it doesn't affect the general characteristics and architectural nature of the surroundings, and the need for architectural control may be ascertained by the planning Authority.

5.8.8.2 In case where architectural control is considered necessary by the Authority, Architectural Control Sheets shall be prepared for this purpose showing the extent of architectural control on the various units of the buildings or on a portion of such buildings, among others in the following respects:

- a) compulsory elevations for a particular building or a row of buildings;
- b) compulsory height on the front or on any side exposed to view from a street upon which building shall have to be erected and completed within a certain period;
- c) compulsory height of floors;
- d) compulsory height and design of cornices, sills and top of windows in the first and higher storeys;
- e) compulsory building line along which the building shall have to be erected and completed within a certain period;

- f) compulsory type designs of balconies; and
- g) compulsory use of materials texture and colour.

5.8.8.3 Building line in front, rear and side shall be as per the zoning plan approved by the Authority.

5.8.8.4 In case authority decides that it is not feasible to keep setbacks/spaces as prescribed above due to peculiar shape and condition of the site, then the authority after recording reasons in writing may issue special zoning plan, keeping in view the fire and life safety.

GENERAL BUILDING REQUIREMENTS

Explanatory Note:

This chapter includes general building requirements, including those of various parts of the building. Key points to consider while reading the chapter:

- 1) *The chapter covers 47 distinct building parts including relevant spatial requirements for various services.*
- 2) *The spatial requirements for various services have been specified for ensuring fire and life safety, proper lighting and ventilation, safe electrical installations, etc. These requirements shall be read in addition to the requirements stated in Chapter 7 ‘Fire and Life Safety’ and Chapter 9 ‘Building and Plumbing Services’ of this Standardized Regulations.*
- 3) *Accessibility provisions provided herein are mandatory for public buildings and spaces (including common spaces in group housing buildings), however individual owners are encouraged to adopt these.*
- 4) *Building occupancy classification such as Residential, Educational, Institutional, Assembly, Business, Mercantile, Industrial, Storage and Hazardous is based on Part 4 ‘Fire and Life Safety’ of NBC 2016 which have been used in this chapter for detailing various building requirements.*

6 GENERAL BUILDING REQUIREMENTS

6.1 Requirements for Parts of Building

The plinth or any part of a building shall be so located with respect to the surrounding ground level that adequate drainage of the site is assured.

6.1.1 *Plinth*

6.1.1.1 Plinth for all parts of the building (except those given at **6.1.1.3** of these regulations) with adequate drainage provisions shall meet the requirements given in Table 30.

Table 30 Minimum Requirements for Height of Plinth

| Sl No. | Topography | Minimum Height (mm) | Other Requirements |
|--|-------------|---------------------|---|
| (1) | (2) | (3) | (4) |
| i) | Plain areas | 450 | Plinth height shall be measured from the surrounding ground level. |
| ii) | Hilly areas | 450 | Plinth on slopes shall have a maximum height of 2 m, and shall be measured from the base of the plinth. |
| In case of flood prone areas, the plinth height, measured from the adjacent high flood plain level, shall be minimum 600 mm. | | | |

6.1.1.2 Plinth shall not interfere with the natural flow of the water streams.

6.1.1.3 Inner courtyard, covered parking at ground level and stilt floor shall have a minimum plinth height of 150 mm above the determining ground level.

6.1.2 *Rooms*

6.1.2.1 Minimum requirements of habitable rooms shall be as specified in Table 31.

Table 31 Minimum Requirements of a Habitable Room

| Sl No. | Room Types | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Room Height (m) |
|------------------|--|--------------------------------------|-------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| i) Only one room | | | | |
| a) | Single room | 9.50 | 2.40 | 2.75 |
| b) | Low income housing unit with 1 multipurpose room | 12.50 | 2.40 | 2.75 |
| ii) Two rooms | | | | |
| a) | First room | 9.50 | 2.40 | 2.75 |
| b) | Second room | 7.50 | 2.10 | 2.75 |

| SI No. | Room Types | Minimum Floor Area (m²) | Minimum Width (m) | Minimum Room Height (m) |
|---------------|--------------------------|---|--------------------------|--------------------------------|
| (1) | (2) | (3) | (4) | (5) |
| c) | Low income housing units | | | |
| 1) | First room | 9.00 | 2.50 | 2.75 |
| 2) | Second room | 6.50 | 2.10 | 2.75 |
| d) | Hostels | | | |
| 1) | Single bedded room | 8.00 | 2.40 | 2.75 |
| 2) | Double bedded room | 15.00 | 4.00 | 2.75 |

6.1.2.2 Additional minimum requirements for habitable rooms shall be as follows:

- a) A clear headroom of 2.40 m shall be ensured under beams, folded plates and eaves (in case of pitched roof).
 - b) In case of rooms in colder regions and/or air-conditioned rooms, the height may be reduced to a minimum of 2.40 m for a habitable room as a measure to conserve energy.
- NOTE — Colder regions may be identified in accordance with Part 8 ‘Building Services’, Section 1 ‘Lighting and Natural Ventilation’ of NBC 2016.
- c) The floor area where the height of the room exceeds 4.20 m, that area shall be accounted for additional FAR.
 - d) Multipurpose habitable rooms in low income housing shall be provided with an alcove for cooking space.
 - e) All habitable rooms in public buildings and spaces (including common spaces in group housing buildings etc.) shall be accessible for PwDs in accordance with the relevant provisions of Part 3 ‘Development Control Rules and General Building Requirements’ of NBC 2016, however individual owners are also encouraged to adopt these provisions.
 - f) Single bed space in a dormitory shall be 5 m².
 - g) A minimum door width of 900 mm shall be provided for all rooms in public buildings and spaces (including common spaces).

6.1.2.3 Minimum requirements of kitchen shall be as specified in Table 32.

Table 32 Minimum Requirements of Kitchen

| SI No. | Room Types | Minimum Floor Area (m²) | Minimum Width (m) | Minimum Height (m) |
|---------------|------------------------|---|--------------------------|---------------------------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Kitchen with dining | 7.50 | 2.10 | 2.75 |
| ii) | Kitchen without dining | 5.00 | 1.80 | 2.75 |

| SI No. | Room Types | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Height (m) |
|--------|--------------------------------------|---|-------------------|--------------------|
| (1) | (2) | (3) | (4) | (5) |
| iii) | Kitchen without a separate store | 4.50 | 1.80 | 2.75 |
| iv) | Kitchen in a low income housing unit | 3.30 | 1.80 | 2.75 |
| v) | Pantry | 3.00 | 1.40 | 2.40 |
| vi) | Commercial kitchen | 50.00 or 25 percent of the floor area whichever is minimum. | - | - |

6.1.2.4 Additional minimum requirements for kitchens shall be as follows:

- a) Kitchen shall have an impermeable flooring and an impermeable dado, all around, of 0.90 m from the floor level.
- b) Every room to be used as kitchen shall have, unless separately provided in a pantry, means for the washing of kitchen utensils.
- c) A kitchen may have a chimney attached with a ventilation duct/shaft to eliminate smoke and maintain proper cross ventilation.
- d) The space for washing utensils shall lead directly or through a sink to a grated and trapped connection to the waste pipe.
- e) Grease traps shall be provided in commercial kitchens and kitchens in hostels. Additional requirement for disposal of waste shall be in accordance with **11.1.4** of these regulations.
- f) Requirements for commercial kitchens serving in centrally air-conditioned buildings, such as kitchens of starred hotels, banquets, food courts, malls, restaurants etc, shall comply with fire safety provisions as per Part 4 'Fire and Life Safety' of NBC 2016.

6.1.2.5 Minimum requirements of other rooms shall be as specified in Table 33.

Table 33 Minimum Requirements of Other Rooms

| SI No. | Room Types | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Height (m) |
|--------|--|--------------------------------------|-------------------|--------------------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Mercantile | | | |
| a) | Shops | | | |
| 1) | Abutting roads of width less than or equal to 12 m | 6.00 | 1.80 | 2.75 |

| SI No. | Room Types | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Height (m) |
|--------|--|--------------------------------------|-------------------|--------------------|
| (1) | (2) | (3) | (4) | (5) |
| 2) | Abutting roads of width more than 12 m | 10.0 | 5.00 | 2.75 |
| ii) | Residential (Other than Habitable) | | | |
| a) | Storeroom | 3.00 | 1.20 | 2.20 |
| b) | Prayer room | 3.00 | 1.20 | 2.40 |
| iii) | Institutional Buildings | | | |
| a) | Hospitals | | | |
| 1) | Special ward | 9.50 | 3.00 | 3.60 |
| 2) | General ward | 40.00 | 5.50 | 3.60 |
| iv) | Educational | | | |
| a) | Classrooms | 48.00 | 6.00 | 3.60 |
| b) | Other rooms | - | - | 3.60 |
| v) | Industrial | - | - | 3.60 |

6.1.2.6 Additional minimum requirements for other rooms shall be as follows:

- a) In case of educational and industrial air-conditioned rooms or rooms in colder regions, the height may be reduced to a minimum of 3 m.
NOTE — Colder regions may be identified in accordance with Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.
- b) All rooms in a public building shall be accessible for PwDs in accordance with the relevant provisions of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016, however individual owners are also encouraged to adopt these provisions.

6.1.2.7 Lighting and ventilation requirements for rooms shall be as follows:

- a) For requirements regarding lighting and ventilation for different uses and occupancies, reference shall be made to Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of the NBC 2016.
- b) At least one side of every room in a building of any occupancy shall have one or more opening(s) abutting an open space.
- c) Notwithstanding the above, the minimum aggregate area of such openings, excluding doors inclusive of frames, shall not be less than the following:
 - i) one-tenth of the floor area for dry hot climate;

- ii) one-sixth of the floor area for wet hot climate;
- iii) one-eighth of the floor area for intermediate climate; and
- iv) one-twelfth of the floor area for cold climate.

NOTES

- 1 If the window is partly fixed, the openable area shall be counted.
- 2 The area of openings as given in i) to iv) above, may be increased by 25 percent in case of kitchens.
- 3 Climatic zones may be identified as per Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.
- d) All habitable rooms shall have one or more openings with a maximum width of 2.40 m.

6.1.3 Bathroom and Water-closets

6.1.3.1 Bathrooms and water-closets based on occupancy and types shall have minimum requirements as specified in Table 34.

Table 34 Minimum Requirements for Bathrooms and Water-closets

| Sl No. | Type | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Height (m) | Other Requirements |
|---------------------------------------|-----------------------------------|--------------------------------------|-------------------|--------------------|--|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) Bathrooms and water-closets | | | | | |
| a) | Bathroom (with only bathing area) | 1.80 | 1.20 | 2.40 | <p>a) Every bathroom and water-closet shall not be directly over and under any room other than another water-closet, washing place, bath or terrace, unless it has a watertight floor.</p> <p>b) In multi-storeyed buildings across floors, bathrooms and water-closets shall be placed in a single block vertically and shall not be placed above or under any other room, as listed in Table 31 to Table 33.</p> <p>c) If the bathroom and water-closet block is placed in the interior portion of the building with no side abutting an open space, a vertical open to sky shaft may be provided with sizes in accordance per Table 35.</p> <p>d) Soil or ventilating pipes, if placed on the exterior of the building, may be covered aesthetically.</p> |
| b) | Water-closet | 1.10 | 1.00 | | |
| c) | Bathroom with water-closet | 3.00 | 1.20 | | |

| Sl No. | Type | Minimum Floor Area (m ²) | Minimum Width (m) | Minimum Height (m) | Other Requirements |
|---|--|--------------------------------------|-------------------|--------------------|--|
| (1) | (2) | (3) | (4) | (5) | (6) |
| ii) Bathroom and water-closets for low income housing | | | | | |
| a) | Bathroom | 1.20 | 1.00 | 2.40 | |
| b) | Water-closet | 1.00 | 1.00 | | |
| c) | Bathroom with water-closet | 2.00 | 1.20 | | |
| iii) Public toilets | | | | | |
| a) | Toilet | - | - | 2.50 | |
| b) | Water-closet compartments | 1.40 | 1.00 | | |
| c) | Urinal | 1.60 | 1.20 | | |
| iv) Baby rooms | | | | | |
| a) | Single use | 7.00 | - | 2.50 | a) Shall be provided at airports, restaurants, shopping malls, leisure centres, multiplex, cinema halls, amusement/theme parks and all other public buildings. b) Shall be designed for easy movement of strollers. |
| b) | Double use | 10.00 | - | | |
| v) Accessible Toilets (Public buildings) | | | | | |
| a) | Type A: Lateral transfer from both sides (Figure 22) | 5.10 | 2.20 | 2.50 | a) All accessibility requirements shall be as per B-9 of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016. b) The accessible toilet room shall be located as close as possible to the entrance/reception/waiting area of the building and should be easy to find. |
| b) | Type B: Lateral transfer from one | 3.75 | 1.70 | | |

| Sl No. | Type | Minimum Floor Area (m²) | Minimum Width (m) | Minimum Height (m) | Other Requirements |
|---------------|------------------|---|--------------------------|---------------------------|--|
| (1) | (2) | (3) | (4) | (5) | (6) |
| | side (Figure 23) | | | | <p>c) Shall have slip-resistant flooring.</p> <p>d) In case only one accessible water-closet is being provided, Type A shall be preferred (Figure 22).</p> <p>e) The provision of the accessible toilets shall be such that any wheelchair user/ambulant disabled person doesn't have to travel more than 30 m on the same floor.</p> <p>f) Tactile signs shall be used beside rather than on doors to indicate 'Ladies' or 'Gents';</p> <p>g) For the benefit of the persons with vision impairments, all general toilets shall have marked on plates with raised alphabets and braille put on the wall next to the door latch, preferably on the left side. An additional signage shall also be provided on the door at 1.50 m in height;</p> <p>h) A distinct audio sound (beeper/clapper) may be installed above the entrance door for the identification of the toilets by persons with visual impairments.</p> |

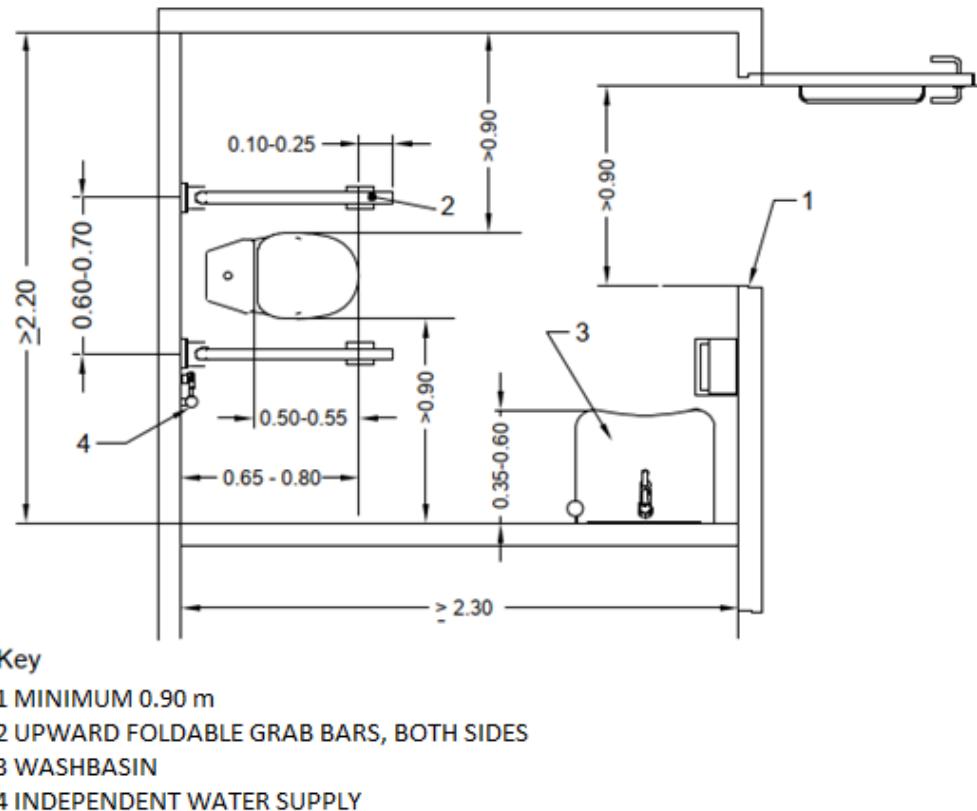


Figure 22 Type A Toilet- Lateral Transfer from Both Sides.

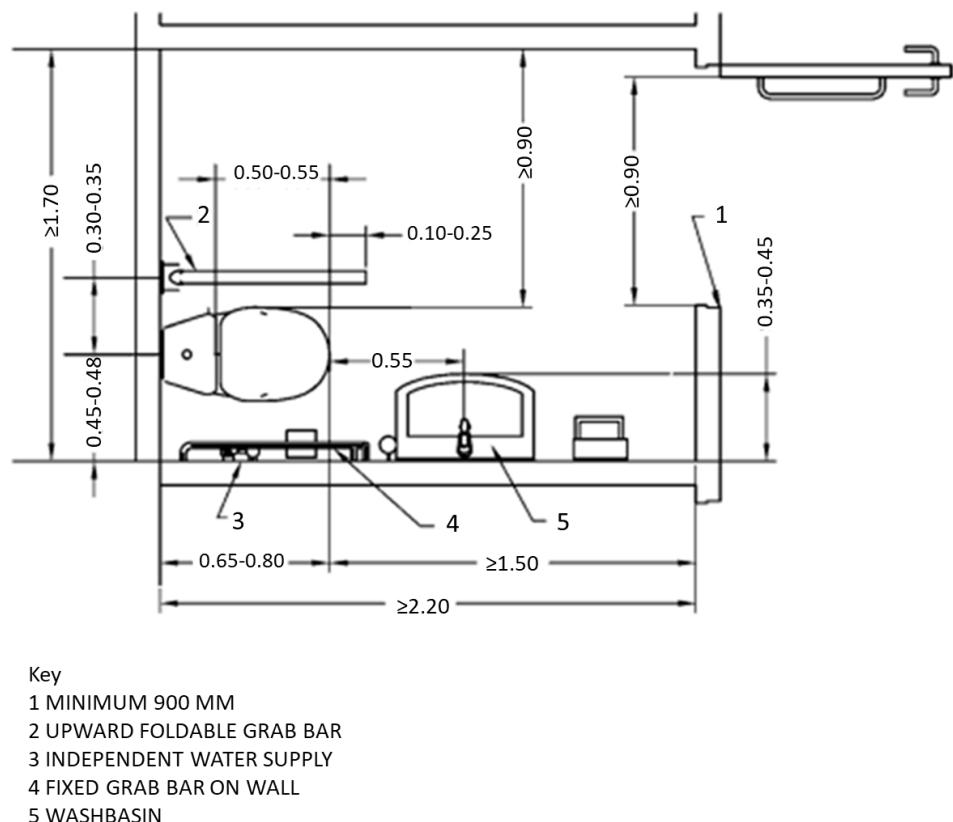


Figure 23 Type B Corner Toilet- Lateral Transfer from One Side Only

6.1.3.2 Water proofing for bathrooms and water-closets shall include the following aspects:

- a) Walls and flooring with a platform or seat shall be made of water-tight non-absorbent material.
- b) Enclosure in the form of walls and partitions to be finished with a smooth impervious material. The minimum height of such finishing shall be 1 m above the finished floor level.
- c) Floors shall be covered with impervious material and a slope of suitable grade shall be provided to direct water towards the drain.

6.1.4 Interior Open Spaces

6.1.4.1 Inner courtyard: In case one side of every habitable room and kitchen is not abutting on any side of open spaces, it shall abut on an inner courtyard of minimum width 3 m. Further, the inner courtyard shall have an area, throughout its height, of not less than the square of one-fifth the height of the highest wall abutting the courtyard.

6.1.4.2 Ventilation Shaft: For ventilating the spaces for water-closets and bathrooms, if not opening on to front, side, rear or interior open spaces, these shall open on to the ventilation shaft, the size of which shall not be less than the values given in Table 35.

Table 35 Minimum Size of Ventilation Shaft

| SI No. | Building Height (m) | Size of Ventilation Shaft (m ²) | Minimum One Dimension of Ventilation Shaft (m) |
|--------|---------------------|---|--|
| (1) | (2) | (3) | (4) |
| i) | Up to 10 | 1.20 | 0.90 |
| ii) | 12 | 2.80 | 1.20 |
| iii) | 18 | 4.00 | 1.50 |
| iv) | 24 | 5.40 | 1.80 |
| v) | 30 | 8.00 | 2.40 |
| vi) | Above 30 | 9.00 | 3.00 |

NOTES

- 1 For buildings of height above 30 m, a mechanical ventilation system shall be installed besides the provision of minimum ventilation shaft.
- 2 For fully air-conditioned residential/business buildings, the ventilation shaft need not be insisted upon, provided the air conditioning system works in an uninterrupted manner and there is an alternative source of power supply and air changes requirements as per Part 8, Section 3 'Air Conditioning, Heating and Mechanical Ventilation' of NBC 2016 are complied with..

6.1.4.3 Outer courtyard: The minimum width of the outer courtyard shall not be less than 2.40 m. If the width of the outer courtyard is less than 2.40 m, it shall be treated as a notch and the provisions of outer courtyard shall not apply.

6.1.4.4 Sunken courtyard up to 3 m in depth from the ground level as 'light well' within building envelope shall be permitted for light and ventilation for basement area, provided all concerns relating to drainage are taken care of.

6.1.5 Ledge/Loft/Tand

6.1.5.1 Ledge/Loft/*Tand* may be provided over the kitchen, habitable rooms, bathrooms, water-closets, and corridors within a residential, mercantile or industrial building in accordance with the relevant clauses of Part 4 ‘Fire and Life Safety’ of NBC 2016. The ledge/loft/*tand* shall have the following minimum requirements:

- a) Clear headroom of 2.20 m under the ledge/loft/*tand*;
- b) Maximum height of 1.50 m;
- c) The location of ledge/loft/*tand* shall not interfere with the ventilation of the room;
- d) Ledge/loft/*tand* in a mercantile and industrial building shall be located at least 2 m away from the entrance; and
- e) The maximum area as a percentage of the floor area on which ledge/loft/tand is constructed shall be as per Table 36.

Table 36 Maximum Coverage Area of Ledge/Loft/*Tand*

| SI No. | Spaces Over which Permitted | Maximum Coverage (As Percentage Area of Space Underneath) |
|---------------|------------------------------------|--|
| (1) | (2) | (3) |
| i) | Kitchen/habitable room | 25 |
| ii) | Bathroom, water-closet, corridor | 100 |
| iii) | Shops with width up to 3 m | 33 |
| iv) | Shops with width exceeding 3 m | 50 |
| v) | Industrial sheds | 33 |

6.1.6 Mezzanine Floor

6.1.6.1 Mezzanine floor, if it is used as a living room, shall have minimum area of 9.50 m² with a minimum height of 2.20 m. The aggregate area of a mezzanine floor shall not exceed 1/3rd of plinth area of the building.

6.1.6.2 Further, mezzanine floor

- a) shall not interfere with the ventilation of the space over and under it;
- b) shall not be used as a kitchen; and
- c) shall not be subdivided into smaller compartments.

6.1.7 Parapet

6.1.7.1 Parapet wall shall be provided on the edges of terraces, balconies, verandah or any opening at floor level to external open space. The height of the parapet wall shall be minimum 1.0 m and maximum 1.20 m from the finished floor level.

6.1.8 Roof

6.1.8.1 The roof of a building shall be designed and constructed with sloping gradient to effectively drain water by means of rainwater pipes of adequate size. This rainwater shall be

carried away from the building without causing dampness in any part of the walls, roof or foundations of the building or an adjacent building.

6.1.8.2 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, with screens at rainwater pipe inlets. The rainwater pipes shall be connected to a drain or a road gutter or rain water harvesting structure.

6.1.8.3 All buildings in hilly areas and areas with high rainfall and snowfall shall have pitched roofs.

6.1.9 Terraces

6.1.9.1 An overhang up to the extent of 1.20 m beyond building line may be permitted for terraces in buildings above 15 m in height, provided setback space is kept for fire tender movement in accordance with **5.3** of these regulations.

6.1.9.2 Terraces may be used for rooftop gardening/farming or additional open recreational area over and above the mandatory open space requirement.

6.1.9.3 Structural and other engineering considerations shall be adhered to, while constructing recreational and open spaces on the terrace.

6.1.9.4 Rooftop terraces may be designed to accommodate air handling units (AHU) and cooling towers for air conditioning system, solar water heaters and solar photovoltaic system (SPS), wherever required. However, such provisions shall not be accommodated on terraces designated as refuge areas.

6.1.9.5 Common terraces shall not be subdivided and shall be accessible by common staircase/lift. No construction whatsoever, temporary or permanent, except service platform and toilet block, shall be permissible.

6.1.10 Balcony

6.1.10.1 Width of an unenclosed balcony shall be between 0.90 m to 1.50 m.

6.1.11 Porch/Portico

6.1.11.1 Porch/Porticos shall be permitted within the boundary line of the plot subject to the following minimum requirements:

- a) Porch/portico shall be minimum 3 m wide.
- b) Porch/porticos shall be used as open terrace only.
- c) Spaces under porch/portico shall be paved and channelled.
- d) Porch/porticos in high rise buildings shall not interfere with the fire tender movement.

6.1.12 Verandah

6.1.12.1 Verandah in non-residential building shall have a parapet wall or railing of 1.20 m on the open side. It may be covered by grill, trellis or jolly works, without reducing the effect of natural lighting and ventilation.

6.1.12.2 The minimum width of verandah within building shall be as specified in Table 37.

Table 37 Minimum Requirements for a Verandah

| SI No. | Building Occupancy or Type | Minimum Width of Verandah (m) |
|---------------|--|--------------------------------------|
| (1) | (2) | (3) |
| i) | Residential buildings | 1.50 |
| ii) | Assembly buildings | 2.00 |
| iii) | Educational, business and mercantile buildings | 2.00 |
| iv) | Institutional buildings | 2.40 |
| v) | All other buildings | 1.50 |

6.1.13 Chimneys

6.1.13.1 Top of a chimney on sloping roofs shall be at least 0.60 m above the ridge of the roof which it penetrates.

6.1.13.2 Chimneys on a flat roof shall be at least 0.90 m above the flat roof surface, provided the top surface level of the chimney is not below the top surface level of the adjacent parapet wall.

6.1.13.3 Roofs which are used for restaurants, recreational activities, swimming pools etc, chimneys shall be at least 2 m from the floor surface of the roofs.

6.1.14 Stilt

6.1.14.1 Stilts shall have a minimum clear height of 2.40 m and maximum 2.70 m from the floor surface to the bottom of the slab.

6.1.14.2 The minimum height of plinth of stilt floors from the surrounding open space/setback area shall be in accordance with **6.1.1.1** of these regulations.

6.1.14.3 Stilt floors shall preferably be avoided, however when provided for parking, staircase and lift lobby, provisions of Part 6 'Structural Design', Section 1 'Loads, Forces and Effects' of NBC 2016 shall be complied with.

6.1.15 Garage

6.1.15.1 Garage may be allowed in the side setback in an independent residential plot. The maximum size of such a garage shall be 3 m x 6 m

6.1.15.2 Garage shall not be used for habitable purposes

6.1.15.3 The minimum height of a garage shall be 2.40 m.

6.1.15.4 The area of garage shall be counted towards covered area.

6.1.16 Basement

6.1.16.1 Basement shall not be used for residential purposes and may be used for the following purposes:

- a) parking;
- b) storage of goods and building maintenance material except hazardous materials;
- c) strong rooms and bank cellars;

- d) air conditioning equipment and other machines used for services and utilities of the building; and
- e) firefighting pump houses up to second basement, only if provided with staircase with direct accessibility from the ground.

6.1.16.2 Mercantile occupancy as well as institutional occupancy for medical, health care services involving radiation facilities may be permitted in the first basement subject to compliance of all requirements for fire safety in accordance with Part 4 'Fire and Life Safety' of NBC 2016 and necessary measures for required lighting, ventilation and water supply, drainage and sanitation.

6.1.16.3 Construction of basement shall be permitted in accordance with the applicable land use and development control provisions.

6.1.16.4 The internal height of any first basement floor shall be minimum 2.40 m from the floor to the soffit of the beam and maximum 4.50 m.

6.1.16.5 In case basement is to be used for mechanized parking, additional height may be permitted depending upon the technology and requirement of space.

6.1.16.6 The height of the ceiling of any basement other than extended shall be minimum 0.90 m and maximum 1.20 m above the average surrounding ground level.

6.1.16.7 Basement may be permitted beyond the building lines at ground level (extended basement) subject to a clear minimum front, side and rear setbacks as per provisions of **5.3** of these regulations.

- a) The height of the ceiling of the extended portion of the basement shall be up to the ground level.
- b) The top slab of the extended portion of the basement shall be designed to withstand firefighting vehicular loads.

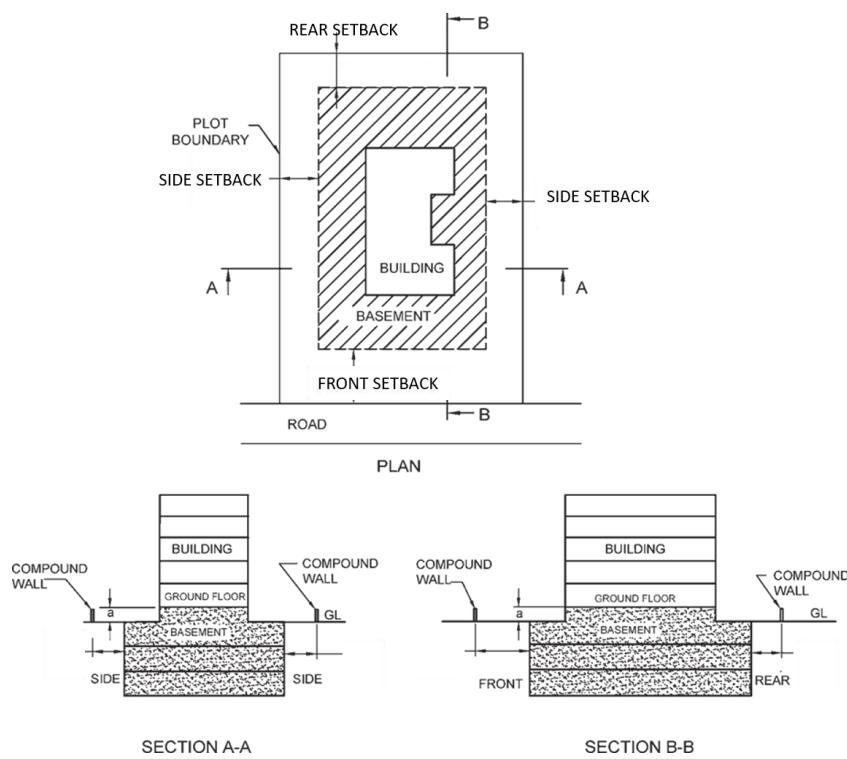


Figure 24 Basement

6.1.16.8 Adequate ventilation shall be provided for the basement. The ventilation requirements shall be the same as required by the respective building occupancy and type. Any deficiency may be met by providing adequate mechanical ventilation in the form of blowers, exhaust fans, air conditioning systems, etc as per Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.

6.1.16.9 Adequate arrangements shall be made such that surface drainage does not enter the basement.

6.1.16.10 The walls and floors of the basement shall be watertight with adequate damp proofing treatment to avoid moisture.

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

6.1.16.12 For all public buildings and group housing, having basement going up to more than one level, access to all levels shall also be provided through lifts, minimum one of which shall be an accessible lift.

6.1.16.13 Requirements for basement forming part of exits shall be in accordance with **7.4.6.19** of these regulations.

6.1.17 Canopy

6.1.17.1 A canopy shall have the following minimum requirements:

- a) The minimum clear head room under the canopy shall be 2.40 m and construction shall not be permitted over the canopy.
- b) The Authority may permit larger canopies for mercantile, institutional, industrial, educational, assembly, business and public buildings.

6.1.18 Corridors and Passageways

6.1.18.1 All public buildings and group housing projects shall have accessible corridors and passageways and shall be in accordance with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

6.1.18.2 Dimensions of the corridor shall be determined based on its intended use, building type and universal accessibility and shall have the following requirements:

- a) The minimum unobstructed width for any corridor shall be 1.50 m, clear of handrails and any other projections, for example portable fire extinguishers, potted plants, seating benches or chairs, signage and notice boards;
- b) In occupancies where rooms are on both sides of the corridor and passageway, the minimum clear width shall be 2.10 m;
- c) In case of hospitals, nursing home, and other medical treatment facilities, corridors and passageways shall have a minimum clear width of 2.40 m;
- d) Adequate circulation space shall be provided at the entrance and exit of the corridors and where a doorway exists;
- e) When a corridor changes the direction, a turning circle with a minimum diameter equal to the corridor width shall be provided;
- f) The minimum clear height of a corridor shall be 2.10 m; and
- g) Requirements for corridors and passageways forming part of egress components shall be in accordance with **7.4** of these regulations.

6.1.19 Staircase

6.1.19.1 The minimum width of staircases for respective occupancies shall be as given in Table 38 (See Part 4 ‘Fire and Life Safety’ of NBC 2016 for occupancy subdivisions).

Table 38 Minimum Clear Width of the Staircase

| SI No. | Occupancy Type | Width (m) |
|--------|---|-----------|
| (1) | (2) | (3) |
| i) | Residential (one or two-family private dwellings) | 1.00 |
| ii) | Residential (lodging and rooming houses, dormitories, apartment houses up to 15 m height) | 1.25 |
| iii) | Residential hotels (hotels and starred hotels) | 1.50 |
| iv) | High-rise residential | 1.50 |
| v) | Assembly (see Note) | 2.00 |
| vi) | Educational | 1.50 |
| vii) | Institutional | 2.00 |
| viii) | All other occupancies | 1.50 |

NOTE — The width of stairs may be accepted to be 1.50 m in case of assembly occupancy having less than 150 persons.

6.1.19.2 The staircase shall have the following general requirements:

- The minimum width of the tread without nosing shall be 300 mm. However, for one or two family private dwellings buildings, the minimum depth of the tread may be lowered to 250 mm.
- The maximum height of the riser shall be 150 mm. However, for one or two family private dwellings buildings, it may be increased to 190 mm.
- The number of risers in a staircase shall be limited to 12 per flight.
- The minimum headroom in a passage under the landing of a staircase shall be 2.20 m. The minimum clear headroom in any staircase shall be 2.20 m
- In case of public buildings and group housing, the height to the top of a handrail shall be between 850 mm and 950 mm above the pitch line of a stair and the surface of a landing. A second handrail, with a lower profile than the first one, shall be provided. The height to the top of the second handrail should be between 650 mm and 750 mm above the pitch line of a stair and the surface of a landing. There shall be sufficient distance between the two handrails (say, 200 mm).
- Staircases in public buildings and group housing shall have information signs identifying all points of entry and exit. Floor numbers shall be located on every floor, at top and bottom of stairs.
- Baluster shall be spaced with a maximum gap of 150 mm to avoid falling from under the railing.

6.1.19.3 Staircase in any building for public use shall be designed for universal accessibility in accordance with the relevant clauses of Part 3 'Fire and Life Safety' of NBC 2016.

6.1.19.4 Requirements for staircases forming part of exit shall be in accordance with **7.4.8** of these regulations.

6.1.20 Ramps for People's Movement

6.1.20.1 Ramps of an appropriate design shall be provided at all changes in level other than those served by an accessible lift or accessible lifting mechanism accommodating the specific requirements of persons with disabilities and heavy cargo as shown in Figure 25 and Figure 26. The minimum provisions for the ramps shall be as follows:

- a) The minimum clear width of the ramps shall be 1.20 m and shall increase correspondingly as the level differences given in Table 39.

Table 39 Required Dimension and Components of Ramps as per Level Difference

| SI No. | Level Difference (mm) | Maximum Gradient | Minimum Ramp Width (Exclusive of handrails) (m) | Handrails on Both Sides | Other Requirements |
|---------------|------------------------------|-------------------------|--|--------------------------------|--------------------------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | 150 – 300 | 1:12 | 1.20 | Yes | - |
| ii) | 301 – 750 | 1:12 | 1.50 | Yes | Landings after every 5 m of ramp run |
| iii) | 751 – 3,000 | 1:15 | 1.80 | Yes | Landings after every 9 m of ramp run |
| iv) | More than 3,000 | 1:20 | 1.80 | Yes | Landings after every 9 m of ramp run |

- b) Wherever the rise of a ramp exceeds 300 mm, an additional flight of steps shall also be provided for ambulant persons. An isolated single step is not acceptable; hence, a ramp is preferred to a single step.
- c) Ramps shall not connect straight to doors as wheelchair users need a levelled platform at the end of the ramp to manoeuvre and negotiate opening the door.
- d) The length of an end landing and an intermediate landing shall not be less than 1.50 m. Where the ramp run changes direction, the minimum landing dimensions shall be 1.50 m x 1.50 m.
- e) The minimum width of the ramps in nursing homes, hospitals, medical facility shall be 2.40 m.
- f) The gradient of the ramp shall be kept constant between the two landing platforms.

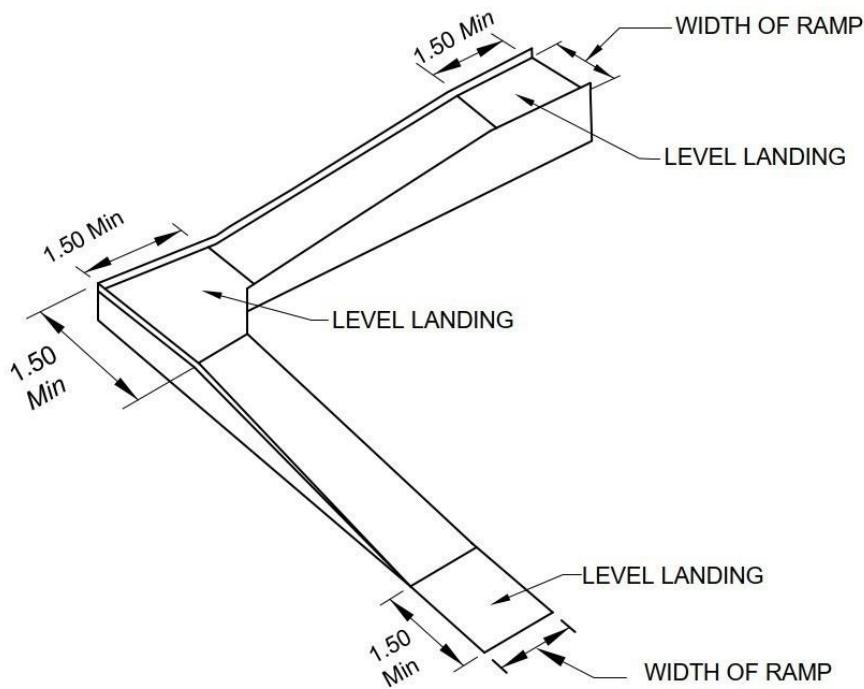


Figure 25 Landing Details for Ramps.

- g) Door shall never open directly on the landing of a ramp.
- h) The maximum distance between two landings in a ramp shall be 9 m.
- i) A 75 mm kerb shall be provided for the ramp and landing edges that are not adjacent to the wall for edge protection. Guarding along ramps in pathway shall meet the requirements as mentioned in B-2.2.6 of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.
- j) Single row of TGSI shall be placed at 300 mm before the beginning and at the end of each ramp to indicate a change in level for visually impaired persons.
- k) Materials of coarse texture that provide adequate grip and are non-glary, level, non-skid and are slip resistant even when wet, shall be used as surface materials for ramps.
- l) Outside ramps and landings shall be designed to not allow water accumulation on their surface.
- m) Ramps in public buildings and group housing shall have information signs identifying all points of entry and exit.
- n) Ramp for parking shall be provided in accordance with **5.7.7** of these regulations.
- o) Requirements for ramps forming part of exit shall be in accordance with **7.4.8** of these regulations.
- p) A ramp run with a vertical rise greater than 150 mm shall have handrails that are on both the sides.
- q) The height to the top of a handrail shall be between 850 mm and 950 mm above the surface of a ramp and the surface of a landing. A second handrail, with a lower profile than the first one, shall be provided. The height to the top of the second handrail should be between 650 mm and 750 mm above the surface of a ramp and the surface of a landing. There shall be sufficient distance between the two handrails (say, 200 mm).

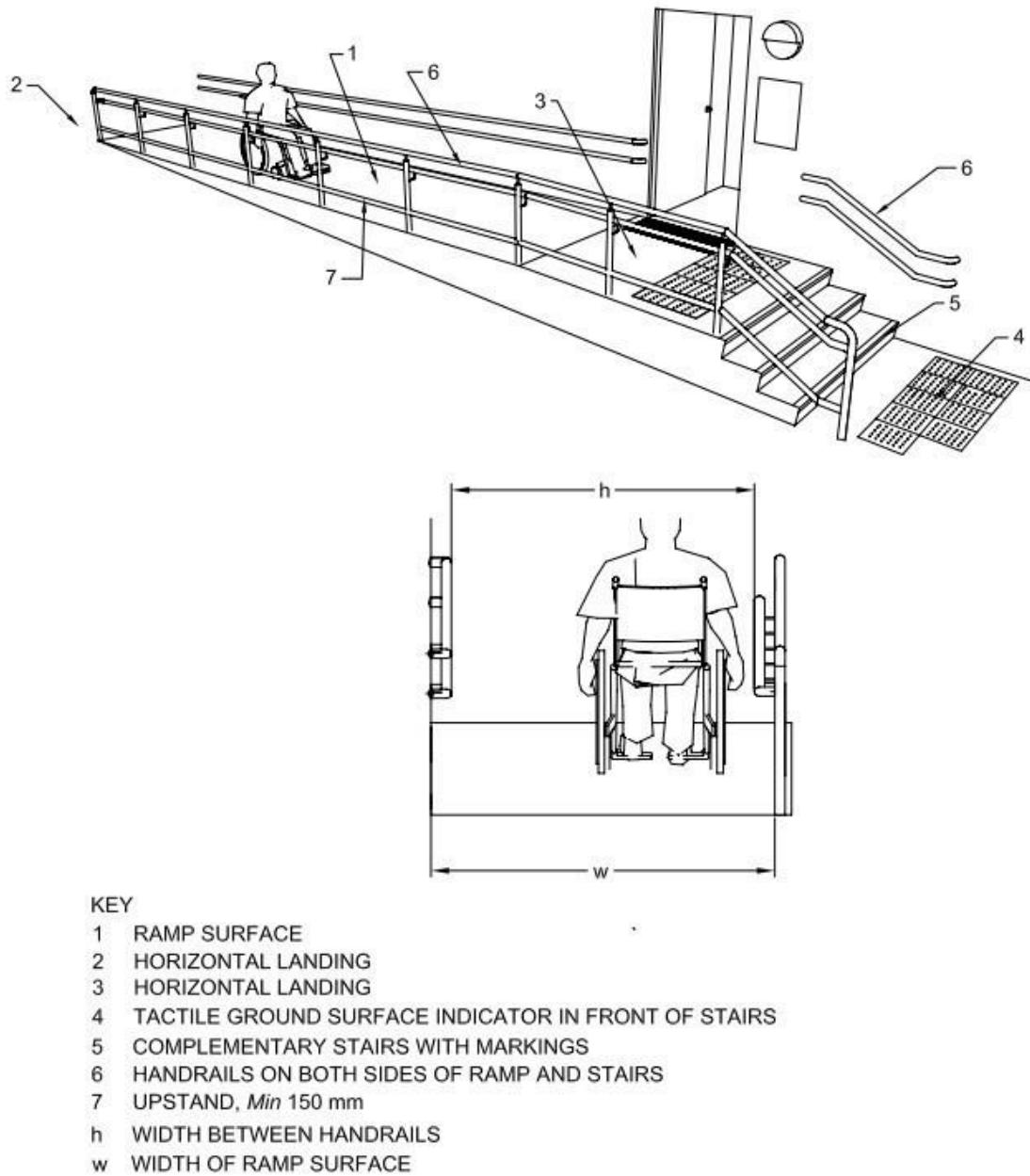


Figure 26 Example of Ramps with Horizontal Landings at the Beginning and the End

6.1.20.2 Internal ramps should be avoided. However, when required, the internal ramps shall comply with the following provisions:

- If an internal ramp is provided, it shall be provided with maximum gradient of 1:15 as a safety consideration for fire evacuations.
- The minimum illumination at the bottom and top of the internal ramps shall be 200 lux and around 150 lux in between the bottom and top of the ramp.

6.1.21 Lifts

6.1.21.1 The installation of lift shall be carried out in conformity with lift acts and rules of the states as amended from time to time.

6.1.21.2 The number, type, capacity, planning, designing and specification including rescue devices for emergency for lifts shall be in accordance with the relevant clauses of Part 8 'Building Services', Section 5A 'Lifts' of NBC 2016.

6.1.21.3 Lifts shall be provided based on building type and height as specified in Table 40.

Table 40 Lift Types and Usage

| SI No. | Lift Type | Intended Use | Building Type | Required for Building Heights (m) |
|--------|-------------------------------------|---|---|--|
| (1) | (2) | (3) | (4) | (5) |
| i) | Passenger | To carry passengers | Residential | > 15 m |
| ii) | Service | To carry goods along with passengers. | High-rise residential | > 24 m |
| | | | Mercantile, Industrial | Any building having more than one storey |
| iii) | Hospital bed/Stretcher ¹ | For medical and other emergencies | Institutional (Hospital) | Any building having more than one storey |
| | | | High rise buildings | > 30 m |
| iv) | Goods | To transport goods and service personnel | Factories, warehouses, similar buildings and wherever required. | Any building having more than one storey |
| v) | Fireman's | To carry fire services personnel in the event of fire or emergency. | Any high-rise building | > 15 m |
| vi) | Car | To facilitate vertical circulation of cars in the absence of ramps. | Buildings on podium without ramps and multi-level car parking | < 9 m |

¹The service lift may also be designed to serve the purpose of stretcher lift having depth of at least 2100 mm.

6.1.21.4 In any public building and group housing, at least one lift shall be designed in accordance to accessibility for PWD and shall comply with relevant clauses of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016. Accessible lifts shall have the following minimum requirements:

- a) The internal size of the lift shall be 1.50 m wide and 1.50 m deep.
- b) The clear opening of entrance to the lift car shall be at least 900 mm.
- c) The handrails shall be placed at the height of 0.90 m from the floor level of the lift. These shall be fixed at all the three sides of the lift.
- d) The height of the control panel inside the lifts shall be between 0.90 - 1.10 m from the floor surface of the lift.

- e) The call button placed outside the lifts in the lift lobbies shall be at a height of 0.80 - 1 m from the floor surface and shall have a clear floor space of 0.90 m x 1.50 m.
- f) Buttons in the lift shall have braille/raised letters and a sharp contrast from the background, for people with visual impairments.
- g) Lifts shall have voice announcement systems along with the visual display. The announcement shall be clearly audible with a preferred order of 50 dB.
- h) Lifts shall be marked with the international symbol of accessibility.
- i) Directional signs indicating the location of an accessible lift shall be provided at a location that is clearly visible from the accessible building entrance. The directional signs shall incorporate a representation of the International symbol of accessibility.

6.1.21.5 Lifts and lift lobbies shall be easily accessible from all entrances and exits of the building.

6.1.21.6 The number of each floor shall be clearly painted in figures at least 150 mm large on the wall opposite the lift/lifts opening or on other suitable surface to be distinctly visible.

6.1.21.7 It is responsibility of the owner of the premises where the lift will be installed, to obtain necessary permission from the Authority before and after the installation of lifts and for subsequent operation of lifts.

6.1.21.8 A licence for public use is a safety provision, issued by state authorities under Lifts Acts and Rules wherever they are in force, and shall be obtained as per the laid down statutory requirement.

6.1.21.9 Additional spatial requirement for fireman's and evacuation lifts as egress components shall be in accordance with **7.4.16** and **7.4.17** of these regulations and Part 4 'Fire and Life Safety' of NBC 2016.

6.1.21.10 Operation, maintenance and inspection for lifts shall be in accordance with the relevant sections of Part 8 'Building Services', Section 5A 'Lifts' and Part 12 'Asset and Facility Management' of NBC 2016.

6.1.22 Escalators and Moving Walks

6.1.22.1 Escalators may be provided where large number of people move at a controlled rate in minimum space such as airports, railway stations, transportation hubs, shopping centres/malls. Horizontal moving walks may be provided where medium to long distance travel is involved such as airports, metro stations and exhibition halls.

6.1.22.2 The number, type, capacity, planning, designing and specification for safety devices of escalators and moving walks shall be in accordance with the relevant clauses of Part 8 'Building Services', Section 5B 'Escalators and Moving Walks' of NBC 2016.

6.1.22.3 A clear headroom of 2.30 m shall be provided above the steps of escalators/moving walks extending up to the newel.

6.1.22.4 At the exit(s) of each individual escalator or moving walk, a sufficient unrestricted area shall be available to accommodate persons. The width of the unrestricted area shall at least correspond to the distance between the outer edges of the handrails plus 80 mm on each side. The depth shall be at least 2.50 m measured from the end of the balustrade (Option 1 in Figure 27). It shall be permissible to reduce the depth to 2.00 m if the width of the unrestricted area is increased to at least double the distance between the outer edges of the handrails plus 80 mm on each side (Option 2 in Figure 27).

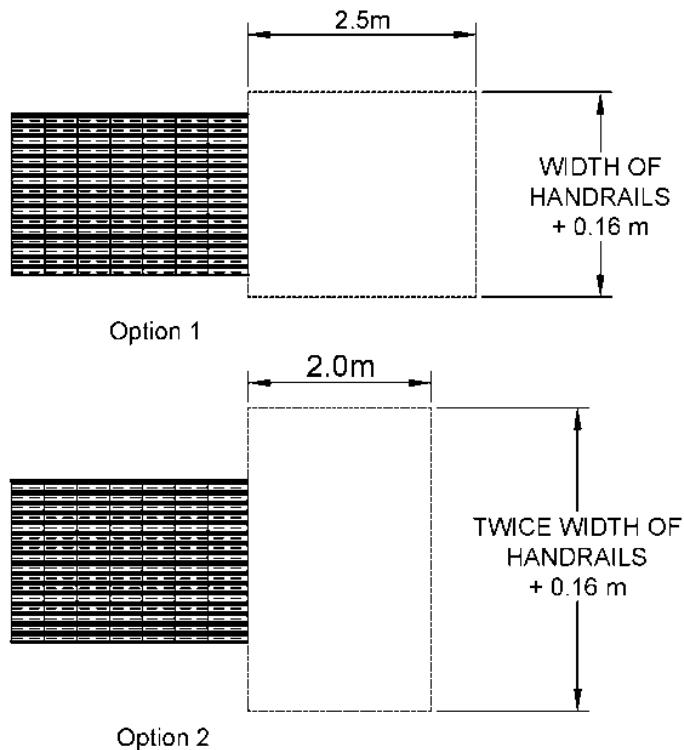


Figure 27 Unrestricted Free Space

6.1.22.5 For escalators arranged adjacent to one another either parallel or criss-cross, the distance between the handrail shall not be less than 160 mm.

6.1.22.6 The escalator and moving walks shall be well illuminated with a minimum intensity of 100 lux. Adequate lightings and indicators shall be provided at the combs, entrance, exit, and for emergency.

6.1.23 Vertical and Inclined Lifting Platforms

6.1.23.1 A vertical or an inclined lifting platform may be permitted to enhance accessibility for PwD in an existing building where it is impractical or impossible to provide lifts or ramps due to spatial constraints. Inclined lifting platforms are installed along the stairwall to connect one or more floors or to overcome split levels in existing buildings.

6.1.23.2 Where provided, vertical lifting platform shall be permitted for a maximum level change of 2.50 m. For level changes of more than 1.20 m, the lift shall be placed in a closed structure with doors at different accessible levels.

6.1.23.3 Where provided, inclined lifting platforms shall not obstruct the required width of the exit.

6.1.23.4 The minimum width of the platform lift shall be 1100 mm and the minimum length shall be 1400 mm for the use of manual and powered wheelchairs with assistance. In existing buildings of minor public importance and with few visitors, where sufficient space is not available, other dimensions may be considered, for example 900 mm x 1250 mm.

6.1.24 Service Floors

6.1.24.1 In a multi-storeyed building having height more than 24 m, service floors may be provided. However, hospital and hotel buildings may be provided with service floors regardless of building height, if considered necessary. Service floors shall not be used for any habitation/building occupancy/or as refuge areas.

6.1.24.2 A maximum of three service floors shall be permitted per building.

6.1.24.3 There shall be atleast four floors in between two adjacent service floors.

6.1.24.4 The maximum height of the service floors shall be 2.40 m.

6.1.25 Office Cabin

6.1.25.1 The size of a cabin shall be minimum 3 m² with a minimum width of 1 m.

6.1.25.2 The clear passages within the divided space of any floor shall be minimum 1 m.

6.1.25.3 The distance of a cabin to the nearest exit shall not be more than 18.50 m.

6.1.25.4 In case the subdivided cabin does not derive direct ventilation from any open spaces/mechanical means, the maximum height of the cabin shall be 2.20 m and shall be kept open from top, above that height, for the purpose of ventilation.

6.1.26 Boundary Wall

6.1.26.1 The maximum height of the boundary wall shall be measured above the centre line of the parallel/adjacent road. The boundary walls shall have the following maximum height requirements as specified in Table 41.

Table 41 Maximum Height Requirements for a Boundary Wall

| SI No. | Type | Height (m) | Requirements |
|---------------|--|-------------------|--|
| (1) | (2) | (3) | (4) |
| i) | Front wall | 1.50 | - |
| | Side and rear wall | 2.40 | The top 0.90 m shall be an open type of construction |
| ii) | Corner plot | 0.75 | Additional height of 0.75 m may be permitted for open type of construction (railings) |
| iii) | Industrial buildings, electric substations, transformer stations; institutional buildings like sanatorium, hospitals; industrial buildings like workshops, factories and educational buildings like schools, colleges, hostels; other public utility spaces and strategically sensitive buildings. | 2.40 | - |
| iv) | Cremation and burial grounds | 1.80 | - |
| v) | Independent playgrounds | 0.45 | The wall may have a thickness of 0.45 m or more with smooth finished surface which can be comfortable for sitting purpose. |

| Sl No. | Type | Height (m) | Requirements |
|---------------|----------------------|-------------------|--|
| (1) | (2) | (3) | (4) |
| vi) | Parks and recreation | 1.50 | The top 0.90 m may be an open type of construction |

6.1.26.2 The boundary wall gate shall open entirely inside the property and shall not open on any street or pedestrian sidewalks.

6.1.26.3 The above provisions for boundary walls shall not be applicable for jails.

6.1.27 Open Wells

6.1.27.1 Construction of open wells shall be carried out only with the approval from the Authority.

6.1.27.2 Open wells where provided shall be in accordance with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

6.1.27.3 Open wells shall not be less than 15 m from any ash pit, refuse pit, earth closet or privy and shall be located on a site upwards from the earth closet or privy.

6.1.27.4 Open wells shall not be less than 18 m from any cess pit soakway or borehole latrine and shall be located on a site upwards from the earth closet or privy.

6.1.27.5 The water in open well shall be free from contamination, and shall not be constructed under a tree, or otherwise it shall have a canopy over it.

6.1.28 Septic Tanks

6.1.28.1 Wherever septic tanks are provided, the location, design and construction of the septic tank shall be in accordance with Part 3 'Development Control Rules and General Building Requirements', Section 12 'Requirements of Parts of Building' and Part 9 'Plumbing Services', Section 2 'Drainage and Sanitation' of NBC 2016.

6.1.28.2 To avoid a risk of bacterial contamination, a subsoil dispersion system shall be minimum 18 m away from a drinking water supply/source. A distance of 6 m shall be maintained from any nearest building.

6.1.28.3 Septic tanks shall have the following requirements:

- a) Septic tanks shall have a minimum width of 750 mm, a minimum depth of 1 m below the water level and a minimum liquid capacity of 1 m³. The length of tanks shall be 2 - 4 times the width.
- b) Septic tanks may be constructed of brick work, stone masonry, concrete or other suitable materials.
- c) Under no circumstances shall effluent from a septic tank be allowed into an open channel drain or body of water without adequate treatment.
- d) The minimum diameter of the pipe connecting to septic tank shall be 100 mm. Further, at junctions of pipes in manholes, the direction of flow from a branch connection shall not make an angle exceeding 45° with the direction of flow in the main pipe.
- e) The gradients of land drains, under-drainage as well as the bottom of dispersion trenches and soak ways shall be between 1:300 and 1:400.
- f) Ventilation requirement for septic tanks shall be as follows:

- i) Every septic tank shall be provided with ventilating pipe of at least 50 mm diameter.
 - ii) The top of the pipe shall be provided with a suitable cage of mosquito-proof wire mesh.
 - iii) For septic tank 15 m away from the building, a 2 m tall ventilating pipe shall be permissible. However, pipes shall be taller than 2 m if the distance between septic tank and building is less than 15 m.
- g) Seepage pit requirements for septic tanks shall be as follows:
- i) The seepage pit may be of any suitable shape with the least cross-sectional dimension of 0.90 m and a minimum 1 m in depth below the invert level of the inlet pipe.
 - ii) The pit may be lined with stone, brick or concrete blocks with dry open joints which shall be backed with at least 75 mm of clean coarse aggregate.
 - iii) The lining above the inlet level shall be finished with mortar.
 - iv) In the case of pits of large dimensions, the top portion may be narrowed to reduce the size of the RCC cover slabs.
 - v) Where no lining is used, especially near trees, the entire pit shall be filled with loose stones.
 - vi) A masonry ring may be constructed at the top of the pit to prevent damage by flooding of the pit by surface runoff.
 - vii) The inlet pipe may be taken down to a depth of 0.90 m from the top as an anti-mosquito measure.
- h) Dispersion trench requirements are as follows:
- i) The dispersion trench of depth 0.50 -1.00 m and width of 0.30-1.00 m shall be excavated at a slight gradient.
 - ii) Washed gravel or crushed stone of size 150-250 mm shall be provided.
 - iii) Open jointed pipes made from unglazed earthenware clay or concrete having a minimum internal diameter of 75 mm shall be placed inside the trench.
 - iv) Each dispersion trench shall have a maximum length of 30 m.
 - v) Trenches shall be placed at a minimum distance of 1.80 m.

6.1.29 Refuse Chutes

6.1.29.1 Refuse chutes may be provided in buildings exceeding 5 floors.

6.1.29.2 The minimum internal diameter of chute shall be 0.30 m.

6.1.29.3 The vertical opening of the chute on each floor shall be maximum 700 mm with a minimum clear space of 1.50 m x 1.50 m in front of the chute opening to gain easy access for persons using wheelchairs.

6.1.29.4 There may be high colour contrast provided around the refuse chute opening to make it easy to identify it.

6.1.29.5 The flooring in front of the chute opening may be texturally different from the rest of the floor.

6.1.29.6 The minimum requirements for refuse collection chamber are as follows.

- a) Refuse collection chamber may be located on the ground floor or basement, provided appropriate arrangement is made for drainage of the collection pit.
- b) An appropriate number of ramps access shall be provided for convenient removal of garbage from the collection pit with appropriate ventilation facility for escape of gas and odour.
- c) The floor of the chamber shall be provided with drainage through a 100 mm diameter trap and screen to prevent solid matters flowing into the drain and the drain shall be connected to the sewer line.
- d) The floor shall be finished with smooth hard surface for convenient cleaning.
- e) The height of the collection chamber and vertical clearance under the bottom level of garbage chute shall be convenient enough for placement of garbage trolley.

6.1.29.7 Refuse chutes shall be located at least 6 m away from any fire exit.

6.1.29.8 They shall not be located within the staircase enclosure or service shafts, or air conditioning shafts.

6.1.29.9 The opening of refuse chute shall be at least 1 m above roof level for venting purposes.

6.1.30 Office cum Letter Box Room

6.1.30.1 An office cum letter box room shall be provided for all multi-storeyed apartments. This room may be used as office space for housing societies. Each building in a housing society and every wing in a building may have their own letter box room.

6.1.30.2 A room of minimum size 3.60 m x 3.00 m shall be provided on the ground floor. The maximum dimension for an office cum letter box room shall be as specified in Table 42.

Table 42 Maximum Floor Area of Society/RWA Office or Project/Site Office

| SI No. | Type | Maximum Floor Area (m ²) |
|--------|--|--------------------------------------|
| (1) | (2) | (3) |
| i) | Multi-storied multi-family up to 20 DUs | 12 |
| ii) | More than 20 DUs in a multi-storied apartments | 20 |

6.1.30.3 Business buildings shall have provisions for letter boxes at the building entrance as per the requirements by the postal department.

6.1.30.4 Letter boxes shall be located at a maximum height of 1.20 m, with a clear floor space of 1.20 m x 0.90 m in front of the letter box.

6.1.31 Meter Rooms

6.1.31.1 A ventilated meter room shall be provided on the ground floor with direct access from outside in all high rise and special buildings, as per requirements of electric (service) supply undertakings.

6.1.31.2 If the meters are provided on upper floors, then the licensees' cables shall be segregated from consumers' cables by providing a partition in the shaft.

6.1.31.3 Meter rooms on upper floors shall not open into staircase enclosures and shall be ventilated directly to open air outside or in electrical room.

6.1.31.4 Meters shall not be located near exits and exit passageways.

6.1.31.5 Equipment and accessories to be used in meter rooms and meter placement in high rise buildings, shall be in accordance with relevant clauses of Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.

6.1.31.6 More than 24 meters shall not be provided on one switch board at a location.

6.1.32 Water Tanks

6.1.32.1 Overhead tanks and/or underground tanks wherever provided for storage of water for domestic and/or firefighting purposes shall be provided with adequate number of accessholes for access and repair. These holes shall be provided with locking arrangement to avoid misuse and tampering.

6.1.32.2 Every storage tank shall be easily accessible and placed in such a position as to enable thorough inspection and cleaning to be carried out.

6.1.32.3 Every overhead water storage tank shall be maintained in a mosquito-proof condition by providing a properly fitting hinged cover and every tank more than 900 mm deep shall be provided with a corrosion resistant ladder(s) to enable a person to reach the bottom of the tank.

6.1.32.4 Other requirements for water tanks shall be in accordance with relevant clauses of Part 9 'Plumbing Services', Section 1 'Water Supply' of NBC 2016.

6.1.33 Swimming Pools

6.1.33.1 All pools open to public shall take care of the barrier-free design for accessibility and use by persons with disabilities.

6.1.33.2 Swimming pool user load

The maximum load for the pool shall be as given in Table 43.

Table 43 Maximum Load for the Pool

| SI No. | Pool Depth | Surface Area per User |
|--------|-----------------|-----------------------|
| (1) | (2) | (3) |
| i) | Upto 1 m | 2.2 m ² |
| ii) | Upto 1.5 m | 2.7 m ² |
| iii) | More than 1.5 m | 4.0 m ² |

6.1.33.3 Design

- a) The pool should be so designed to withstand all anticipated hydraulic structural loadings for both full and empty conditions. All appurtenances to the pool, such as diving boards and slides, shall be designed to carry the anticipated load.
- b) Any obstruction creating a safety hazard shall not extend into or above the pool, or shall not protrude from the floor of the pool.

6.1.33.4 Dimensions

The shape and size of a pool largely depend on the usage. Shape should be considered from the standpoint of safety and circulation of the pool water. Recommendations in this regard, as given in Part 9 'Plumbing Services' of NBC 2016, may be referred to.

6.1.33.5 Floor slopes

Slope of the floor of the pool should be made downward toward the main drain. All slopes should be uniform. The slope in shallow areas should not exceed 300 mm vertical in 3.6 m horizontal except for a slope directed downward from a transition point, which shall not exceed 300 mm vertical in 1 m horizontal. In portions of the pool with a depth greater than 1.5 m, the front slope of the deep area shall not be steeper than 300 mm in 1 m.

6.1.33.6 Transition point

- a) Transition points should be marked with a stripe on the pool floor having a width of at least 100 mm and a colour that contrasts with that of the floor, and with a buoyed safety rope with colour buoys, installed at least 300 mm on the shallow side of the transition point.
- b) In other pools having adjoining shallow and deep areas, a safety rope with colour buoys shall be installed where the water depth reaches 1.50 m.

6.1.33.7 Pool walls

Where the pool depth is 1 m or less, pool walls shall be vertical to the floor and the junction of the wall with the floor shall consist of a cove with a radius not exceeding 150 mm. Where the pool depth exceeds 1 m, pool walls shall meet one of the following criteria:

- a) The wall shall be vertical for a depth of at least 1.50 m below the water level, below which the wall may angle to the floor; or
- b) The wall shall be vertical for a depth of at least 1 m below the water level, below which the wall shall form a curve to the floor. The curve shall be tangent to the pool wall.

6.1.33.8 Water depth

- a) The depth of a swimming pool depends on the purpose of the pool, and whether it is open to the public or strictly for private use. If it is a private casual, relaxing pool, it may go from 1.0 m to 1.50 m deep. If it is a public pool designed for diving, it may slope from 3.50 m to 5 .0 m in the deep end. A children's play pool may be from 0.3 m to 0.6 m deep. Public pools may have differing depths to accommodate different swimmer requirements. Water depths may be clearly marked on the pool walls.
- b) The width between handrails of the pool stairs should be between 500 mm and 600 mm.

6.1.33.9 Walkways and deck areas

- a) Pools shall be completely surrounded by a deck that is at least 1.20 m in width and extends completely around and adjacent to the pool. There shall be no obstructions or interruptions of the pool deck within the 1.20 m adjacent to the pool other than necessary structural supports, or appurtenances such as diving boards, slides, perimeter overflow systems, or handrails. A clear, unobstructed walkway at least 1.20 m in width shall be maintained at such obstructions or interruptions. A wheelchair turning space of minimum 1.50 m X 1.50 m shall be provided at key places in the walkway.
- b) The deck between two adjacent swimming pools shall be at least 2.50 m wide. All decks and walkways shall have an unobstructed overhead clearance of at least 2 m.

6.1.33.10 Starting platforms

- a) Starting platforms may be from 0.50 m to 0.75 m above the surface of water. The maximum height of the platform above the water shall be 0.75 m where the water depth is 1.20 m or greater, and 0.50 m when the water depth is less than 1.20 m.
- b) The surface area of each platform shall be 0.50 m X 0.50 m with a maximum slope of not more than 10°.
- c) Surface of each block shall be covered with non-slip material and with back stroke hand grip facility.

6.1.33.11 All other requirements of swimming pools shall be in accordance with the relevant clauses in Part 9 'Plumbing Services', Section 1 'Water Supply' of NBC 2016.

6.1.34 Helipad

6.1.34.1 A helipad may be permitted on the rooftop of the building having height more than 200 m subject to structural stability certificate from the registered Structural Engineer and all other statutory permissions. However, a helipad may also be permitted on rooftop of buildings related to hospital services and security services having height less than 200 m.

6.1.34.2 Provision for helipad is recommended for specific requirements like landing of fire equipment, and support facilities or other emergencies.

6.1.34.3 Such helipad structures shall be designed as per the latest guidelines of Directorate General of Civil Aviation and International Civil Aviation Organization's Heliport Manual.

6.1.35 Substation and Switch Rooms

6.1.35.1 Layout, capacity, size and safety of substation and HV/MV switch rooms/space shall be in accordance with relevant clauses of Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.

6.1.35.2 The minimum height of substation room *and/or HV/MV switch room* shall be arrived at by considering 1.20 m clearance from top of the equipment (transformer, HV switchgear, MV switchgear) to soffit of the beam. In case cable entry/exit is from above the equipment, height of substation room and/or HV/MV switch room shall also take into account requirement of space for turning radius of cable above the equipment height.

6.1.35.3 Requirements for location of substation shall be as follows:

- a) Substations should preferably be located in separate utility building, and may be adjacent to generator room, if any. Location of a substation should be avoided in the basement.
- b) In case there is only one basement in a building, the substation/switchroom shall not be provided in the basement. Also, the floor level of the substation shall not be lowest point of the basement.
- c) The floor level of the substation/switchroom shall be at least 300 mm above the highest flood water level that may be anticipated in the locality. Also, facility shall be provided for automatic removal of water.
- d) Substation shall not be located immediately above or below plumbing water tanks or sewage treatment plant (STP) water tanks at the same location.
- e) Substation/switch room/space shall not be used as storage or dump areas or any other utility purpose other than those required for the functioning of a substation.
- f) Access to the substation shall be provided from the nearest exit/exit staircase for the purpose of electrical isolation.

- g) All door openings from substation, electrical rooms, etc, should open outwards. Vertical shutters (like fire rated rolling shutters) may also be acceptable provided they are combined with a single leaf door opening outwards for exit in case of emergency. For large substation room/electrical room having multiple equipment, two or more doors shall be provided which shall be remotely located from each other.
- h) No services or ventilation shafts shall open into substation or switch room unless specific to substation or switch room.
- i) Oil-filled installation
 - i) Substations with oil-filled equipment/apparatus (transformers and high voltage panels) shall be either located in open or in a utility building.
 - ii) They shall not be located in any floor other than the ground floor or the first basement of a utility building. They shall not be located below first basement slab of utility building.
 - iii) They shall have direct access from outside the building for operation and maintenance of the equipment.
 - iv) Substations/Utility buildings (where the substation or oil-filled transformer is located) shall be separated from the adjoining buildings including the main building by at least 7 m clear distance to allow passage of fire tender between the substation/utility building and adjoining building/main building.
 - v) There shall be no interconnecting basement with the main building underneath the oil-filled transformers.
 - vi) Provisions for oil drainage to a point at a lower level and separated by adequate fire barrier shall be provided. If there is a floor directly below the ground floor level or first basement where the oil-filled transformers and oil-filled circuit breakers are placed, then they shall be separated by a fire barrier of appropriate fire rating as per Part 4 'Fire and Life Safety' of NBC 2016 and proper oil drainage system shall be provided to avoid possible leakage of oil into the lower floor.
 - vii) Substation equipment having more than 2,000 litre of oil whether located indoors in the utility building or outdoors shall have baffle walls of 4 h fire rating between apparatus (refer to Part 4 'Fire and Life Safety' of NBC 2016 for fire safety related requirements).
 - viii) Provisions shall be made for suitable oil soak-pit, and where use of more than 9000 litre of oil in any one oil tank, receptacle or chamber is involved, provision shall be made for the draining away or removal of any oil which may leak or escape from the tank, receptacle or chamber containing the same. Special precautions shall be taken to prevent the spread of any fire resulting from the ignition of the oil from any cause and adequate provision shall be made for extinguishing any fire which may occur.
 - ix) In respect of all oil type transformers located at basement, a kerb (sill) of a suitable height shall be provided at the entrance in order to prevent the flow of oil from a ruptured transformer into other parts of the basement in the event of the possibility of oil spillage from the transformer on its failure.
 - x) Adequate fire barriers or deflectors shall be provided to avoid flames from the substation reaching or affecting the upper floors (refer to Part 4 'Fire and Life Safety' of NBC 2016).

- xii) For transformers having large oil content (more than 2,000 litre), Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010 as amended from time to time shall apply.
 - xiii) Other requirements for oil-filled installation shall be as per Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.
- j) Dry-type installation
- i) In case electric substation has to be located within the main multi-storeyed building itself for unavoidable reasons, it shall be a dry-type installation with very little combustible material, such as, a dry type transformer with vacuum (or SFG) breakers as HT switchgear and ACE or MCCB as medium voltage (MV) switchgear.
 - ii) Such substations shall be located on the ground level or on first basement, and shall have direct access from the outside of the building for operation and maintenance of the equipment.
 - iii) Exceptionally, in case of functional buildings, such as air traffic control towers, data centres and buildings of height more than 100 m having high electrical load requirement, dry-type installations/substations may also be provided at upper level. In such cases, a base substation shall be located at ground floor/first basement to cater to the main MV/LV panel which feeds life and safety services loads.
 - iv) The base substation shall be located in such a way to provide direct access to the firemen in case of any emergency. The power supply control to any substation or transformer located at upper floors shall be from the base substation so that in case of fire, the electrical supply can be easily disconnected to avoid additional losses.
 - v) Other requirements for dry-type installation shall be as per Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.
- k) In places where flooding can occur and water level may go above 1000 mm, the base substation may be located on one level above the ground level of a utility building. In such cases, one feeder should feed ground level and levels below with automatic tripping of the feeder to avoid electrocution in case of live electricity coming in contact with water. Designers shall use their discretion in special cases and depending on the degree of reliability, redundancy and the category of load and make suitable provisions.
- NOTE — In cases, where the substation is located one level above ground level of utility building, this should be after due evaluation of the other risks posed by such a location combined with the concurrence for such a decision from State Electricity Authority comprising the electrical inspectorate and the distribution licensee and the fire service.
- l) The requirements for high voltage/medium voltage switch room/space shall be in accordance with Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.
 - m) All the rooms shall be provided with partitions up to the ceiling and shall have proper ventilation. Special care should be taken to dissipate transformer heat and where necessary fresh air louvers at lower level and exhaust fans at higher level shall be provided at suitable locations.
 - n) In case of cable trench in substation HV/MV switch room, the same shall be adequately drained to ensure no water is stagnated at any time with live cables.

- o) In case of a compact substation, design and location of the substation shall ensure safety of the people around it if installed along walkways, playgrounds, etc. Fencing shall be provided around compact substation in accordance with Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.
- p) Other requirements for installation of substation/transformer and other electrical apparatus shall be in accordance with Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.
- q) The fire safety requirements for substation and electrical rooms, including fire rating requirements of substations enclosure, that is, walls, floor, ceiling, openings, doors, etc, as given in Part 4 'Fire and Life Safety' of NBC 2016 shall also be complied with.
- r) Other requirements as given in Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010 as amended shall also be complied with.

6.1.36 Switch Rooms other than in Sub Station

6.1.36.1 In large installations other than where the substation is provided, a separate switch room shall be provided; this shall be located as close to the electrical load centre as possible, on the ground floor or on the first basement level of the building.

6.1.36.2 The switch room shall also be placed in such a position that riser shafts may readily be provided therefrom to the upper floors of the building in one straight vertical run.

6.1.36.3 Other requirements for such switch rooms shall be as per Part 8 'Building Services', Section 2 'Electrical and Allied installations' of NBC 2016.

6.1.37 Emergency Power Backup System (Standby Supply)

6.1.37.1 Diesel generator set(s) shall not be installed at any floor other than ground/first basement. If the same are installed indoors, proper ventilation and exhaust shall be planned.

6.1.37.2 Other requirements for emergency power backup system, including those for sound insulation and noise control, shall be as per Part 8 'Building Services', Section 2 'Electrical and Allied installations' of NBC 2016.

6.1.38 Wiring, fitting and accessories, lightning protection, earthing, inspection, testing and verification of installations shall be in accordance with Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.

6.1.39 Equipment Room for Central Air Conditioning Plant

6.1.39.1 The equipment room shall be preferably located within the building and closer to the external wall for facilitating ventilation and equipment movement.

6.1.39.2 The equipment may also be installed in a separate service block which shall be located in close vicinity of load/building being conditioned.

6.1.39.3 The clear headroom below the soffit of the beam shall be minimum 4.50 m for larger capacity chillers (500 TR and above) and a minimum of 3.60 m for smaller plants.

6.1.39.4 The floors of the equipment rooms shall be of smooth finish.

6.1.39.5 Supports for pipes within plant room spaces shall be normally from the floor level. However, outside plant room areas, structural provisions shall be made for supporting the water pipes from the floor/ceiling slabs. All floor and ceiling supports shall be isolated from the structure to prevent transmission of vibrations.

6.1.39.6 Equipment rooms shall have provision for mechanical ventilation, wherever necessary.

6.1.39.7 Appropriate sound insulation and noise control measures shall be taken as per Part 8 'Building Services', Section 4 'Acoustics, Sound Insulation and Noise Control' of NBC 2016 for equipment rooms.

6.1.39.8 In case air conditioning plant room is located in the basement, equipment movement route shall be planned to facilitate future replacement and maintenance. Service ramps or hatch in ground floor slab shall be provided in such cases.

6.1.39.9 Fire egress and emergency battery backup lighting shall be provided.

6.1.39.10 Floor drain channels or dedicated drain pipes in slope shall be provided within plant room space for effective disposal of wastewater, if necessary by automatic level control sump pumps. Fresh water connection may also be provided in the plant room.

6.1.39.11 Other requirements for equipment rooms shall be in accordance with relevant clauses of Part 8 'Building Services', Section 3 'Air Conditioning, Heating and Mechanical Ventilation' of NBC 2016.

6.1.39.12 Requirements of fire safety for air conditioning, ventilation and smoke control in a building shall be in accordance with relevant provisions of Part 4 'Fire and Life Safety' of NBC 2016.

6.1.40 *Equipment Room for Air Handling Units (AHU) and Package Units*

6.1.40.1 The room shall be located as centrally as possible and contiguous to the corridors, or other service areas, for carrying air ducts in ceiling spaces.

6.1.40.2 In case of special and high-rise buildings, AHU rooms shall be provided in accordance with Part 4 'Fire and Life Safety' of NBC 2016, and preferably be located vertically one above the other.

6.1.40.3 The room shall have provisions for entry of outdoor ventilation air into AHU room.

6.1.40.4 Exterior openings for outdoor air intake and exhaust outlets shall have louvers having rain protection profile, volume control damper, pre-filter and bird screen.

6.1.40.5 In all cases, outdoor air intakes shall be so located as to avoid contamination from exhaust outlets. It is recommended to maintain a minimum 8 m separation between outdoor air intake points and exhaust outlets.

6.1.40.6 Exhaust air from any DU shall not be circulated/ingress directly or indirectly to any other dwelling unit, to a public corridor or into a public staircase.

6.1.40.7 All AHU rooms shall have floor drains and if possible, water supply connection. The trap in floor drain shall provide a water seal between the air-conditioned space and the drain line.

6.1.40.8 Supply/return air duct serving other areas shall not be taken through fire exits.

6.1.40.9 Waterproofing of AHU rooms shall be carried out to prevent damage to the floor below.

6.1.40.10 The floors of the equipment rooms shall be of a smooth finish.

6.1.40.11 Structural design shall avoid beam obstruction to the passage of supply and return air ducts. Adequate ceiling space should be made available outside the AHU room to permit installation of supply and return air ducts and fire/smoke dampers at compartment wall crossings.

6.1.40.12 Appropriate sound insulation and noise control measures shall be taken in AHU rooms, if located in close proximity to occupied areas, in accordance with relevant clauses of

Part 8 'Building Services', Section 4 'Acoustics, Sound Insulation and Noise Control' of NBC 2016.

6.1.40.13 Access door to AHU room shall be single/double leaf type, airtight, opening outwards and should have a sill to prevent flooding of adjacent occupied areas. It is desired that access panels in air-conditioned spaces should be provided with tight sealing, gaskets and self-closing devices for air conditioning to be effective.

6.1.40.14 It shall be possible to isolate AHU room in case of fire. The door shall be fire resistant and fire/smoke dampers shall be provided in supply/return air duct at wall crossings.

6.1.40.15 Fire isolation shall be provided for vertical fresh air duct, connecting several floors.

6.1.40.16 Individual AHU shall be installed for each fire compartment. Alternately, fire barrier shall be provided at each fire separation for AHU serving more than one compartment.

6.1.40.17 Other requirements of fire safety for AHU in a building shall be in accordance with relevant provisions of Part 4 'Fire and Life Safety' of NBC 2016.

6.1.41 *Pipe Shafts*

6.1.41.1 The shaft carrying chilled water pipes shall be located adjacent to the AHU room or within the room.

6.1.41.2 Shaft carrying condensing water pipes to cooling towers located on the terrace shall be vertically aligned.

6.1.41.3 All shafts shall be provided with fire barrier at floor crossings.

6.1.41.4 Access to shaft shall be provided at every level, if there is any serviceable component in the shaft.

6.1.41.5 In case of tall buildings, care shall be taken for expansion/contraction of pipes while planning the supports.

6.1.42 *Supply and Return Air Ducts*

6.1.42.1 The duct support shall be designed to handle the load and shall also take into account seismic consideration.

6.1.42.2 In case of false ceiling, the support for the duct and the false ceiling shall be independent. Collars for grilles and diffusers shall be taken out only after false ceiling/boxing framework is done and frames for fixing grilles and diffusers have been installed. Flexible ducts may be used for making the final connections.

6.1.42.3 Where a duct penetrates the masonry wall, it shall be either be suitably covered on the outside to isolate it from masonry or an air gap shall be left around it to prevent vibration transmission. Further, where a duct passes through a fire resisting compartment/barrier, the annular space shall be sealed with fire sealant to prevent smoke transmission.

6.1.43 Cooling towers shall be installed at a place where free flow of atmospheric air is available. All requirements of cooling towers shall be as per relevant clauses in Part 8 'Building Services', Section 3 'Air conditioning, Heating and Mechanical Ventilation ' of NBC 2016.

6.1.44 *Telecommunication Spaces*

6.1.44.1 Telecommunication spaces are the rooms and areas where telecommunications cabling systems are terminated, cross-connected and interconnected to installed telecommunications equipment. Various examples of these based on the function and areas, are equipment room (ER), telecommunications room (TR), entrance facilities (EF) and telecommunication enclosures (TE). The general requirements for Telecommunication

Spaces shall be in accordance to Part 8 'Building Services' Section 6 'Information and Communication Enabled Installations' of NBC 2016, as amended from time to time.

6.1.45 For other requirements of building services, in addition to those covered in these regulations, the requirements covered in the following sections of Part 8 'Building Services' of NBC 2016 shall be complied with:

- a) Section 1 'Lighting and Natural Ventilation';
- b) Section 2 'Electrical and Allied Installations';
- c) Section 3 'Air Conditioning, Heating and Mechanical Ventilation';
- d) Section 4 'Acoustics, Sound Insulation and Noise Control';
- e) Section 5 'Installation of Lifts, Escalators and Moving Walks'; and
- f) Section 6 'Information and Communication Enabled Installations'.

6.1.46 For operation and maintenance of hard and soft services including security services, Part 12 'Asset and Facility Management' of NBC 2016, shall be followed.

6.1.47 For high-rise and special buildings, the fire and life safety requirements as per the relevant clauses in Part 4 'Fire and Life Safety' of NBC 2016, shall also be complied with.

FIRE AND LIFE SAFETY

Explanatory Note:

This chapter includes requirements for fire and life safety in buildings. Key points to consider while reading the chapter are as follows:

- 1) *The provisions of this chapter are applicable to specific buildings (as provided in 7.1 of this Standardized Regulations). However, the owner of any building or parties to agreement may decide to apply the provisions to buildings other than those specified.*
- 2) *The chapter is largely structured along the lines of Part 4 ‘Fire and Life Safety’ of NBC 2016 and attempts to include spatial requirements of fire and life safety provisions in buildings. For other detailed requirements, Part 4 ‘Fire and Life Safety’ of NBC 2016 and amendments made thereto shall be referred.*
- 3) *The provisions of this chapter shall be read with Chapter 3 ‘Permits’ and Chapter 6 ‘General Building Requirements’ of this Standardized Regulations.*

7 FIRE AND LIFE SAFETY

7.1 Applicability

7.1.1 Fire and life safety requirements shall be applicable for the following buildings:

- a) All high-rise buildings; and
- b) Special buildings those are,
 - i) hotel, educational, institutional, business, mercantile, industrial, storage, hazardous and mixed occupancies, where any of these building occupancies have floor area more than 500 m² on any one or more floors;
 - ii) educational buildings having height 9 m and above;
 - iii) institutional buildings having height 9 m and above;
 - iv) all assembly buildings;
 - v) buildings, having area more than 300 m² of incidental assembly occupancy on any floor; and
 - vi) buildings with two basements or more, or with one basement of area more than 500 m².

NOTE — The owner of the building and parties to agreement, may however, decide to apply the provisions of this chapter to buildings other than those given above.

7.2 General Classification of Buildings based on Occupancy

7.2.1 All buildings, whether existing or hereafter erected shall be classified according to use or the character of occupancy in one of the following groups:

- a) Group A: Residential
- b) Group B: Educational
- c) Group C: Institutional
- d) Group D: Assembly
- e) Group E: Business
- f) Group F: Mercantile
- g) Group G: Industrial
- h) Group H: Storage
- i) Group J: Hazardous

7.2.2 The details of each of the above occupancies, their subdivisions and examples of buildings in each group, and mixed occupancy shall be as per Part 4 'Fire and Life Safety' of NBC 2016.

7.3 Fire Zones

7.3.1 The city or area under the jurisdiction of the Authority shall, for the purpose of the regulation, be demarcated into distinct zones, based on fire hazard inherent in the buildings and structures according to occupancy which shall be called as 'Fire Zones'.

7.3.2 The number of fire zones in a city or area under the jurisdiction of the Authority depends upon the existing layout, types of building construction, classification of existing buildings based on occupancy, and expected future development of the city or area. In large cities or areas, three fire zones may be necessary, while in smaller ones, one or two may be adequate.

7.3.3 The fire zones shall be made use of in land use development plan and shall be designated as follows:

- a) Fire Zone No. 1— This shall comprise areas having residential (Group A), educational (Group B), institutional (Group C), assembly (Group D), small business (Subdivision E-1) and mercantile (Group F) buildings, or areas which are under development for such occupancies.
- b) Fire Zone No. 2— This shall comprise business (Subdivisions E-2 to E-5) and industrial buildings (Subdivisions G-1 and G-2), except high hazard industrial buildings (Subdivision G-3) or areas which are under development for such occupancies.
- c) Fire Zone No. 3— This shall comprise areas having high hazard industrial buildings (Subdivision G-3), storage buildings (Group H) and buildings for hazardous uses (Group J) or areas which are under development for such occupancies.

7.3.4 Other fire zone requirements as well as exceptions and deviations to general provisions shall be in accordance with relevant clauses of Part 4 'Fire and Life Safety' of NBC 2016.

7.4 Requirements for Fire Prevention and Life Safety

7.4.1 Every building shall be so designed, constructed, equipped, maintained and operated to provide adequate means of egress to avoid undue danger to the life and safety of occupants from fire, smoke, fumes or panic during the time period necessary for escape. Building plans shall be duly approved by the Fire Authority for issuance of NOC as per the process mentioned in **3.3.17** of these regulations.

7.4.2 Every main occupancy may have certain minor occupancies which may be incidental to the main occupancy. Minor occupancy are occupancies purely incidental to operations in a main occupancy, which shall be considered as part of the main occupancy and shall be classified under the relevant group for the main occupancy. The exit requirements pertaining to such incidental occupancies from the floor of the occupancy to the level of exit discharge shall be calculated to meet the requirement of the actual occupancy of such type, to ensure adequate means of egress of the occupants.

7.4.3 Alterations/modifications/renovations shall be accomplished so as to ensure conformity with all the safety requirements of the new buildings. Such alterations shall not in any way bring down level of fire and life safety below that which existed earlier. Any addition, alterations, construction of cubicles or partitioning for floor area exceeding 500 m^2 , for all buildings as specified in **7.1.1** of these regulations shall be with the approval of Fire Authority.

7.4.4 The numbering of the floors may be as per the provisions stipulated in IS 962: 'Code of Practice for Architectural and Building Drawings'. A sign shall be posted and maintained within each stair enclosure on every floor, indicating the number of the floor. The numeral indicating the floor number shall be of bold type and at least 75 mm high. The numerals and background shall be in contrasting colours. The sign shall be securely attached to the stair side of the door.

7.4.5 Requirements on fire prevention, life safety requirements and fire protection requirements, additional occupancy wise requirements as given in Part 4 Fire and Life Safety of NBC 2016 shall be complied in addition to those given in this chapter.

7.4.5.1 The fire and life safety requirements for buildings constructed as a part of metro stations/metro rail systems shall be in accordance with Annex J, Part 4 'Fire and Life Safety' of NBC 2016. Further, the fire and life safety requirements for all portions of underground, elevated and at-grade metro trainway including tail buffer tracks and sidings not intended to

be occupied by the passengers, shall be in accordance with Annex K, Part 4 'Fire and Life Safety' of NBC 2016.

7.4.6 General Exit Requirements

7.4.6.1 Every building having human occupancy shall be provided with exits sufficient to permit safe egress of occupants, in case of fire or other emergency.

7.4.6.2 An exit may be a fire exit doorway; an internal staircase, exit passageway, external doorway, external staircase and these shall have access to the street or to a *verandah* or to a refuge area or to the terrace or roof of a building.

7.4.6.3 An exit may also include a horizontal exit leading to an adjoining building/fire compartment having further access to unlocked/public exit at the same level.

7.4.6.4 Lifts, escalators, moving walks and revolving doors shall not be considered as exits and shall not constitute any part of the required exit.

7.4.6.5 Every exit, exit passageway and exit discharge shall be continuously maintained free of all obstructions or impediments to full use in the case of fire or other emergency.

7.4.6.6 Exits shall be so arranged that they may be reached without passing through another occupied unit/passage in others' control, if they pose challenge or restriction in means of egress.

7.4.6.7 Turnstiles or similar devices that restrict travel to one direction or that are used to restrict unauthorised entry shall not be placed such that they obstruct any required means of egress. Alternative door openings of required exit width shall be available within 3 m of such devices, if installed.

7.4.6.8 Suitable means shall be provided so that all access-controlled exit doors, turnstiles, boom barriers and other such exits shall automatically operate to open mode during emergencies like fire, smoke, acts of terrorism, etc, so that people can safely and quickly egress into safe areas outside. If required, a master controlling device may be installed at a strategic location to achieve this.

7.4.6.9 All exits and exit passageways to exit discharge shall have clear ceiling height of at least 2.40 m till public way. However, height of exit door shall be at least 2.0 m.

7.4.6.10 If exits have differences in elevation of more than 300 mm, ramps or sloped surfaces shall be provided in accordance with **6.1.20** of these regulations.

7.4.6.11 Air ducts serving main floors, corridors, shall not pass through the exits/exit passageway/exit enclosure. Exits and lift lobbies shall not be used as return air passage. However, fire protection piping, ducts for pressurisation and similar life safety services opening may be permitted and these shall be protected by passive systems.

7.4.6.12 For non-naturally ventilated areas, fire doors with 120 min fire resistance rating shall be provided to prevent spread of fire and smoke, particularly at the entrance of lift lobby and staircase where a 'funnel' or 'flue effect' may be created inducing an upward spread of fire.

7.4.6.13 All means of egress shall be properly identified and provided with adequate continuous lighting, so that all occupants can leave the building or facility safely. Other requirements of escape lighting shall be in accordance with Part 4 Fire and Life Safety of NBC 2016.

7.4.6.14 Where the exit access is provided through corridors/paths, the occupants shall be able to easily identify way to exits. Exit signage shall be provided such that any point in routes leading to an exit shall not be more than 30 m away from a visible exit directional sign. An exit sign indicating the direction to an exit shall be provided at all changes in direction. To facilitate people with visual impairments, routes should have detectable cues and different visual

contrast from the surroundings. For orientation and wayfinding in very complex buildings and across large areas, guidance may be provided by tactile ground surface indicators and visual, audible and tactile information in accordance with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016. Other requirements of exit signage shall be in accordance with Part 4 'Fire and Life Safety' of NBC 2016.

7.4.6.15 Temporary/permanent obstructions in exit access corridors shall be avoided as this may result in congestion and impeding smooth flow of personnel during emergencies.

7.4.6.16 Exit access shall not pass through storage rooms, closets or spaces used for a similar purpose.

7.4.6.17 Exit access to fireman's lift and refuge area on the floor shall be step free and clearly signposted with the international symbol of accessibility.

7.4.6.18 Walking surfaces in exit access shall comply with the following requirements for smooth exit:

- a) Walking surfaces shall be levelled and slip resistant along the entire path of travel.
- b) The slope of walking surface in the direction of travel shall not exceed 1:20. In case, the slope exceeds, it shall meet the ramp requirements for exit as specified in **6.1.20** of these regulations.
- c) Slope perpendicular to the direction of travel shall not exceed 1:48.

7.4.6.19 A common path of travel is desirable in exit access which shall lead to two independent directions to separate exits.

7.4.6.20 Basement exits shall be provided as given below:

- a) Basement exits shall be sufficient to provide for the capacity of basements as determined in accordance with **7.4** of these regulations. Minimum two independent basement exits shall be provided.
- b) In case of basements having incidental occupancies, exits shall be planned considering requirements of actual occupancy.
- c) Where basement is used for car parking and there is a direct approach from any occupancy above the basement, door openings leading to basement shall be protected with fire doors with 120 min fire rating, except for exit discharge doors from basements.

7.4.7 Capacity, Arrangement and Number of Exits

7.4.7.1 The minimum required number of exits in a building shall be determined based on occupant load and width required per person as appropriate to the type of exit for respective occupancies, subject to complying with maximum travel distance requirement. This number shall be determined in accordance with the relevant provisions of Part 4 'Fire and Life Safety' of NBC 2016.

7.4.7.2 The total capacity of all means of egress serving a floor, shall be enough to allow egress of the entire population of the floor. The capacity of means of egress shall be determined in accordance with relevant provisions of Part 4 'Fire and Life Safety' of NBC 2016.

7.4.7.3 The assembly occupancies and call centres shall be required to display, limiting occupant load details positioned in a conspicuous place near the entrance of each of such respective occupancy to avoid overcrowding and overloading. The display shall have details of occupancy, area and occupancy load and be in accordance with relevant clauses of Part 4 'Fire and Life Safety' of NBC 2016.

7.4.7.4 The width of corridors, aisles or ramps required for exit access shall be sufficient to ensure a smooth flow of occupants to the exit. Where a corridor is the only way of access to an exit, the corridor width shall not be less than the calculated exit width.

7.4.7.5 The capacity of the means of egress required from any storey of the building shall not be reduced along path of egress travel until arrival to the exit discharge.

7.4.7.6 The lifts, escalators, moving walks, turnstiles and revolving doors shall not be considered in determining the required capacity of means of egress for the individual floor(s) or the building.

7.4.7.7 Exits shall be so located that the travel distance on the floor shall not exceed the distance given in Table 44. Travel distance shall be measured from the most remote point within a storey or a mezzanine floor along the natural and un-obstructed path of horizontal or vertical egress travel to the door to an exit.

Table 44 Travel Distance (Based on Occupancy and Construction Type)

| SI No. | Occupancy Group | Maximum Travel Distance (m) | |
|--------|-------------------------|-----------------------------|---------------|
| | | Types 1 and 2 | Types 3 and 4 |
| (1) | (2) | (3) | (4) |
| i) | Residential (Group A) | 30.00 | 22.50 |
| ii) | Educational (Group B) | 30.00 | 22.50 |
| iii) | Institutional (Group C) | 30.00 | 22.50 |
| iv) | Assembly (Group D) | 30.00 | 30.00 |
| v) | Business (Group E) | 30.00 | 30.00 |
| vi) | Merchantile (Group F) | 30.00 | 30.00 |
| vii) | Industrial (Group G) | | See Note 3 |
| | G-1, G-2 | 45.00 | |
| | G-3 | 22.50 | |
| viii) | Storage (Group H) | 30.00 | |
| ix) | Hazardous (Group J) | 22.50 | |

NOTES

- 1 For fully sprinklered building, the travel distance may be increased by 50 percent of the values specified.
- 2 Ramp shall not be counted as an exit in case of basements below the first basement in car parking.
- 3 Construction of Type 3 or Type 4 is not permitted.

7.4.7.8 The maximum travel distance for metro station platforms shall be governed by Annex J of Part 4 'Fire and Life Safety' of NBC 2016.

7.4.7.9 Other requirements for arrangement of exits shall be in accordance with relevant clauses of Part 4 Fire and Life Safety of NBC 2016.

7.4.8 Types of Exit Access and Exits

7.4.8.1 Doors and doorways

- a) The minimum height of the exit door shall be 2 m.
- b) Exit doorway shall not be less than 1 m in width except in assembly and hospital buildings, where the door width shall not be less than 2 m.
- c) Every exit doorway shall open into an enclosed staircase or a horizontal exit of a corridor or passageway providing continuous and protected means of egress.
- d) Doors in exit shall open in the direction of the exit.
- e) In case of assembly buildings (Group D) and institutional buildings (Group C1), exit door shall not open immediately upon flight of stair and all such entries to the stair shall be through a landing, so that such doors do not impede movement of people descending from higher floor when fully opened. While for other occupancies, such doors shall not reduce the pathway in the landing by more than half of the width of the staircase.
- f) Exit doorway shall be operable from the side which they serve, without the use of a key.
- g) Mirrors shall not be placed on exit doors and in exits to avoid confusion regarding the direction of exit.
- h) Revolving doors can be accepted as a component in a means of egress if requirements given in Part 4 'Fire and Life Safety' of NBC 2016 are fully complied with.
- i) Overhead or sliding doors shall not be installed in exits.
- j) Doors in folding partition shall not be treated as approved means of egress.
- k) Requirements for fire resistance rating of doors and access controlled doors shall be in accordance with relevant provisions of Part 4 'Fire and Life Safety' of NBC 2016
- l) Exit doors shall comply with provisions of accessibility in accordance with relevant clauses of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

7.4.8.2 Horizontal exits

- a) Every horizontal exit shall be arranged such that there are continuously available paths of travel leading from each side of the horizontal exit to the staircase/corridor/ramp, further leading to outside of the building.
- b) Width of the horizontal exit doorway shall be suitable to meet the occupant load factor for egress and the adjoining compartment of horizontal exit shall allow unlocked and ease of egress for the occupants.
- c) In a situation when a bridge connecting two buildings is used as a horizontal exit, and serves as egress in both directions, double egress doors shall be provided. The width of such bridge shall be same as exit doorway it connects, but not less than 2.0 m for hospitals and 1.50 m for other buildings.
- d) Doors in horizontal exits shall be openable at all times from both sides.
- e) All doors shall swing in the direction of exit travel. For horizontal exits, if a double leaf door is used, the right hand door leaf shall swing in the direction of exit travel.

- f) Where there is a difference in level between connected areas for horizontal exits, ramps of slope not steeper than 1:12 shall be provided (and steps shall be avoided) in accordance with **6.1.20** of these regulations.

7.4.8.3 Corridors and passageways of means of egress

- a) Corridors and passageways serving as means of egress shall be separated and protected from fire in a manner like an enclosed internal staircase.
- b) The dead-end corridor length in exit access shall not exceed 6 m for educational, institutional and assembly occupancies. For other occupancies, the same shall be 15 m.
- c) Exit passageways and corridor shall have minimum width to accommodate the aggregate required capacity, of all exits that discharge through it, in the direction of travel to the exit.
- d) In the case of buildings where there is a central corridor, which is part of exit access, the doors of rooms (except for rooms having assembly occupancy) shall open inwards to permit the smooth flow of traffic in the corridor.

7.4.8.4 Staircases

- a) Stairs and staircase shall meet all the minimum general requirement in accordance with **6.1.19** of these regulations.
- b) All buildings as mentioned in **7.1** shall have minimum two staircases. The actual number of staircases shall comply with requirement of **7.4.7.1** of these regulations.
- c) At least half of the required number of exit stairs (rounded to the next higher number), shall discharge directly to the exterior of the building or through exit passageways.
- d) Staircases may be internal staircases or external staircases. Internal staircase shall meet the following requirements:
 - i) Internal staircases may be constructed with an external wall, or otherwise.
 - ii) An internal staircase shall not be arranged around a lift shaft.
 - iii) Living spaces, storerooms or other spaces which may cause fire risk shall not open directly into staircases.
 - iv) No electrical shafts/air conditioning ducts, or gas pipes, etc shall pass through or open in the staircases.
 - v) No combustible material shall be used for decoration/wall panelling in the staircase.
 - vi) Beams/columns and other building features shall not reduce the head room/width of the staircase.
 - vii) A handrail shall be provided on one side of the staircase of width less than 1.5 m and on both sides of the staircase of width 1.5 m and more. The projection of handrail(s) in the staircase width shall not be more than 90 mm. Requirements for height of handrail shall be in accordance with **6.1.19.2** of these regulations.
 - viii) Lifts shall not open directly in the staircase.
 - ix) All staircases shall terminate at the level of the public way. The access to the basement shall be by a separate staircase.

- x) The exit (including staircases) shall be continuous from refuge floors or terrace level, as applicable, to the level of exit discharge.
 - xi) In assembly (Group D) and institutional occupancies (Group C-1), exit door shall not open immediately upon a flight of stairs and all such entries to the staircase shall be through a landing so that such doors do not impede movement of the people descending from the higher floor when fully opened. While for other occupancies, the exit doors shall not reduce the pathway in the landing by more than half the width of the stair, when opened fully.
 - xii) Also, the level of the landing shall be the same as that of the floor which it serves.
 - xiii) The floor indication board, indicating the location/designated number of staircases, respective floor number and direction to exit discharge shall be placed inside the staircase, on the wall nearest to the fire door. It shall be of a size not less than 300 mm x 200 mm.
 - xiv) Individual floors shall be prominently indicated on the wall outside the staircase facing it.
 - xv) Scissors type staircases (of type where intermingling of persons in the landing is possible or of type where both stairs use the common airspace) shall not be treated as part of exit.
- e) External Staircase shall meet the following requirements:
- i) External staircase shall have a straight flight with a minimum width as given in **6.1.19.1** of these regulations, however, it shall not be less than 1.50 m in any case.
 - ii) External staircase shall be inclined at a maximum angle of 45° from the horizontal.
 - iii) All external staircases shall be directly connected to the ground.
 - iv) External staircases shall not be allowed beyond height of 30 m from finished ground level.
 - v) Entrance to the external staircase shall be separate and remote from the internal staircase.
 - vi) Care shall be taken to ensure that no external wall or window opens on to or closes to an external staircase. If such openings exist within 3 m from an external staircase, they shall be protected with fire-resistance rated doors/window assemblies with rating of at least 1 hour.
 - vii) The use of spiral staircase as external staircase shall be limited to the height of 9 m in buildings. A spiral staircase shall be a minimum 1.50 m in diameter. Handrails shall be provided on the outer side.
 - viii) The external staircase may extend beyond building envelope, without disturbing the minimum 6 m open space required for fire tender movement. The requirements of setbacks and open spaces shall comply with **5.3** and **5.6** of these regulations.
- f) Curved stairs and winders shall not be treated as part of means of egress. Also, these may be used as part of routes leading to exits, provided the depth of tread is not less than 280 mm at a point 350 mm from the narrower end of the tread and the smallest radius is not less than twice the stair width.

7.4.8.5 Ramps

- a) Ramps shall comply with all the applicable requirements for staircases regarding enclosure, capacity and limiting dimensions except where specified for special uses and occupancies as per Part 4 Fire and Life Safety NBC 2016
- b) All other requirements of ramps shall be as per **6.1.20** of these regulations.

7.4.9 Compartmentation

7.4.9.1 It is important to limit the spread of a fire in any building. The usual method is to use fire barriers. In some instances these barriers need to be penetrated for ductwork, plumbing and electrical systems, and in such cases, use of passive fire protection measures shall be done so that the integrity of these barriers is not compromised.

7.4.9.2 All floors shall be compartmented/zoned with area of each compartment being not more than 750 m². The maximum size of the compartment shall be as follows in case of sprinklered basement/building:

Table 45 Maximum Size of Compartmentation in case of Sprinklered Basement/Building

| SI No. | Use | Maximum Compartmentation Area (m²) |
|---------------|---|--|
| (1) | (2) | (3) |
| i) | Basement car parking | 3,000 |
| ii) | Basements (other than car parking) | 2,000 |
| iii) | Institutional buildings: Subdivision C-1 | 1,800 |
| iv) | Institutional buildings: Subdivision C-2 and C-3 | 1,125 |
| v) | Merchantile and assembly buildings | 2,000 |
| vi) | Business buidlings | 3,000 |
| vii) | All other buildings (Excluding low hazard and moderate hazard industrial buildings and storage buildings) ¹⁾ | 750 |

1) Compartmentation for low hazard and moderate hazard industrial buildings and storage buildings shall be done in consultation with local fire department.

7.4.9.3 In addition, there shall be requirement of a minimum of two compartments if the floor plate size is equal or less than the areas mentioned above. However, such requirement of minimum two compartments shall not be required, if the floor plate is less than 750 m². Compartmentation shall be achieved by means of fire barrier having fire resistance rating of 120 min.

7.4.10 Refuge Area

7.4.10.1 Refuge area shall be provided in buildings of height more than 24 m. Refuge area provided shall be planned to accommodate the occupants of two consecutive floors (this shall consider occupants of the floor where refuge is provided and occupants of floor above) by considering area of 0.3 m² per person for the calculated number of occupants and shall include additionally to accommodate one wheelchair space of an area of 0.9 m² for every 200

occupants, portion thereof, based on the occupant load served by the area of refuge or a minimum of 15 m^2 , whichever is higher, shall be provided as under:

- a) The refuge area shall be provided on the periphery of the floor and open to air at least on one side protected with suitable railings.
- b) Refuge area(s) shall be provided at/or immediately above 24 m and thereafter at every 15 m or so.

7.4.10.2 High rise apartment buildings with apartments having balcony, need not be provided with refuge area. However, in case of apartment buildings of height more than 60 m and having balconies, refuge areas shall still be provided at 60 m and thereafter at every 30 m. On the other hand, apartment buildings without balcony shall provide refuge area as given in **7.4.10.1**.

7.4.10.3 The refuge area shall always be kept clear with no storage.

7.4.10.4 A prominent sign bearing the words 'REFUGE AREA' of font size of minimum 75 mm shall be installed at the entry of the refuge area. It shall also contain information about the location of refuge areas on the floors above and below that floor. The same signage shall also be conspicuously located within the refuge area.

7.4.10.5 Refuge areas shall be connected to a firefighting shaft comprising a fireman's lift, lobby and staircase.

7.4.10.6 Refuge area shall be provided with adequate drainage facility to maintain efficient storm water disposal.

7.4.10.7 Entire refuge area shall be provided with sprinklers. For other requirements, Part 4 'Fire and Life Safety' of NBC 2016 shall be referred.

7.4.10.8 In case of buildings having mixed occupancy of assembly and mercantile (for example shopping malls providing facilities such as shopping, cinema theatres, multiplexes and restaurants/food courts), the refuge area provided on the floor at or immediately above 18 m shall be not less than 10 percent of gross area of floor. Next refuge area to be at/on the floor immediately above 24 m. The refuge area shall be 10 percent of the respective floor, which may be divided into two or more separate refuge areas at each of the respective floors, with each being not less than 100 m^2 . Refuge area shall also meet all the requirements of life safety as per Part 4 'Fire and Life Safety' of NBC 2016.

7.4.11 Emergency Power for Fire and Life Safety Systems

7.4.11.1 Emergency power supplying distribution system for critical requirement for functioning of fire and life safety system and equipment shall be planned for efficient and reliable power and control supply to the following systems and equipment, where provided:

- a) Fire pumps;
- b) Pressurization and smoke venting; including its ancillary systems such as dampers and actuators;
- c) Fireman's lifts (including all lifts);
- d) Exit signage lighting;
- e) Emergency lighting;
- f) Fire alarm system;
- g) Public address (PA) system (relating to emergency voice evacuation and annunciation);
- h) Magnetic door hold open devices; and
- i) Lighting in fire command centre and security room.

7.4.12 Glass Façade

7.4.12.1 Openable panels shall be provided on each floor and shall be spaced not more than 10 m apart measured along the external wall from centre-to-centre of the access openings. Such openings shall be operable at a height between 1.2 m and 1.5 m from the floor, and shall be in the form of openable panels (fire access panels) of size not less than 1000 mm x 1000 mm opening outwards. Automation for openable panels are not required since these are provided for manual operation for distress mitigation of the occupant, if any, in the floor space. Such openable panels may not be required for privately occupied spaces in hotels and institutional buildings, where smoke mitigation aspect for corridors are provided as per Part 4 'Fire and Life Safety' of NBC 2016. However, openable panels shall be provided in all common areas and spaces of such buildings.

7.4.12.2 Other requirements as given in Part 4 'Fire and Life Safety' of NBC 2016 shall also be complied with.

7.4.13 Atrium

7.4.13.1 Atriums may be permitted in buildings as given in Part 4 'Fire and Life Safety' of NBC 2016 and shall comply with the requirements given therein. The minimum plan area of the atrium void shall be 100 m² and minimum horizontal dimension between opposite edges of the floor opening shall be 6 m wide.

7.4.14 Smoke control in the building shall be in accordance with Part 4 'Fire and Life Safety' of NBC 2016.

7.4.15 Fire Command Centre (FCC)

7.4.15.1 FCC shall be provided in the following buildings:

- a) High Rise Buildings,
- b) Special Buildings.

7.4.15.2 The requirements of FCC shall be as follows:

- a) FCC shall be on the entrance floor of the building having direct access. The control room shall have the main fire alarm panel with a communication system (suitable public address system) to aid floors and facilities for receiving the message from different floors.
- b) FCC shall be constructed with 120 min rating walls with fire door and shall be provided with emergency lighting.
- c) Details of all floor plans along with the details of firefighting equipment and installations (two sets laminated and bound) shall be maintained in fire command centre. Additionally, these plans shall be on cloud storage with its QR displayed in the FCC enabling fire professionals to access these plans on hand held digital devices. The information regarding level of water in water storage tank(s) for firefighting and remote control systems for fire pumps, should also be made available in FCC.
- d) Other requirements of FCC shall be in accordance with Part 4, 'Fire and Life Safety' of NBC 2016.

7.4.15.3 In case of multiple buildings on a plot the main FCC shall be planned in the building nearest to the main entrance of the plot. Such multiple buildings may have their individual fire control rooms which shall communicate to main FCC. These shall align with all the requirements as above.

7.4.16 Fireman's Lifts

7.4.16.1 Requirements for firemen's lifts shall be provided for all high-rise buildings based on the size, design and complexity of the building, provided the following requirements are met:

- a) There shall be at least one fireman's lift per high-rise building.
- b) If there are multiple wings in a building, there shall be at least one fireman's lift per wing.
- c) If there are multiple lift banks in a building, there shall be at least one fireman's lift per lift bank.
- d) If the building height is up to 600 m and it is zoned height wise and does not have single fireman's lift serving every floor of the building, then there shall be at least one fireman's lift per zone which shall serve all landings in the respective zone.
- e) If the building height is more than 600 m, it shall be zoned height wise and there shall be at least one fireman's lift per zone which shall serve all landings in the respective zone, with a transfer of landing for transferring from one zone to another.
- f) Fireman's lift car shall have minimum floor area of 1.43 m^2 and loading capacity of 8 persons (544 kg). For buildings above 60 m height, fireman's lift car shall have minimum floor area of 2.35 m^2 and loading capacity of 1000 kg.
- g) Fireman's lift shall be protected within a dedicated RCC shaft throughout the entire height of the building. Where fireman's lift is situated with multiple lifts in a single RCC shaft, all the lifts in such common shaft shall comply to fireman's lift specifications.
- j) Additional requirements of fireman's lift shall be in accordance with relevant clauses of Part 8 'Building Services', Section 5A 'Lifts' of NBC 2016.

7.4.17 Evacuation Lifts

7.4.17.1 Evacuation lifts may be provided, particularly for super high-rise buildings (height more than 200 m) for the evacuation of occupants especially PwDs, during an emergency. Wherever provided, these shall be planned supplementary to, and not as replacement of exits.

7.4.17.2 Other requirements for evacuation lifts shall be in accordance with relevant clauses of Part 8 'Building Services', Section 5A 'Lifts' of NBC 2016.

7.4.18 Fireman's Lift Lobby

7.4.18.1 The requirements for fireman's lift lobby are as follows:

- a) Fireman's lift lobby shall have direct access to an exit staircase.
- b) Fireman's lift lobby shall be of minimum size of 9 m^2 where 1 wheelchair space of $0.76 \text{ mm} \times 1.20 \text{ mm}$ shall be considered. The minimum width of lobby shall be 2 m.
- c) Rooms housing services such as electrical rooms, meter rooms, gas rooms, storage rooms, garbage rooms and telephone rooms, which are having floor or ceiling penetrations shall not be permitted to open inside the fireman's lift lobby space.

7.4.19 The guidelines for fire drill and evacuation procedures for high rise buildings and additional requirements for fire and life safety of high rise buildings including evacuation strategy shall be as per Part 4 'Fire and Life Safety' of NBC 2016.

7.5 Requirements of Fire Protection

7.5.1 All buildings depending upon the occupancy use and height shall be protected by fire extinguishers, hose reels, wet riser, down-comer, yard hydrants, automatic sprinkler installation, deluge system, high/medium velocity water spray, foam, water mist systems, gaseous or dry powder system, manual/automatic fire alarm system, etc. In addition, the requirements given in **7.5.2** and **7.5.3** in these regulations shall be also applicable.

7.5.2 Static Water Storage Tank for Firefighting

7.5.2.1 Water for the hydrant services shall be stored in an easily accessible surface/underground lined reservoir or above ground tanks of steel, concrete or masonry.

7.5.2.2 The underground fire water storage tank(s) shall not be more than 7 m in depth from the level having fire brigade draw-out connection, while the draw-out connection shall not be more than 5 m away from the tank wall.

7.5.2.3 A satisfactory supply of water for the purpose of firefighting shall always be available in the form of underground/terrace level static storage tank with capacity specified for each building with arrangements for replenishment.

7.5.2.4 Water for firefighting shall be stored in two or more interconnected compartments of equal size to facilitate cleaning and maintenance of the tanks without interrupting the water availability for firefighting.

7.5.2.5 The static storage water supply required for the above-mentioned purpose shall entirely be accessible to the fire engines of the local fire service.

7.5.3 Firefighting Pump House

The requirements shall be as given below:

- a) Pump house shall be situated so as to be directly accessible from the surrounding ground level. It is preferable to install the pump house at ground level.
- b) Pump house shall be installed not lower than the second basement. When installed in the basement, staircase with direct accessibility (or through enclosed passageway with 120 min fire rating) from the ground, shall be provided. Access to the pump room shall not require to negotiate through other occupancies within the basement.
- c) Pump house shall be separated by fire resistant walls all around and doors shall be protected by fire doors (120 min fire rating).
- d) Pump house shall be well ventilated and due care shall be taken to avoid water stagnation.
- e) No other utility equipment shall be installed inside fire pump room.
- f) Information such as the date of last pumping, last refill of diesel, duration of pumping hours, etc shall be readily available in the pump house. It is preferred to make such information available in digital mode as well.
- g) Other requirements shall be as per Part 4 'Fire and Life Safety' of NBC 2016.

STRUCTURAL SAFETY AND QUALITY CONTROL

Explanatory Note:

This chapter includes the requirements for structural design and safety of buildings. Key points to consider while reading the chapter:

- 1) *The chapter is structured in five key sections- Structural Design and Safety, Quality Controls, Periodic Evaluation of Buildings, Seismic Strengthening/Retrofitting and Improvement of Cyclonic Resistance of Buildings.*
- 2) *Section 1 ‘Structural Design and Safety’ covers regulations and provisions on the structural design of buildings for different building elements and the process for the review of the design.*
- 3) *Section 2 ‘Quality Control’ gives references to the guidelines that have to be considered for quality control of building materials and good construction practices.*
- 4) *Section 3 ‘Periodic Evaluation of Buildings’ outlines regulations on the structural audit/inspection to be conducted periodically.*
- 5) *Section 4 ‘Seismic Strengthening/Retrofitting’ cites references for the seismic evaluation and strengthening of various types of buildings.*
- 6) *Lastly, Section 5 provides reference to guidelines to be considered for improving cyclonic resistance of buildings.*

8 STRUCTURAL SAFETY AND QUALITY CONTROL

8.1 Structural Design and Safety

8.1.1 For any building under the jurisdiction of these regulations, the structural design shall be carried out by registered engineer/structural engineer as specified in **ANNEX A** of these regulations.

8.1.2 The structural design of different building elements shall conform to the relevant Indian Standards provided in Part 6 ‘Structural Design’ of NBC 2016 comprising of the following sections:

- a) Section 1- Loads, forces and effects
- b) Section 2- Soils and foundations
- c) Section 3- Timber and bamboo
- d) Section 4- Masonry
- e) Section 5- Concrete
- f) Section 6- Steel
- g) Section 7- Prefabrication systems, building and mixed/composite construction
- h) Section 8- Glass and glazing

8.1.3 *Structural Design Basis Report (SDBR)*

8.1.3.1 The SDBR (**ANNEX X**) consists of basis for designing the building. It includes four parts as provided below:

- a) Part 1: General information/data
- b) Part 2: Load bearing masonry buildings
- c) Part 3: Reinforced concrete buildings
- d) Part 4: Steel buildings

8.1.3.2 In compliance of the design with the relevant Indian Standards mentioned in NBC 2016, the registered engineer/structural engineer shall submit a SDBR for structures of different complexities, as given in **8.1.4**, along with the drawings and documents to be submitted with the application. The SDBR shall include the parts as detailed below:

- a) Part 1
- b) Part 2, Part 3 or Part 4 (whichever is applicable)

8.1.3.3 SDBR shall be submitted to the BO in accordance with **3.3.1** of these regulations.

8.1.4 *Review of Structural Design*

8.1.4.1 The Authority shall empanel structural engineers for peer reviewing/proof checking and certifying the design of buildings with height above 50 m, important service and community buildings or structures, lifeline and emergency buildings and/or large assembly buildings. The owner may also decide to carry out proof checking of structural design for other buildings.

NOTE — Important service and community buildings or structures may include critical governance buildings, schools, signature buildings, monument buildings. Lifeline and emergency buildings may include hospitals, telecommunication buildings, bus stations, railway stations/buildings, airports, ports, food storage, power stations, fuel stations, fire stations, etc.

8.1.4.2 The peer reviewer/proof checker shall have the following qualification, experience and competence:

- a) For Buildings up to the height of 15 m and culverts (length up to 6 m) - B.E./B.Tech (Civil) with 7 years of experience in structural engineering practice with designing and field work of relevant structures. The 7 years of experience shall comprise a minimum of 5 years exclusively in structural designing.
- b) For Buildings of height more than 15 m and up to 50 m and minor bridges (bridge length up to 60 m) - B.E./B.Tech (Civil) with 10 years of experience in structural engineering practice with designing and field work of relevant structures. The 10 years of experience shall comprise a minimum of 7 years exclusively in structural designing.
- c) For Buildings of height more than 50 m and specialized structures such as but not limited to tunnels, bridges, flyovers, elevated roads, dams, chimneys, industrial, marine, and special structures –
 - i) Master's degree with major in structural engineering and 10 years of experience in structural engineering practice with designing and field work of relevant structures. The 10 years of experience shall comprise a minimum of 7 years exclusively in structural designing, or
 - ii) B.E./B.Tech (Civil) with 15 years of experience in structural engineering practice with designing and field work of relevant structures. The 15 years of experience shall comprise a minimum of 10 years exclusively in structural designing.

8.1.4.3 The submission of the structural design by the structural engineer to the peer reviewer/proof checker shall be done in three stages as given below, and the succeeding stage submission shall be made only after obtaining concurrence for the preceding stage:

- a) SDBR
- b) Preliminary design, related drawings and documents
- c) Detailed design, related drawings and documents

8.2 Quality Control and Safety during Construction

8.2.1 All material shall be of good quality conforming to relevant Indian Standards (BIS certified) as given in Part 5 'Building Materials' of NBC 2016. All workmanship shall also be of good quality conforming to relevant Indian Standards as given in Part 7 'Construction Management, Practices and Safety' of NBC 2016. Alternative building materials and construction technology may also be adopted with the approval of the authority in compliance with NBC 2016.

8.2.2 There should be a clearly defined competence requirement for the workers based on the work-related peculiarities. Workers in a project should be adequately qualified, trained, experienced and competent. A formal training or a certified course undertaken should be a preferred selection criterion for the workers. All efforts should also be made to impart on site skilling/training of construction workers for specific tasks. A periodic review of the performance may be made to establish the nature of training required and methods for imparting training.

8.2.3 Safety during construction shall be ensured in accordance with Part 7 'Construction Management, Practices and Safety' of NBC 2016.

8.3 Periodic Evaluation of Buildings

8.3.1 In case of high rise buildings and special buildings, the owner of the building shall get the building structural audit/inspection done by the registered structural engineer/empanelled expert structural engineer first in the tenth year from the date of grant of occupancy permit, and thereafter in every 5 years. Findings shall be submitted to the Authority for record. In case the building shows signs of distress such as structural cracks, etc the owner may opt for conducting such evaluation immediately. For buildings of height more than 50 m and special structures, the evaluation shall be done by expert structural engineer only.

8.3.2 If any action for ensuring the structural safety and stability of the building is to be taken, as recommended by the registered structural engineer/empanelled expert structural engineer, it shall be completed within the time period as stipulated by the Authority to maintain the occupancy.

8.3.3 The owner on the advice of the Authority shall carry out such repair/restoration and strengthening/retrofitting of the building found necessary as per **8.4** of these regulations, so as to comply with the safety standards.

8.3.4 In case, the owner does not carry out such action, the Authority or any agency authorized by the Authority may carry out such action at the cost of the owner.

8.4 Seismic Strengthening/Retrofitting

8.4.1 If as per periodic evaluation, the seismic resistance is assessed to be less than the specified minimum seismic resistance as given in the concerned Indian Standards listed in Table 46, action shall be initiated to carry out the upgrading of the seismic resistance and other structural requirements of the building as per the provisions of standards given in the table.

Table 46 Indian Standards for Seismic Evaluation and Strengthening of Buildings

| SI No. | Type of Buildings | Indian Standards |
|---------------|-----------------------------------|---|
| (1) | (2) | (3) |
| i) | Masonry buildings | IS 13935 'Seismic evaluation, repair and strengthening of masonry buildings'. |
| ii) | Concrete buildings and structures | IS 15988 'Seismic evaluation and strengthening of existing RCC buildings - Guidelines' |
| iii) | Low strength masonry buildings | IS 13828 'Improving earthquake resistance of low strength masonry buildings – Guidelines' |
| iv) | Earthen buildings | IS 13827 'Improving earthquake resistance of earthen buildings – Guidelines' |

8.4.2 Provisions in the Indian Standard, IS 18289 'Post - earthquake safety assessment of buildings – Guidelines' should be followed for the following building typologies to ascertain whether or not a building affected during an earthquake can be occupied immediately after the earthquake:

- a) Unreinforced masonry load-bearing buildings; and
- b) RC moment frame buildings with unreinforced masonry infill walls.

8.5 Improvement of Cyclonic Resistance of Buildings

8.5.1 For improving cyclonic resistance of buildings, provisions of Indian Standards IS 15498 ‘Improving the cyclonic resistance of low rise houses and other buildings – Guidelines’ and IS 18153 ‘Improving the cyclonic resistance capacity of *kutcha* houses — Guidelines’, as applicable shall be followed.

ANNEX X

(Clause 8.1.3)

STRUCTURAL DESIGN BASIS REPORT

- a) This report shall accompany the application for Building Permit.
- b) In case information on items (iii), (x), (xviii), (xix) and (xx) of Part 1 of SDBR can not be given at this time, it should be submitted at least one week before commencement of construction.
- c) In case of reinforced concrete framed buildings, a certificate to the effect that the Part 3 of the report will be completed and submitted at least one month before commencement of construction, shall be submitted with the application for Building Permit. In addition to the completed report, the following additional information shall be submitted, at the latest, one month before the commencement of construction.

1) Foundations

- i) In case raft foundation has been adopted, indicate K value used for analysis of the raft.
- ii) In case pile foundations have been used, give full particulars of the piles, type, diameter, length, capacity.
- iii) In case of high water table, indicate system of countering water pressure, and indicate the existing water table, and that assumed to design foundations.

2) Idealization for earthquake analysis

- i) In case of a composite system of shear walls and rigid frames, give distribution of base shear in the two systems on the basis of analysis, and that used for design of each system.
- ii) Indicate the idealization of frames and shear walls adopted in the analysis with the help of sketches.

3) Submit framing plans of each floor and in case of basements, indicate the system used to contain earth pressures.

- d) The latest version of the Indian Standards with their amendments as indicated in the SDBR template given below, shall be referred for the preparation of the report.

| PART 1 GENERAL DATA | | | |
|--------------------------------------|---|--------------------|--------------------|
| SI No. | Description | Information | Notes |
| i) | Address of the building <ul style="list-style-type: none"> a) Name of the building b) Plot number c) Subplot number, if any d) Town Planning Scheme (if applicable) <ul style="list-style-type: none"> 1) Name 2) Number e) Locality/Township f) District | | |
| ii) | Name of owner | | |
| iii) | Name of Building Constructor on record | | |
| iv) | Name of Architect/Engineer on record | | |
| v) | Name of Structural engineer on record | | |
| vi) | Use of the building | | |
| vii) | Number of storeys above ground level (including storeys to be added later, if any) | | |
| viii) | Number of basements below ground level | | |
| ix) | Type of structure <ul style="list-style-type: none"> a) Load bearing walls b) R.C.C frame c) R.C.C frame and shear walls d) Steel frame | | |
| x) | Soil data <ul style="list-style-type: none"> a) Type of soil b) Design safe bearing capacity | | IS 1892 IS 1904 |

| PART 1 GENERAL DATA | | | |
|--------------------------------------|---|--------------------|--------------------------|
| SI No. | Description | Information | Notes |
| xi) | Dead loads (unit weight adopted) <ul style="list-style-type: none"> a) Earth b) Water c) Brick masonry d) Plain cement concrete e) Reinforced cement concrete f) Floor finish g) Other fill materials h) Piazza floor fill and landscape | | IS 875 (Part 1) |
| xii) | Imposed (live) loads <ul style="list-style-type: none"> a) Piazza floor accessible to fire tender b) Piazza floor not accessible to fire tender c) Floor loads¹⁾ d) Roof loads²⁾ | | IS 875 (Part 2) |
| xiii) | Cyclone/Wind <ul style="list-style-type: none"> a) Speed b) Design pressure intensity | | IS 875 (Part 3) |
| xiv) | Other loads, if any | | Relevant parts of IS 875 |
| xv) | Seismic zone | | IS 1893 (Part 1) |
| xvi) | Importance factor | | IS 1893 (Part 1) |
| xvii) | Seismic zone factor (Z) | | IS 1893 (Part 1) |
| xviii) | Response reduction factor | | IS 1893 (Part 1) |
| xix) | Fundamental natural period (approximate) | | IS 1893 (Part 1) |
| xx) | Design horizontal acceleration | | IS 1893 (Part 1) |

| PART 1 | | | |
|---|---|--------------------|--------------|
| SI No. | Description | Information | Notes |
| | spectrum value (A_h) | | |
| xxi) | Expansion/Separation Joints ³⁾ | | |
| 1) Enclose small scale plans of each floor on A4 sheets 2) Incase terrace garden is provided, indicate additional fill load and imposed (live) load 3) Indicate on a small scale plan on A4 sheet | | | |

Signature

(Registered Engineer/Structural Engineer)

SDBR (Continued)

| PART 2 LOAD BEARING MASONRY BUILDINGS | | | | | | | | | | | | | | | | | | |
|--|---|--------------------|---|--------------|----|-----|----|---|----------|---|---|---|---|-----------|---|---|---|---|
| Sl No. | Description | Information | Notes | | | | | | | | | | | | | | | |
| i) | Building category | | IS 4326 IS 1893 (Part 1) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Zone Bldg</td><td style="text-align: center;">II</td><td style="text-align: center;">III</td><td style="text-align: center;">IV</td><td style="text-align: center;">V</td></tr> <tr> <td style="text-align: center;">Ordinary</td><td style="text-align: center;">B</td><td style="text-align: center;">C</td><td style="text-align: center;">D</td><td style="text-align: center;">E</td></tr> <tr> <td style="text-align: center;">Important</td><td style="text-align: center;">C</td><td style="text-align: center;">D</td><td style="text-align: center;">E</td><td style="text-align: center;">E</td></tr> </table> | Zone Bldg | II | III | IV | V | Ordinary | B | C | D | E | Important | C | D | E | E |
| Zone Bldg | II | III | IV | V | | | | | | | | | | | | | | |
| Ordinary | B | C | D | E | | | | | | | | | | | | | | |
| Important | C | D | E | E | | | | | | | | | | | | | | |
| ii) | Basement provided | | | | | | | | | | | | | | | | | |
| iii) | Number of floors including ground floor (all floors including stepped floors in hill slopes) | | | | | | | | | | | | | | | | | |
| iv) | Type of wall masonry | | | | | | | | | | | | | | | | | |
| v) | Type and mix of mortar | | IS 4326 | | | | | | | | | | | | | | | |
| vi) | Size and position of openings (see Note 1) a) Minimum distance (b5) b) Ratio $(b_1+b_2+b_3)/l_1$ or $(b_6+b_7)/l_2$ c) Minimum pier width between consequent opening (b4) d) Vertical distance (h3) e) Ratio of wall height to thickness f) Ratio of wall length between cross wall to thickness | | IS 4326 | | | | | | | | | | | | | | | |

| PART 2 | | LOAD BEARING MASONRY BUILDINGS | | | |
|--------|---|--------------------------------|--------------------------|--------------------------|--------------|
| SI No. | Description | Information | | | Notes |
| vii) | Horizontal seismic band <ul style="list-style-type: none"> a) at plinth level b) at window sill level c) at lintel level d) at ceiling level e) at eave level of sloping roof f) at top of gable walls at top of ridge walls | P | TP | NA | (see Note 2) |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| viii) | Vertical reinforcing bar <ul style="list-style-type: none"> a) at corners and T-junction of walls b) at jambs of doors and window openings | P | TP | NA | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| ix) | Integration of prefab roofing/flooring elements through reinforced concrete screed | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | IS 4326 |
| x) | Horizontal bracings in pitched truss <ul style="list-style-type: none"> a) in horizontal plane at the level of ties b) in the slopes of pitched roofs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

| PART 2 | | | |
|-------------------|---|--------------------|--------------|
| SI No. | Description | Information | Notes |
| NOTES | | | |
| 1 | Information in SI No. (vi) of Part 2 should be given on separate A4 sheets for all walls with large number of openings. | | |
| 2 | P indicates "Information Provided"; TP indicates "Information to be Provided" and NA indicates "Not Applicable". Tick mark one box which is applicable. | | |

Signature

(Registered Engineer/Structural Engineer)

SDBR (Continued)

| PART 3 REINFORCED CONCRETE FRAMED BUILDINGS | | | |
|--|--|--------------------|------------------|
| SI No. | Description | Information | Notes |
| i) | Type of Building <ul style="list-style-type: none"> a) Regular frames b) Regular frames with shear walls c) Irregular frames d) Irregular frames with shear walls e) Soft storey | | IS 1893 (Part 1) |
| ii) | Number of basements | | |
| iii) | Number of floors including ground floor | | |
| iv) | Horizontal floor system <ul style="list-style-type: none"> a) Beams and slabs b) Waffles c) Ribbed Floor d) Flat slab with drops e) Flat plate without drops | | |
| v) | Soil data <ul style="list-style-type: none"> a) Type of soil b) Recommended type of foundation <ul style="list-style-type: none"> 1) Independent footings 2) Raft 3) Piles c) Recommended bearing capacity of soil d) Recommended, type, length, diameter and load capacity of piles e) Depth of water table f) Chemical analysis of ground water | | |

| PART 3 REINFORCED CONCRETE FRAMED BUILDINGS | | | |
|--|---|--------------------|-----------------------------------|
| SI No. | Description | Information | Notes |
| | g) Chemical analysis of soil | | |
| vi) | Foundations <ul style="list-style-type: none"> a) Depth below ground level b) Type of independent interconnected raft piles | | |
| vii) | System of interconnecting foundations <ul style="list-style-type: none"> a) Plinth beams b) Foundation beams | | |
| viii) | Grades of concrete used in different parts of building | | |
| ix) | Method of analysis used | | |
| x) | Computer software used | | |
| xi) | Torsion included | | IS 1893 (Part 1) |
| xii) | Base shear <ul style="list-style-type: none"> a) Based on approximate fundamental period b) Based on dynamic analysis c) Ratio of a/b | | IS 1893 (Part 1) |
| xiii) | Distribution of seismic forces along the height of the building | | IS 1893 (Part 1) (provide sketch) |
| xiv) | The column of soft ground storey specially designed | | IS 1893 (Part 1) |
| xv) | Clear minimum cover provided in <ul style="list-style-type: none"> a) Footing b) Column c) Beams d) Slabs | | IS 456 |

| PART 3 REINFORCED CONCRETE FRAMED BUILDINGS | | | |
|--|---|--------------------|--|
| SI No. | Description | Information | Notes |
| | e) Walls | | |
| xvi) | Ductile detailing of RC frame <ul style="list-style-type: none"> a) Type of reinforcement used b) Minimum dimension of beams c) Minimum dimension of columns d) Minimum percentage of reinforcement of beams at any cross-section e) Maximum percentage of reinforcement at any section of beam f) Spacing of transverse reinforcement in 2-D length of beams near the ends g) Ratio of capacity of beams in shear to capacity of beams in flexure h) Maximum percentage of reinforcement in column i) Confining stirrups near ends of columns and in beam-column joints <ul style="list-style-type: none"> 1) Diameter 2) Spacing j) Ratio of shear capacity of columns to maximum seismic shear in the storey | | IS 456 IS 13920 IS 13920 IS 456 IS 13920 IS 456 IS 13920 IS 13920 IS 456 IS 13920 |
| xvii) | | | |

Signature

(Registered Engineer/Structural Engineer)

SDBR (Continued)

| PART 4 BUILDINGS IN STRUCTURAL STEEL | | | |
|---|--|--|--|
| i) | Adopted method of design | <ul style="list-style-type: none"> • Simple • Semi-rigid • Rigid | IS 800 |
| ii) | Design based on | <ul style="list-style-type: none"> • Elastic analysis • Plastic analysis | IS 800 SP 6(6) |
| iii) | Floor construction | <ul style="list-style-type: none"> • Composite • Non-composite • Boarded | |
| iv) | Roof construction | <ul style="list-style-type: none"> • Composite • Non-composite • Metal • Any other | |
| v) | Horizontal force resisting system adopted | <ul style="list-style-type: none"> • Frames • Braced frames • Frames and shear walls | NOTE— Seismic force as per IS: 1893 (Part 1) would depend on the system. |
| vi) | Slenderness ratios maintained | Members defined in IS 800 | IS 800 |
| vii) | Member deflection limited to | <ul style="list-style-type: none"> • Beams, Rafters • Crane girders • Purlins • Top of columns | IS 800 |
| viii) | Structural members | <ul style="list-style-type: none"> • Encased in Concrete • Not encased | IS 800 |
| ix) | Proposed material | <ul style="list-style-type: none"> • General weldable • High strength • Cold formed • Tubular | IS 2062 IS 8500 IS 801, 811 IS 806 |
| x) | Minimum metal thickness specified for corrosion protection | <ul style="list-style-type: none"> • Hot rolled sections • Cold formed | IS 800 |

| | | | |
|------|---|---|---|
| | | sections | |
| | | <ul style="list-style-type: none"> • Tubes | |
| xi) | Structural connections | <ul style="list-style-type: none"> • Rivets • C T Bolts • S H F G Bolts • Black Bolts • Welding-Field/Shop (Specify welding type proposed) • Composite | IS 800 IS 1929, IS 2155, IS 1149 IS 6639, IS 1367 IS 3757, IS 4000 IS 1363, IS 1367 IS 816, IS 814, IS 1395, IS 7280, IS 3613, IS 6419, IS 6560, IS 813, IS 9595 |
| xii) | Minimum fire rating proposed, with method | <ul style="list-style-type: none"> • Rating ____ hours • Method proposed- <ul style="list-style-type: none"> - In tumescent Painting - Spraying - Quilting - Fire retardant boarding | IS 1641, IS 1642, IS 1643 |

Signature

(Registered Engineer/Structural Engineer)

BUILDING AND PLUMBING SERVICES

Explanatory Note:

This chapter includes requirements for building services and, plumbing and sanitation in buildings. Key points to consider while reading the chapter are as follows:

- 1) *The chapter is structured in four key sections Building Services, Water Supply, Drainage and Sanitation and Gas Supply.*
- 2) *The section ‘Building Services’ covers regulations and provisions relating to lighting and natural ventilation, electrical and allied installations, air conditioning, heating and mechanical ventilation, acoustics, sound insulation and noise control, installation of lifts, escalators and moving walks, and information and communication enabled buildings.*
- 3) *The section ‘Water Supply’ covers regulations and provisions on water supply for various occupancies to ensure supply of safe and adequate water to the urban communities.*
- 4) *The section ‘Drainage and Santation’ covers regulations and provisions on sanitation and drainage requirements for various building occupancies and building types.*
- 5) *Lastly, the section ‘Gas Supply’ covers regulations and provisions for piped services for various types of gases, ensuring safety of person and property.*

9 BUILDING AND PLUMBING SERVICES

9.1 Building Services

9.1.1 The requirements and methods for lighting and natural ventilation of buildings shall be in accordance with Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.

9.1.2 The essential requirements for electrical installation in buildings to ensure efficient use of electricity including safety from fire and shock along with general requirements relating to lightning protection of buildings and brief provisions on certain allied installations shall be in accordance with Part 8 'Building Services', Section 2 'Electrical and Allied Installations' of NBC 2016.

9.1.3 The planning, design considerations, installation, testing, commissioning, handing over and operation and maintenance of air conditioning, heating and mechanical ventilation systems for buildings shall be in accordance with Part 8 'Building Services', Section 3 'Air Conditioning, Heating and Mechanical Ventilation' of NBC 2016.

9.1.4 The requirements and guidelines regarding planning against noise, acceptable noise levels and requirements for sound insulation in buildings with different occupancies shall be in accordance with Part 8 'Building Services', Section 4 'Acoustics, Sound Insulation and Noise Control' of NBC 2016.

9.1.5 The requirements for planning, design, installation, operation, maintenance and inspection of lifts (passenger lifts, goods lifts, hospital lifts, service lifts and dumb waiter) shall be in accordance with Part 8 'Building Services', Section 5 'Installation of Lifts, Escalators and Moving Walks' of NBC 2016.

9.1.6 The requirements for planning, design and installation of information and communication services in buildings shall be in accordance with Part 8 'Building Services', Section 6 'Information and Communication Enabled Installations' of NBC 2016.

9.2 Water Supply

9.2.1 All premises intended for human habitation shall be provided with supply of potable water. The water supply shall not be connected to unsafe water resources, nor shall it be subject to hazards of backflow.

9.2.2 The design of water supply shall take the following into consideration and the planning, design, construction and installation of water supply shall be in accordance with Part 9 'Plumbing services', Section 1 'Water Supply' of NBC 2016:

- a) Number of occupants;
- b) Minimum water requirements for different purposes;
- c) Treatment of water based on the quality of water;
- d) Quantity of water stored; and
- e) Sizing of pipes.

9.2.3 The planning, design, construction and installation of water supply shall be in accordance with Part 9 'Plumbing services', Section 1 'Water Supply' of NBC 2016.

9.2.4 The total quantity of water per day is estimated based on the proposed occupancy and activities catered. Projection of population for each building shall be made on the basis of its usage and shall be estimated on the basis of information obtained from the users. Alternatively, population may be worked out basis Table 47, for different type of buildings:

Table 47 Population Estimation for Water Supply Requirements in Buildings

| SI No. | Occupancy | Population Requirements |
|---|---|--|
| (1) | (2) | (3) |
| i) | Residential Buildings | |
| a) | 1-bedroom DU | 4 |
| b) | 2-bedroom DU | 5 |
| c) | 3-bedroom DU | 6 |
| d) | 4-bedroom DU and above | 7 |
| NOTES – | | |
| 1) The above figures consider a domestic household including support personnel, wherever applicable. 2) For plotted development, the population may be arrived at after due consideration to the expected number and type of domestic household units. 3) Dwelling units under EWS category shall have population requirement of 4 and studio apartment shall have population requirement of 2. | | |
| ii) | Other than Residential Buildings | |
| a) | Offices | 1 person per 10 m ² of floor area (see Note 1) |
| b) | Schools | Strength of school + teaching and non-teaching staff |
| c) | Hostels | Number of beds + 4.50 x (warden's residence) + Staff |
| d) | Hotels | Number of beds + staff + requirement of restaurant seats |
| e) | Hospitals | Number of beds + staff + patient attendants (generally population density per bed in secondary care hospital is 5, tertiary care is 7 and quaternary care is 9) |
| f) | Mercantile | 1 person per 3 m ² of ground floor and sales basement areas (if used for mercantile purposes) + 1 person per 6 m ² of upper sale floors (Total population may be segregated into 10 percent for fixed and 90 percent for floating/visitors) |
| g) | Traffic Terminal Stations | Average number of users per day (total annual passenger traffic/365) + staff + vendors |
| NOTES – | | |
| 1) Wherever there are multiple work shifts, the number of users within a 24 h period may be considered as per actuals. 2) Population of 5 to 15 percent, depending on the usage of building, shall be considered for visitors and floating population likely to use the buildings facilities. | | |

9.2.5 A minimum of 70-100 litre water per head per day (lphd) may be considered adequate for domestic needs of urban communities, apart from no-domestic needs as flushing

requirements (which varies based on type of building occupancy). The minimum requirements for water supply for residences as per different population size shall be as per Table 48.

NOTE — Litre per capita per day (lpcd) is the same as litre per head per day (lphd).

Table 48 Minimum Water Supply Requirements for Residences

| Sl No. | Population Size | Water Supply Requirements (lphd) |
|--------|--|----------------------------------|
| (1) | (2) | (3) |
| i) | For communities with population up to 20,000: water supply through stand post: | 40 |
| ii) | For communities with population up to 20,000: water supply through house service connection: | 70 - 100 |
| iii) | For communities with population 20,000 to 1,00,000 together with full flushing system | 100 -135 |
| iv) | For communities with population above 1,00,000 together with full flushing system | 150 - 200 |

NOTE — The value of water supply given as 150-200 litre per head per day may be reduced to 135 lphd for houses for Medium Income Group (MIG) and Low Income Group (LIG) and EWS, depending upon prevailing conditions and availability of water.

9.2.6 Out of the 150-200 lphd, 45 lphd may be taken for flushing requirements and the remaining quantity for other domestic purposes.

9.2.7 Minimum requirements for water supply for buildings other than residences shall be as per Table 49.

Table 49 Water Requirements for Buildings other than Residences

| Sl No. | Type of Building | Domestic Per Day (litre) | Flushing Per Day (litre) | Total Consumption Per Day (litre) |
|--------|--|--------------------------|--------------------------|-----------------------------------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Factories including canteen where bathrooms are required to be provided | 30 per head | 15 per head | 45 per head |
| ii) | Factories including canteen where no bathrooms are required to be provided | 20 per head | 10 per head | 30 per head |
| iii) | Hospital (excluding laundry and kitchen) (see Note 2): | | | |
| a) | Number of beds not exceeding 100 | 230 per head | 110 per head | 340 per head |

| SI No. | Type of Building | Domestic Per Day (litre) | Flushing Per Day (litre) | Total Consumption Per Day (litre) |
|---------------|---|---------------------------------|---------------------------------|--|
| (1) | (2) | (3) | (4) | (5) |
| b) | Number of beds exceeding 100 | 300 per head | 150 per head | 450 per head |
| c) | Outpatient department (OPD) | 10 per head | 5 per head | 15 per head |
| iv) | Nurses' homes and medical quarters | 90 per head | 45 per head | 135 per head |
| v) | Hostels | 90 per head | 45 per head | 135 per head |
| vi) | Hotel (up to 3 star) excluding laundry, kitchen, staff and water bodies | 120 per head | 60 per head | 180 per head |
| vii) | Hotel (4 star and above) excluding laundry, kitchen, staff and water bodies | 260 per head | 60 per head | 320 per head |
| viii) | Offices (including canteen) | 25 per head | 20 per head | 45 per head |
| ix) | Restaurants and food courts including water requirement for the kitchen: | | | |
| a) | Restaurant | 55 l/seat/day | 15 l/seat/day | 70 l/seat/day |
| b) | Food court | 25 l/seat/day | 10 l/seat/day | 35 l/seat/day |
| x) | Clubhouse | 25 per head | 20 per head | 45 per head |
| xi) | Stadium | 4 per head | 6 per head | 10 per head |
| xii) | Cinemas, concert halls and theatres and multiplex | 5 l/seat/day | 10 l/seat/day | 15 l/seat/day |
| xiii) | 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 |
| xiv) | Shopping and retail (mall): | | | |

| SI No. | Type of Building | Domestic Per Day (litre) | Flushing Per Day (litre) | Total Consumption Per Day (litre) |
|---------------|--|---------------------------------|---------------------------------|--|
| (1) | (2) | (3) | (4) | (5) |
| a) | Staff | 25 per head | 20 per head | 45 per head |
| b) | Visitors | 5 per head | 10 per head | 15 per head |
| xv) | 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 | 25 per 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) | Intrastate Bus Terminals/Metro Stations | 10 per head | 5 per head | 15 per head |
| | <p>NOTES –</p> <ol style="list-style-type: none"> 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 water supply requirements of traffic terminal stations (railway stations, bus stations, harbours, airports, etc) include provisions for waiting rooms and waiting halls. They do not, however, include requirements for retiring rooms. The number of persons shall be determined by average number of passengers handled by stations, with due consideration given to the staff and vendors who are using these facilities. 4) Consideration shall 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). | | | |

9.2.8 The water demand for the laboratory facilities will depend on actual requirements based on functional point of view.

9.2.9 Water supply in many buildings may involve application like air conditioning, swimming pools, fountains, recreational water bodies and gardening apart from water for domestic use and fire fighting purposes.

9.2.10 The water demand for landscaping purposes shall be taken as 6-8 litre/m²/day for lawns. For shrub and trees, the above value may be reduced considerably.

9.2.11 The water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from non-potable liquids, solids or gases being introduced into the potable water supply system through cross-connections or any other connection to the system.

9.2.12 Potable water outlets and combination stop and waste valves shall not be installed underground or below grade.

9.2.13 Other requirements of water supply including storage of water; waste water reclamation; protection of water supply; materials, fittings and appliances; design of distribution system; pipe work; jointing and laying of pipes etc shall be in accordance with Part 9 'Plumbing Services', Section 1 'Water Supply' of NBC 2016.

9.3 Drainage and Sanitation

9.3.1 Each dwelling unit on premises abutting on a sewer or with a private sewage disposal system shall have at least one water-closet, one kitchen wash place or a sink, and one bathing place or shower to meet the basic requirements of sanitation and personal hygiene.

9.3.2 All other structures for human occupancy or use on premises abutting on a sewer or with a private sewage disposal system shall have adequate sanitary facilities, but in no case less than one water-closet and one other fixture for cleaning purposes.

9.3.3 Sewage or other waste shall not be discharged into surface or sub-surface water without acceptable form of treatment.

9.3.4 There shall be at least one water tap and arrangement of drainage in the vicinity of each water-closet or group of water-closets in all the buildings.

9.3.5 Wherever water closet or similar fixture is located in a room or compartment, it should be properly lighted and ventilated.

9.3.6 Sanitation Requirements for Different Occupancies

9.3.6.1 For residences, the requirements shall be as follows:

- a) Dwellings with individual convenience shall have at least the following fitments:
 - i) One bathroom provided with a tap and a floor trap;
 - ii) One water-closet with flushing apparatus with an ablution tap; and
 - iii) One tap with a floor trap or a sink in kitchen or wash place.
- b) Where only one water-closet is provided in a dwelling, bath and water-closet shall be separately accommodated.
- c) Dwellings without individual conveniences shall have the following fitments:
 - i) One water tap with floor trap in each tenement;
 - ii) One water-closet with flushing apparatus and one ablution tap with bath for every two tenements; and
 - iii) One bath with water tap and floor trap for every two tenements.

9.3.6.2 For buildings other than residences, the requirements for fitments for drainage and sanitation shall be as per the tables in **ANNEX Y**. The additional requirements shall be as follows:

- a) Drinking water fountains shall not be installed in the toilets.
- b) Where there is the danger of exposure to skin contamination with poisonous, infectious or irritating material, wash basin with eye wash jest and an emergency shower shall be provided in an area which is always accessible.
- c) Workplaces where crèches are provided, they shall be provided with one WC for 10 persons or part thereof, one wash basin for 15 persons or part thereof, one kitchen sink with floor trap for preparing food/milk preparations. The sink provided shall be with a drinking water tap.
- d) In buildings with seminars/meeting/conference room, individual toilets and pantry shall be provided for executives.
- e) Where food is consumed indoors, water stations may be provided in place of drinking water fountains.

9.3.6.3 Adequate water supply and sanitation facilities shall be provided at construction sites, temporary camps and contingency camps.

9.3.6.4 Wastewater Recycling

9.3.6.4.1 Wastewater generated from residential, industrial, medical, commercial and wastewater generated from garbage shall be treated as per the guidelines given by the state pollution control board.

9.3.6.4.2 A wastewater recycling facility shall be installed wherever the minimum estimated waste water discharge from the building(s) on a plot exceeds 10,000 liters per day.

9.3.6.4.3 The applicant shall, along with their application for obtaining necessary development permit/ building permit, submit as part of the services plans (as stipulated in **3.3.1** of these regulations), a plan showing the location of wastewater treatment plant, furnishing details of calculations, references, implementation, etc. This plan shall accompany the applicant's commitment to monitor the system periodically from the date of occupation of the respective building.

9.3.6.4.4 The water quality after wastewater treatment shall be checked as per the requirements in CPCB Guidelines for Water Quality Monitoring.

9.3.6.4.5 Treated water from sewage treatment plant, with suitable tertiary treatment, should be used for non-domestic purposes such as water for flushing, landscape irrigation, cooling towers of HVAC system, in fountains and recreational lakes where swimming is not allowed, and for certain industrial purposes after its necessary treatment to suit the nature of the use. Planning and design approach to recycled water use should be integrated with dual piping systems and waste water reuse systems in accordance with Part 9 'Plumbing Services (including Solid Waste Management)' of NBC 2016. In such cases, control of contamination in potable supply pipe shall be ensured.

9.3.6.4.6 Excess treated wastewater shall be discharged as per Central Pollution Control Board (CPCB) norms.

9.3.6.5 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 Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.

9.3.7 Each fixture directly connected to the drainage system shall be equipped with a liquid seal trap. Trap seals shall be maintained to prevent sewer gas, other potentially dangerous or noxious fumes, or vermin from entering the building. Further, the drainage system shall be designed to provide an adequate circulation of air in all pipes with no danger of siphonage, aspiration, or forcing of trap seals under conditions of ordinary use by providing vent pipes throughout the system.

9.3.8 Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building, as it conveys potentially noxious or explosive gases to the outside atmosphere. All vent pipes shall be provided with a cowl.

9.3.9 Other requirements for drainage and sanitation shall be met in accordance with Part 9 'Plumbing Services', Section 2 'Drainage and Sanitation' of NBC 2016.

9.4 Gas Supply

9.4.1 The requirements of gas supply shall be as per the relevant clauses in Part 4 'Fire and Life Safety' and Part 9 'Plumbing Services' of NBC 2016.

ANNEX Y

(Clause 9.3.6.2)

REQUIREMENTS OF FIXTURES FOR DRAINAGE AND SANITATION IN DIFFERENT BUILDINGS

Table 50 Requirements of Fixtures for Drainage and Sanitation in Office Buildings

| SI No. | Fixtures | Public | | Staff | |
|--------|--|--|--------|-------|--|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Executive rooms and conference halls in office buildings | | | | |
| a) | 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 users of each facility. | | | For individual officer rooms |
| ii) | Main office toilets for staff and visitors | | | | |
| a) | Water-closets | 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. | | | 1 per 25 1 per 15 |
| b) | Ablution tap | 1 in each water-closet | | | |
| c) | Urinals | 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. | | | 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 - |

| SI No. | Fixtures | Public | | Staff | |
|--------|----------------------------|-------------|--------|---|-----------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| | | | | 101 to 200, add @ 3 percent For over 200, add @ 2.5 percent | |
| d) | Wash basins | | | 1 per 25 | 1 per 25 |
| e) | Drinking water fountain | | | 1 Per 100 | 1 Per 100 |
| f) | Cleaner's sink | 1 per floor | | | |

Table 51 Requirements of Fixtures for Drainage and Sanitation in Factories

| SI No. | Fixtures | Office/Visitors | | Workers | |
|--------|--|--|--|--|--|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Water closets (workers and staff) For persons 101-200 add For persons over 200 add | 1 for up to 25 2 for 26 to 35 3 for 36 to 65 4 for 66 to 100 3 percent | 1 for up to 15 2 for 16 to 25 3 for 26 to 40 4 for 41 to 57 5 for 58 to 77 6 for 78 to 100 5 percent | 1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100 3 percent | 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 5 percent |
| ii) | Ablution tap | 1 in each water-closet | | | |
| iii) | Urinals | Nil for up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 | - | Nil for up to 6 1 for 7 to 20 2 for 21 to 45 3 for 46 to 70 | - |

| Sl No. | Fixtures | Office/Visitors | | Workers | | | |
|--------|--|--|--------|--|--------|--|--|
| | | Male | Female | Male | Female | | |
| (1) | (2) | (3) | (4) | (5) | (6) | | |
| | | 4 for 71 to 100 From 101 to 200, add @3 percent For over 200, add @2.5 percent | | 4 for 71 to 100 From 101 to 200, add @3 percent For over 200, add @2.5 percent | | | |
| 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 | | | |
| 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 | | | |
| vii) | Showers/bathing rooms | As per trade requirements | | | | | |
| viii) | Emergency shower and eye wash fountain | 1 per every shop floor | | | | | |

NOTES

- 1 For factories requiring workers to be engaged in dirty and dangerous operations or requiring them to be extremely clean and sanitized, additional and separate toilet facilities 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 Clause 13 of Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

Table 52 Requirements of Fixtures for Drainage and Sanitation in Cinemas, Multiplex Cinemas, Concert and Convention Halls, Theatres and Stadia

| SI No. | Fixtures | Public | | Staff | |
|--------|-------------------------|--|--|----------------------------------|----------------------------------|
| | | Male | Female | Male | Female |
| (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 in each water-closet | 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 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 | - |
| iv) | Wash basins | 1 per 200 or part thereof | | 1 for up to 15 | 1 for up to 12 |
| v) | Drinking water fountain | 1 per 100 persons or part | | | |
| vi) | Cleaner's sink | 1 per floor | | | |
| vii) | Showers/bathing rooms | As per trade requirements | | | |

Table 53 Requirements of Fixtures for Drainage and Sanitation in Art Galleries, Libraries and Museums

| SI No. | Fixtures | Public | | Staff | |
|--------|---------------|--|--|----------------------------------|----------------------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Water closets | 1 per 200 up to 400 Over 400 add at 1 per | 1 per 100 up to 200 Over 200 add at 1 per | 1 for up to 15 2 for 16 to 35 | 1 for up to 12 2 for 13 to 25 |

| SI No. | Fixtures | Public | | Staff | |
|--------|-------------------------|--|--|--|----------------------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| | | 250 or part thereof | 150 or part thereof | | |
| ii) | Ablution tap | 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 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 1 per 250 persons or part thereof. | 1 for every 200 or part thereof. For over 200, add 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 | | | |

Table 54 Requirements of Fixtures for Drainage and Sanitation in Hospitals with Indoor Patient Wards

| SI No. | Fixtures | Patient | | Staff | |
|--------|---|------------------------------------|--------|---|--------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Toilet suite comprising one WC and one wash basin and shower stall for General Wards, | Private room with up to 4 patients | | For individual doctor's/officer's rooms | |

| SI No. | Fixtures | Patient | | Staff | |
|--------|-----------------------------|---|--------|--|----------------------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| | hospital staff and visitors | | | | |
| ii) | Water-closets | 1 per 5 beds or part thereof | | 1 for up to 15 | 1 for up to 12 |
| iii) | Ablution tap | One in each water-closet | | One in each water-closet | |
| 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 Provision for additional and special hospital fittings where required shall be made.
- 2 Drinking water fountains are not recommended for hospitals for reasons of infection control. This is to be decided by the health authority recommendations.

Table 55 Requirements of Fixtures for Drainage and Sanitation in Hospitals with Outdoor Patient Department

| SI No. | Fixtures | Patient | | Staff | |
|--------|---|----------------------|--------|---|--------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Toilet suite comprising one WC and one wash basin | For up to 4 patients | | For individual doctor's/officer's rooms | |

| Sl No. | Fixtures | Patient | | Staff | |
|---------------|---|---|-----------------------------------|--|----------------------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| | and shower stall for General Wards, hospital staff and visitors | | | | |
| 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 | |
| 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 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 | Drinking water fountains are not recommended for hospitals for reasons of infection control. This to be decided by the health authority recommendation. | | 1 per 100 persons or part thereof | |

NOTES

- 1 Drinking water fountains are not recommended for hospitals for reasons of infection control. This is to be decided by the health authority recommendations.
- 2 The WCs shall be provided keeping in view the location of main OPD 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 at least one patient attendant per patient.
- 3 Provision for additional and special hospital fittings where required shall be made.

Table 56 Requirements of Fixtures for Drainage and Sanitation in Hospitals, Administrative Buildings

| Sl No. | Fixtures | Staff | |
|---------------|--|---|---------------|
| | | Male | Female |
| (1) | (2) | (3) | (4) |
| i) | Toilet suite comprising one WC, one urinal and | For individual doctor's/officer's rooms | |

| Sl No. | Fixtures | Staff | |
|--------|--|---|----------------------------------|
| | | Male | Female |
| (1) | (2) | (3) | (4) |
| | one wash basin (with optional shower stall if building used for 24h) | | |
| 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 | |
| iv) | Urinals | 1 for 6 to 15 2 for 16 to 50 | - |
| v) | Wash basins | 1 per 25 persons or part thereof | |
| vi) | Drinking water fountain | 1 per 100 persons or part thereof Drinking water fountains to be provided only when it is a separate block and patients will not use it. | |
| vii) | Cleaner's sink | 1 per floor, minimum | |
| viii) | Kitchen sink | 1 per floor, minimum | |

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 57 Requirements of Fixtures for Drainage and Sanitation in Hospitals Staff Quarters and Nurses Homes

| Sl No. | Fixtures | Staff Quarters | | Nurses Homes | |
|--------|---------------|---------------------------------|--------|---------------------------------|--------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Water-closets | 1 per 4 persons or part thereof | | 1 per 4 persons or part thereof | |
| ii) | Ablution tap | One in each water-closet | | One in each water-closet | |
| iii) | Wash basins | 1 per 8 persons or part thereof | | 1 per 8 persons or part thereof | |

| SI No. | Fixtures | Staff Quarters | | Nurses Homes | |
|---------------|-------------------------|--|---------------|--|---------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| iv) | Bath (Showers) | 1 per 4 persons or part thereof | | 1 per 4 to 6 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 of Indian style, if desired.
- 2 For independent housing units, fixtures shall be provided as for residences.

Table 58 Requirements of Fixtures for Drainage and Sanitation in Hotels

| SI No. | Fixtures | Public Rooms | | Non-Residential Staff | |
|---------------|---|---|---|---|--|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Toilet suite comprising one WC, one wash basin with shower or a bathtub Guest rooms with common facilities | Individual guest rooms with attached toilets | | 1 for 1-15 2 for 16-35 3 for 36-65 4 for 66-100 | 2 for 1-13 4 for 13-25 6 for 26-40 8 for 41-57 10 for 58-77 12 for 78-100 Add 1 for every 6 persons or part thereof. |
| ii) | Water-closets | 1 per 100 up to 400 Over 400, add at 1 per 250 or part thereof | 2 per 100 up to 200 Over 200, add at 1 per 100 or part thereof | 1 for up to 15 2 for 16- 35 3 for 36- 65 4 for 66- 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 |

| SI No. | Fixtures | Public Rooms | | Non-Residential Staff | |
|-------------------|-----------------|----------------------------------|---------------|---|--|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| iii) | Ablution tap | One in each water-closet | | One in each water-closet | |
| iv) | Urinals | 1 per 50 persons or part thereof | - | Nil up to 6 1 for 7 to 20 2 for 21-45 3 for 46- 70 4 for 71-100 | - |
| v) | Wash basins | 1 per WC/Urinal | 1 per WC | 1 for up to 15 2 for 16- 35 3 for 36- 65 4 for 66-100 | 1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 |
| 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 Provision for additional and special fittings where required shall be made.

Table 59 Requirements of Fixtures for Drainage and Sanitation in Restaurants

| SI No. | Fixtures | Public Rooms | | Non-Residential Staff | |
|-------------------|-----------------|--|---|--|--|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Water-closets | 1 for 50 up to 200 Over 200 add 1 per 100 or part thereof | 2 per 50 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 | 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 |

| SI No. | Fixtures | Public Rooms | | Non-Residential Staff | |
|-------------------|-------------------------|---------------------------------|---------------|---|--------------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| | | | | 4 for 66 to 100 | 6 for 78 to 100 |
| ii) | Ablution tap | One in each water-closet | | | One in each water-closet |
| iii) | Urinals | 1 per 50 person 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 |
| v) | Cleaner's sink | 1 per each restaurant | | | 1 per each restaurant |
| vi) | Kitchen sink/Dishwasher | 1 per kitchen | | | 1 per kitchen |

NOTE — Provision for additional and special fittings where required shall be made.

Table 60 Requirements of Fixtures for Drainage and Sanitation in School and Educational Institutions

| SI No. | Fixtures | Nursery School | Non-Residential | | Residential | |
|-------------------|-----------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|
| | | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) |
| 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 8 pupils or part thereof |
| ii) | Ablution tap | One in each water-closet | | | | |
| iii) | Urinals | - | 1 per 20 pupils or | - | 1 per 25 pupils or | - |

| Sl No. | Fixtures | Nursery School | Non-Residential | | Residential | |
|--------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|
| | | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) |
| | | part thereof | | | 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 |
| 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 | |
| vii) | Cleaner's sink | 1 per each floor | | | | |

NOTE — For teaching staff, the schedule of fixtures to be provided shall be the same as in case of office building.

Table 61 Requirements of Fixtures for Drainage and Sanitation in Hostels

| Sl No. | Fixtures | Resident | | Non-Resident | | Visitor/Common Rooms | |
|--------|---------------|-------------------------|-------------------------|--|--|--|--|
| | | Male | Female | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) |
| i) | Water closets | 1 per 8 or part thereof | 1 per 6 or part thereof | 1 for up to 15 2 for 16-35 3 for 36-65 4 for 66-100 | 1 for up to 12 2 for 13-25 3 for 26-40 4 for 41-57 5 for 58-77 | 1 per 100 up to 400 Over 400 add at 1/250 | 2 per 100 up to 200 Over 200 add at 1 per 100 |

| Sl No. | Fixtures | Resident | | Non-Resident | | Visitor/Common Rooms | |
|--------|----------------|--|---------------------------------|--|--|--------------------------|----------|
| | | Male | Female | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) |
| | | | | | 6 for 78-100 | | |
| ii) | Ablution Tap | 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 21-45 3 for 46-70 4 for 71-100 | - | 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 16-35 3 for 36-65 4 for 66-100 | 1 for up to 12 2 for 13-25 3 for 26-40 4 for 41-57 5 for 58-77 6 for 78-100 | 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 | | | | | |

Table 62 Requirements of Fixtures for Drainage and Sanitation in Fruit and Vegetable Markets

| SI No. | Fixtures | Shop Owners | | Common Toilets in Market Building | | Public Toilet for Floating Population | |
|---------------|-----------------|---------------------------------|---------------------------------|--|---|--|---------------------|
| | | Male | Female | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) |
| i) | Water closets | 1 per 8 or part thereof | | 1 for up to 15 2 for 16-35 3 for 36-65 4 for 66-100 | 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 | |
| iii) | Urinals | - | | Nil up to 6 1 for 7- 20 2 for 21-45 3 for 46-70 4 for 71-100 | - | 1 per 50 | - |
| iv) | Wash basins | 1 per 8 or part thereof | | 1 for up to 15 2 for 16-35 3 for 36-65 4 for 66-100 | 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 | |

NOTES

- 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 shall provide facilities for persons working in the shops and their regular visitors.
- 3 Special toilet facilities shall be provided for a large floating population of out-of-town buyers/sellers, labour, drivers.

Table 63 Requirements of Fixtures for Drainage and Sanitation in Bus Stations, Airports and Railway Stations

| 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) | (1) | (2) |
| 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 | Min 2 | Min 2 |
| ii) | Ablution tap | 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 upto 1000 | - | 6 for upto 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 | | | | | |

NOTE — Separate provision shall be made for staff and workers.

Table 64 Requirements of Fixtures for Drainage and Sanitation in Shopping Malls and Retail Buildings

| SI No. | Fixtures | Staff Toilets in Shopping Building | | Public Toilet for Floating Population | |
|---------------|-----------------|--|---|--|------------------|
| | | Male | Female | Male | Female |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 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 closer | | 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 | - |
| iv) | Wash basins | 1 for up to 15 2 for 16 to 35 3 for 36 to 65 4 for 66 to 100 1 per 100 persons | 1 for up to 12 2 for 13 to 25 3 for 26 to 40 4 for 41 to 57 1 per 100 persons | 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 buildings in a market should be taken the same as that for office buildings.
- 2 Staff toilets in the shopping buildings shall provide facilities for persons working in shops and building, as well as for maintenance staff.
- 3 The number of persons against the fixture bath/showers represent the maintenance staff requiring such facility.
- 4 Public toilet facilities are provided for a large floating population of buyers and visitors

REQUIREMENTS FOR SPECIAL DEVELOPMENT AND BUILDINGS

Explanatory Note:

This chapter includes the requirements for special development and buildings. Key points to consider while reading the chapter are as follows:

- 1) *The chapter is structured into twenty-six key sections- Heritage Conservation, Group Housing, Low Income Housing and Cluster Housing for EWS, Development Controls for Coastal Regions, Development Control for Hilly Areas, Integrated Township Projects, Multiplex and Cinema, Amusement Park, Healthcare Facilities, Educational Buildings, LPG Godowns, Petrol/Diesel/CNG Filling Stations, Retirement Homes, Hostels, Night Shelters, Prison, Bus Terminals, Farm House, Metro Stations and Trainways, Electric Vehicle (EV) Charging Stations, Wind Electricity Generator (WEG), Telecommunication Towers, Transit Oriented Development (TOD) Slaughter House, Emergency Shelters, and Data/Incubation Centre.*
- 2) *These sections entail development control regulations and other special considerations for these developments.*
- 3) *Heritage sites/buildings (wherever applicable) shall be clearly identified by the Authority in the Master Plan. Demarcation of prohibited and regulated zones shall be as per 4.1.8 of these Standardized Regulations, for all heritage sites/buildings in the jurisdiction. Heritage regulations and establishment of Heritage Conservation Committee shall be undertaken and approved by the Authority. In absence of specific heritage site/building regulations, the regulations covered in 10.1 of these Standardized Regulations and national legislations, as amended from time to time, shall be applicable.*
- 4) *Coastal Regulation Zones (CRZ) shall be demarcated in Master Plan along with land use and activities permitted and a Coastal Zone Management Plan (CZMP) shall be prepared by the Authority, as per the Coastal Regulation Zone Notification, 2019 issued by Ministry of Environment, Forest and Climate Change (MoEFCC).*

- 5) The development control regulations for different land uses in hilly areas are specified in this chapter. The state/local governments may modify the same based on local requirements such as population densities, parking, traffic load, services etc.
- 6) Transit oriented development (TOD) integrates land uses and mass transportation such as bus rapid transit (BRT) and rail based transit like metro-rail, mono-rail, light-rail, ring-rail, etc for convenient transportation/movement reducing dependence on private modes of transport resulting in reduction in traffic congestion, pollution, etc. The basic objective is to plan cities in a manner where people conveniently walk and use public transport for most of their trips and, thus, reduce dependence on private mode and provide benefits to the city which include reduction in congestion, delays and accidents on roads; reduction of pollution caused by automobiles; and improvement in liveability, mobility and convenience of the citizens. A section on TOD has been included in the chapter which can be adopted by the Authorities that either have or proposed MRTS.metro-rail/Bus Rapid Transit System (BRTS) corridors in their development plans. TOD may be suitable for all newly planned cities. However, it can also be provided in existing cities where new expansion/development are taken up backed up with effective mass rapid transport system and new nodes.

10 REQUIREMENTS FOR SPECIAL DEVELOPMENTS AND BUILDINGS

10.1 Heritage Conservation

10.1.1 Heritage sites/buildings shall be as identified in the Master plan, demarcating the prohibited and regulated zones around such sites/buildings. These regulations shall be applicable in addition to any other regulations notified by the Heritage Committee and national legislation on heritage conservation, as amended from time to time.

10.1.2 Heritage sites/buildings shall include buildings, artefacts, structures, streets, areas and precincts of historic, architectural, aesthetic, cultural or environmental value, sacred groves, hills, hillocks, water bodies, open areas, wooded areas, points of interest, walks, rides, bridle paths etc and their precincts.

10.1.3 Change of land use in heritage sites/buildings shall not be permitted.

10.1.4 Subdivision of plots with single or a cluster of heritage buildings shall not be permitted.

10.1.5 Buildings in heritage sites shall maintain the skyline of the area, so as not to demolish or destroy the value and beauty of the said heritage site. High rise buildings shall not be permitted in the heritage site.

10.1.6 Commercial use (as shops, retail outlets, offices and hotels) of parts of heritage sites/buildings may be permitted by the Authority for buildings located in non-commercial land use zones, provided the owner(s) agree to repair and maintain the building as stipulated by the Authority, preserving its heritage state.

10.1.7 In case the heritage site/building is not maintained suitably or if the heritage value of the site/building is spoiled in any manner, the commercial/office/hotel use shall not be permitted.

10.1.8 If heritage sites/buildings are used for tourism purposes, parking space shall be provided within the plot without affecting the aesthetics of the heritage site/buildings or by creating additional parking facilities nearby.

10.1.9 The heritage sites/buildings shall be universally accessible. Access improvements to heritage buildings may be undertaken keeping the conservation norms and the building architecture in mind thereby respecting the aesthetics and heritage value of the building.

10.1.10 Consistency of building materials and colour shall be maintained in the heritage site and street facades. As far as possible, new construction shall be avoided. Additions, if any, shall be in harmony with the character of the heritage site/buildings.

10.2 Group Housing

10.2.1 Group housing development may be in the form of low rise house clusters and/or high-rise multi-storeyed apartments.

10.2.2 The minimum size of the site for group housing multi-storeyed apartment shall be 3,000 m². The number of DUs shall be calculated on the basis of the density pattern given in the Development Plan taking into consideration a population of 4.50 persons per DU.

10.2.3 20 percent of dwelling units/housing plots of the total proposed/permissible DUs in a group housing scheme shall be reserved for EWS and LIG housing. The developer shall not mortgage EWS and LIG dwelling units/housing plots to the Authority or to any other financial institutions.

10.2.3.1 Additional density and FAR shall be allowed free of cost to the developer as an incentive for construction of 20 percent of permissible dwelling units of EWS and LIG. Built-up area for EWS dwelling unit shall be 35-40 m² and the same for LIG dwelling unit shall be 41-48 m².

10.2.3.2 In case the developer does not want to build EWS and LIG housing units, they shall pay shelter fees to the Authority which is to be calculated as below:

$$(A \times B \times C)/10$$

Where

A = Total number of EWS and LIG dwelling units;

B = Minimum built-up area of one EWS and one LIG dwelling unit; and

C = 50 percent of the prevailing residential circle rate.

Thus, if minimum built-up area adopted for EWS dwelling unit is 35 m² and that for LIG dwelling unit is 41 m², 'B' in the above formula will be 76 m² (= 35 + 41).

10.2.3.3 The Authority shall maintain an Escrow account for shelter fees which shall be used only for the purpose of EWS and LIG housing.

10.3 Low Income Housing and Cluster Planning for Economically Weaker Sections (EWS) Housing

10.3.1 In case of an exclusive project or scheme for Low Income Group housing, the provisions in accordance with good practice IS 8888 'Requirements of low income housing for urban areas — Guide', as amended from time to time, may be followed.

10.3.2 In case of an exclusive project or scheme for EWS in cluster housing pattern, the provisions in accordance with good practice IS 13727 : 2020 'Requirements of cluster planning for housing — Guide', as amended from time to time, may be followed.

10.3.2.1 The minimum permissible plot size of EWS cluster pattern shall be 15 m². 100 percent ground coverage and FAR of 2 shall be applicable up to plot size of 25 m².

10.3.2.2 In ground and one storeyed structures, not more than 20 houses shall be grouped in a cluster.

10.3.2.3 DUs with plinth areas up to 20 m² shall have scope for adding a habitable room.

10.3.2.4 Cluster housing may have group toilets with one water-closet, one bath and a washing place, shared between three families. These shall not be community toilets.

10.4 Development Controls for Coastal Regions

10.4.1 Any development planned in coastal zones and the area up to the territorial water limit as identified in the Master Plan/Coastal Zone Management Plan (CZMP), shall be regulated as per the 'Coastal Regulation Zone (CRZ) Notification 2019' issued by Ministry of Environment, Forest and Climate Change (MoEFCC), as amended from time to time.

10.4.2 In CRZ, the permitted activities shall also be in accordance with CZMP.

10.4.3 Following activities shall be prohibitive within CRZ:

- a) setting up of new industries and expansion of existing industries, operations or processes;
- b) manufacturing or handling of oil, storage or disposal of hazardous substances as specified in the notification of the MoEFCC number G.S.R.395 (E), dated 4th April 2016;
- c) setting up of new fish processing units;
- d) land reclamation, bunding or disturbing the natural course of seawater except for the activities permissible under this notification and executed with prior permission from the Authority;

- e) discharge of untreated waste and effluents from industries, cities or towns and other human settlements;
- f) dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for land filling;
- g) port and harbour projects in high eroding stretches of the coast;
- h) mining of sand, rocks and other sub-strata materials;
- i) dressing or altering of active sand dunes;
- j) disposal of plastic into the coastal waters; and
- k) withdrawal of ground water.

NOTE — CRZ Notification, as amended from time to time may be referred for the list of prohibited activities.

10.4.4 Transfer of TDR shall not be permitted in CRZ.

10.4.5 In order to safeguard the aquatic system and marine life, adequate measures for management and disposal of plastic materials shall be undertaken in the CRZ.

10.5 Development Controls for Hilly Areas

10.5.1 For the purpose of these regulations, any land area above 600 m in height from mean sea level, or any land area with average slope of 30°, considering the sensitive and fragile ecosystem, shall be considered as hilly area.

10.5.2 Land Use

10.5.2.1 Land use distribution that may be adopted for planning in hilly areas is provided in Table 65.

Table 65 Proposed Land Use Distribution for Hill Area Planning

| Sl No. | Land Use | Area as Percentage of Total Developed Area | | |
|---------------|------------------------|---|---------------------|------------------------|
| | | Population | 5000- 10,000 | 10,001-1,00,000 |
| (1) | (2) | (3) | (4) | (5) |
| i) | Residential | 50-55 | 48-52 | 45-48 |
| ii) | Commercial | 2-3 | 2-3 | 4-5 |
| iii) | Industrial | 3-4 | 4-5 | 4-6 |
| iv) | Public and semi-public | 8-10 | 8-10 | 12-14 |
| v) | Recreational | 15-18 | 15-18 | 16-18 |
| vi) | Transportation | 5-6 | 5-6 | 6-8 |
| vii) | Ecological | Balance | Balance | Balance |

NOTE — The ecological area (non-developable area) given in Table 65 for hill towns is applicable for the hill town jurisdiction's developable area only. Hill town developable area shall be considered as area under hill town jurisdiction minus natural ecological area.

10.5.3 Development and Building Controls

10.5.3.1 Means of access

10.5.3.1.1 Clause 5.1.2 to 5.1.4 of these regulations shall apply in hilly areas. Additionally, the following shall be applicable:

- a) Every plot shall abut on minimum 3 m wide road. In case the width is inadequate, the applicant shall surrender land to make it 3 m wide.
- b) The minimum ROW for various types of developments shall be as specified in Table 66.

Table 66 Minimum ROW Requirements for Hilly Areas

| SI No. | Type of Development | Minimum ROW (m) |
|---------------|--|------------------------|
| (1) | (2) | (3) |
| i) | Residential plot in the existing built-up area | 3.00 |
| ii) | LIG housing | 9.00 (see Note) |
| iii) | Plotted development | 6.00 |
| iv) | Group housing | 9.00 |
| v) | Mixed use development | 9.00 |
| vi) | Commercial and industrial plot | 12.00 |

NOTE — Internal roads in LIG housing may be 6 m wide.

10.5.3.2 Setbacks

10.5.3.2.1 The requirements for setbacks shall be as follows:

- a) The minimum setbacks for residential plots shall be as specified in Table 67.

Table 67 Minimum Required Setback for Residential Plots in Hilly Areas

| SI No. | Plot Area (m²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|---------------|----------------------------------|------------------|-----------------|---------------------|---------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Up to 50 | 1.20 | - | - | - |
| ii) | 51-100 | 1.50 | - | - | - |
| iii) | 101-200 | 1.50 | 1.20 | - | - |
| iv) | 201-300 | 2.00 | 1.50 | - | - |
| v) | 301-500 | 3.00 | 2.00 | 1.50 | - |
| vi) | 501-1000 | 4.50 | 3.00 | 3.00 | 2.50 |
| vii) | 1001-2000 | 6.00 | 4.00 | 4.00 | 4.00 |

| SI No. | Plot Area (m²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|---------------|----------------------------------|------------------|-----------------|---------------------|---------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| viii) | Above 2000 | 7.00 | 4.50 | 4.50 | 3.00 |

b) The minimum setbacks for other plots shall be as specified in Table 68.

Table 68 Minimum Required Setback for Other Plots in Hilly Areas

| SI No. | Plot Area (m²) | Front (m) | Rear (m) | Side (1) (m) | Side (2) (m) |
|---------------|----------------------------------|------------------|-----------------|---------------------|---------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Up to 200 | 3.00 | - | - | - |
| ii) | 201-500 | 4.00 | - | - | - |
| iii) | 501-1,000 | 5.00 | 3.00 | 3.00 | 2.50 |
| iv) | 1,001-3,000 | 7.00 | 4.50 | 4.50 | 3.00 |
| v) | 3,001-5,000 | 9.00 | 6.00 | 6.00 | 6.00 |
| vi) | 5,001-10,000 | 10.00 | 6.00 | 6.00 | 6.00 |
| vii) | 10,001-30,000 | 12.00 | 6.00 | 6.00 | 6.00 |
| viii) | 30,000-50,000 | 14.00 | 7.50 | 7.50 | 6.00 |
| ix) | Above 50,000 | 15.00 | 9.00 | 7.50 | 6.00 |

- c) Every setback area provided shall be kept free from any erection thereon and shall be open to the sky, as specified in **5.3.4** of these regulations.
- d) No residential building shall be permissible on land having buildable width less than 5 m after leaving setbacks.
- e) In case of plots abutting front and rear roads, the front setback of the plot shall be towards the wider road, from where the approach is being taken, and the side setbacks may be half of the front setback or equal to the rear setback, whichever is more.
- f) In case the road terminates at a part of the plot, front setback shall be given towards the road.
- g) In corner plots, the front setback of the plot shall be towards the wider road and the side and rear setbacks may be half of the front setback.
- h) In case of a corner plot where both the roads are equal in size, the front setback shall be as per design of the building.
- i) Minimum permissible distance between two buildings constructed on a plot shall be 5 m.

10.5.3.3 FAR and ground coverage

10.5.3.3.1 The development control regulations for different land uses are specified in Table 69.

Table 69 Development Controls for Different Land Uses in Hilly Areas

| SI No. | Use/Activity | Maximum FAR | Max Ground Coverage (Percent) |
|--------|---|-------------|-------------------------------|
| (1) | (2) | (3) | (4) |
| i) | Residential Plot | | |
| a) | Plotted | | |
| 1) | Up to 50 | 1.80 | 80 |
| 2) | 51-100 | 1.80 | 75 |
| 3) | 101-200 | 1.60 | 70 |
| 4) | 201-300 | 1.50 | 65 |
| 5) | 301-500 | 1.40 | 55 |
| 6) | 501-1000 | 1.20 | 50 |
| 7) | 1001-2000 | 1.00 | 45 |
| b) | Group housing | 1.40 | 40 |
| c) | LIG housing | 2.00 | 50 |
| ii) | Commercial Plot | | |
| a) | Convenient/Neighborhood shopping centre | 1.00 | 35 |
| b) | Central business district | 2.00 | 25 |
| c) | Hotels | 1.80 | 45 |
| d) | Banks | 2.00 | 30 |
| e) | Cinema/Multiplex | 2.00 | 40 |
| f) | Informal/Bazaar market | 0.40 | 40 |
| iii) | Industrial Plot | | |
| a) | Flattened industries | 1.20 | 30 |
| b) | Light and service industry | 1.00 | 50 |

| SI No. | Use/Activity | Maximum FAR | Max Ground Coverage (Percent) |
|---------------|---|--------------------|--------------------------------------|
| (1) | (2) | (3) | (4) |
| c) | Extensive industry | 0.60 | 40 |
| iv) | Public/Semi-Public Plots | | |
| a) | All higher educational institutions, e.g. engineering, management, degree college, research and training centre, film/audio/video studio, university, vocational institute, medical colleges etc. | 1.60 | 45 |
| b) | Senior/higher secondary school | 1.60 | 45 |
| c) | Nursery school/crèche/primary school | 1.00 | 40 |
| d) | Religious buildings | 1.50 | 50 |
| e) | Dispensary/Health care and social assistance services, and clinic, clinical lab | 1.50 | 55 |
| f) | Hospital in any system of medicine, nursing home, specialized health centre, trauma centre | 1.60 | 40 |
| g) | Government, semi-government, corporate offices and other offices. | 1.70 | 60 |
| h) | Museum, art gallery and exhibition centre, art centre | 1.80 | 50 |
| j) | IT and IT enabled services, biotech park | 1.70 | 45 |
| k) | Community centre, club building and <i>barat ghar/gym</i> , spa/health club, fire station, police station, post office, library and other such facilities. | 0.80 | 33 |
| m) | Old age home, orphanage, reformatory | 1.20 | 45 |
| n) | Dharamshala/lodge/guest house/hostel | 1.50 | 40 |
| p) | Parking buildings (multi-level/standalone) | 1.50 | 25 |

10.5.3.3.2 Maximum permissible hill cut shall be of height 3.50 m.

10.5.3.3.3 No house shall be located closer than 10 m to a steep slope.

10.5.3.3.4 Multiple buildings shall compulsorily be built as detached buildings.

10.5.3.3.5 A minimum clearance of 1.50 m shall be provided between toe of boundary wall and building wall.

10.5.3.3.6 No building shall be built to abut against an earth cutting including a toe wall supporting an earth cutting. This shall be applicable for building where there is no toe wall too.

10.5.3.3.7 The relaxation in ground coverage and exemption in FAR shall be in accordance with **5.4.3** of these regulations.

10.5.3.4 Building height

10.5.3.4.1 Maximum permissible building heights in hilly areas are specified in Table 70. However before sanctioning the building plans, the Authority shall ensure the following:

- a) View of prominent sites like lakes, snow bound hills, etc, is not obstructed.
- b) Single storey buildings maybe permitted on master plan roads/national highways and state highways roads and at a minimum distance of 4.50 m from the road.
- c) If width of road is equal to or less than 6 m, then maximum 10 m building height is permitted.
- d) All buildings sanctioned above MSL of 2,000 m shall have sloping roof. In such cases, an additional height of 1.50 m shall be permitted for the slope.

Table 70 Maximum Permissible Building Heights in Hilly Areas

| SI No. | Height above Mean Sea Level (MSL) | Maximum Height (m) |
|---------------|--|---------------------------|
| (1) | (2) | (3) |
| i) | > 600 ≤ 1000 m | 20 |
| ii) | > 1000 ≤ 2000 m | 15 |
| iii) | > 2000 ≤ 3000 m | 12 |
| iv) | > 3000 ≤ 4000 m | 7 |
| v) | > 4000 m | 4 |

NOTE — The structures to be exempted from calculation of height are listed in **5.4.5.1** of these regulations

10.5.3.5 Community facilities

10.5.3.5.1 The size for community facilities and services in hilly areas shall be as specified in Table 71.

Table 71 Norms for Community Facilities and Services in Hilly Areas

| SI No. | Type | Minimum Plot Size (m²) |
|---------------|-------------------------------|--|
| (1) | (2) | (3) |
| i) | Educational Facilities | |

| SI No. | Type | Minimum Plot Size (m²) |
|---------------|------------------------------|--|
| (1) | (2) | (3) |
| a) | Nursery school/Crèche | 500 |
| b) | Primary school | 3,000 |
| c) | Secondary school (10 + 2) | 8,000 |
| d) | College | 20,000 |
| e) | University | 40,000 |
| ii) | Health | |
| a) | Dispensary | 400 |
| b) | Hospital (25-50 beds) | 1,000 |
| c) | Hospital (100-200 beds) | As decided by competent Authority |
| d) | Veterinary centre | 500 |
| e) | Nursing home | 700 |
| iii) | Other Facilities | |
| a) | Community welfare centres | 1,000 |
| b) | Local convenience shopping | 3,000 |
| c) | Milk booth | 400 |
| d) | Banquet hall | 1,000 |
| e) | Religious buildings | 1,000 |
| f) | Cremation ground | 2,000 |
| iv) | Services | |
| a) | Fire station | 5,000 |
| b) | General post office | 3,000 |
| c) | Post office | 1,000 |
| d) | Electric sub-station (66 KV) | 10,000 |
| e) | Electric sub-station (11 KV) | 500 |

| SI No. | Type | Minimum Plot Size (m²) |
|---------------|----------------------------|--|
| (1) | (2) | (3) |
| f) | Police <i>chowki</i> | 500 |
| g) | Police station | 5,000 |
| h) | Disaster management centre | 10,000 |
| i) | LPG godown | 1,500 |

10.5.3.6 Parking facilities

10.5.3.6.1 The general and space requirements for parking shall be in accordance with **5.7** of these regulations.

10.5.3.6.2 In all building uses including residential, commercial, industrial, and all other activities, provisions shall be made for parking spaces as specified in Table 72.

Table 72 Minimum Parking Standards for Different Building Uses

| SI No. | Use/Activity | Parking Standards per 100 m² Permissible FAR Area |
|---------------|--|---|
| (1) | (2) | (3) |
| i) | Residential | |
| a) | Plotted | 1.00 ECS |
| b) | Group housing | 1.25 ECS |
| ii) | Commercial | |
| a) | Convenient/Neighbourhood shopping centre | 1.50 ECS |
| b) | Central business district | 2.00 ECS |
| c) | Hotels | 2.50 ECS |
| d) | Banks | 2.00 ECS |
| e) | Cinema/Multiplex | 1.50 ECS |
| f) | Warehousing/Godowns | 1.00 ECS |
| iii) | Industrial | 0.65 ECS |
| iv) | Public/ Semi public | |

| Sl No. | Use/Activity | Parking Standards per 100 m ² Permissible FAR Area |
|--------|---|--|
| (1) | (2) | (3) |
| a) | All higher educational institutions, e.g. engineering, management, degree college, research and training centre, film/ audio/ video studio, university, vocational institute, medical colleges etc. | 1.50 ECS |
| b) | Senior/higher secondary school | 1.25 ECS |
| c) | Nursery school/crèche/primary school | 1.00 ECS |
| d) | Religious buildings | 1.50 ECS |
| e) | Dispensary/Health care and social assistance services, and clinic, clinical lab | 2.00 ECS |
| f) | Hospital in any system of medicine, naturopathy centre, nursing home, specialized health centre, trauma centre | 2.00 ECS |
| g) | Government, semi-government, corporate offices and other offices. | 2.50 ECS |
| h) | Information technology and information technology enabled services, biotech park | 2.00 ECS |
| i) | Community centre, club building and barat ghar/gym, spa/health club, fire station, police station, post office, library and other such facilities. | 1.50 ECS |
| j) | Dharamshala/lodge/guest house/hostel | 1.50 ECS |
| k) | Old age home, orphanage, reformatory | 1.00 ECS |
| l) | Other utilities | 1.50 ECS |

10.5.3.6.3 In case of multistorey parking, the minimum area of the plot shall be 1000 m² with minimum 50 car parking spaces.

10.5.3.6.4 The Authority shall develop public parking spaces in hilly tourist urban areas specially to accommodate parking for dharmshala, hotels, religious places and marketplaces where vehicular movement may not be permitted due to space constraint.

10.5.3.7 Other requirements

10.5.3.8 The shear walls shall be constructed on all the three sides of parking floor so that it is not a soft storey.

10.5.3.9 The houses constructed on sloping land shall be protected by building retaining walls/breast walls to avoid landslides occurring at time of earthquakes or heavy rains. The

retaining wall shall be designed and constructed in accordance with various parts of IS 14458 'Retaining wall for hill areas - Guidelines', as applicable.

10.5.3.10 On the uphill side of the building on a sloping site, the natural flow of the water shall be diverted away from the foundations.

10.5.3.11 The slope of ground all around building shall not be less than 1:50, built in such a way that rainwater does not find way to percolate in ground excessively and moves away quickly to surface drains or away on adjoining hill surface towards natural streams.

10.5.3.12 A minimum of 0.75 m wide apron shall be provided all around the building to prevent entry of water into foundation.

10.5.3.13 Stepped terrace development and stepped storeyed building construction may be adopted for offices, schools and other building complexes because of the following reasons:

- a) it results in least hill cutting, disturbance to hill stability and deforestation;
- b) cost of site development works, slope protection and other protection works is reduced considerably;
- c) least load comes on valley side, so danger of foundation failures is avoided.

10.5.4 Safety Requirements

10.5.4.1 The applicant shall submit detailed scheme and design for development of individual plot including earth work calculation (cutting and filling), subsurface investigation report including slope stability analysis calculation, remedial measures for slope protection, etc from the RBP duly vetted by the agency/committee approved by the Authority.

10.5.5 Preservation of local heritage and hill architecture shall be ensured and incorporated in the designs in terms of facades, sloping roof, windows, doors, etc in hilly areas.

10.6 Integrated Township Projects

10.6.1 The area for integrated township projects shall be earmarked in the master and/or zonal plans to ensure that necessary infrastructure is provided for the township schemes.

10.6.2 Minimum size of any integrated township project shall be 10 ha, preferably on a contiguous, parcel of land.

10.6.3 The approach road for the integrated township from major road shall have minimum 24 m wide RoW.

10.6.4 Land use distribution shall be as specified in Table 73.

Table 73 Percentage of Area Allocation for Different Land Uses in Township Projects

| SI No. | Land Use | Area as Percentage (%) of Area of the Township |
|---------------|------------------------------------|---|
| (1) | (2) | (3) |
| i) | Area for major economic activities | 35-40 |
| ii) | Residential (maximum) | 20 |
| iii) | Commercial (maximum) | 5 |
| iv) | Road and open space (minimum) | 15 |
| v) | Parks and playgrounds (minimum) | 15 |

| SI No. | Land Use | Area as Percentage (%) of Area of the Township |
|---------------|----------------------------------|---|
| (1) | (2) | (3) |
| vi) | Public and semi public (minimum) | 10 |

10.6.5 The provisions for ground coverage, FAR, setbacks, open spaces and parking requirements shall be as per Chapter 5 ‘Development and Building Controls’ of these regulations.

10.6.6 Additional requirements shall be as follows:

- a) If land for public facilities such as police station, post office, electric substation, fire station, etc, falls within the TS limit, then the same shall be developed by the Authority.
- b) SWM provisions shall comply with Chapter 11 ‘Solid Waste Management’ of these regulations.
- c) An STP shall be provided inside the integrated township.
- d) Accessibility provisions shall be provided as specified in Part 3 ‘Development Control Rules and General Building Requirements’ of NBC, 2016.
- e) Township shall meet the sustainability requirements as per Chapter 12 ‘Sustainability’ of these regulations.

10.7 Multiplexes and Cinemas

10.7.1 The development controls for multiplexes and cinemas shall be as specified in Table 74.

Table 74 Development Controls for Multiplexes and Cinemas

| SI No. | Development controls | Multiplex | | Cinema | | Auditorium | |
|---------------|-------------------------------------|------------------|--------------|---------------|--------------|-------------------|--------------|
| | | Plains | Hills | Plains | Hills | Plains | Hills |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| i) | Minimum plot size (m ²) | 4,000 | 1,500 | 1,500 | 1,000 | 1,500 | 1,000 |
| ii) | Minimum means of access (m) | 24 | 9 | 18 | 9 | 18 | 9 |
| iii) | Maximum FAR | 2.00 | 2.00 | 2.00 | 2.00 | 1.50 | 1.20 |
| iv) | Ground coverage (percent) | 40 | 40 | 40 | 40 | 35 | 40 |
| v) | Maximum height (m) | 30 | 15 | 30 | 12 | 26 | 12 |

| SI No. | Development controls | Multiplex | | Cinema | | Auditorium | |
|--------|--|---|-------|--------|-------|------------|-------|
| | | Plains | Hills | Plains | Hills | Plains | Hills |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| vi) | Minimum setbacks (m) | 12 m in the front and 6 m on all sides | | | | | |
| vii) | Parking (ECS/100 m ² of covered area) | 2.00 | 1.50 | 2.00 | 1.50 | 2.00 | 1.50 |
| viii) | Urban design features | Shall comply with 5.8 of these regulations | | | | | |

10.7.2 Location criteria for multiplex and cinema may be as follows:

- a) Multiplex and cinema may be permitted in commercial, institutional, recreational and non-polluting industrial zones/areas.
- b) Multiplex or cinema may be permitted on an individual designated plot or a part of commercial building, subject to the conditions in Table 74 of these regulations.

10.7.3 The multiplex and cinema shall fulfil the following criteria:

- a) In a multiplex, the auditorium, commercial activities and other recreation facilities shall be provided within the same building.
- b) Cinema building shall permit only restaurant, kiosks and incidental facilities.
- c) In a multiplex, minimum two auditoria and in a cinema building, one auditorium shall be provided.
- d) The minimum seating capacity of a single auditoria shall be 300 seats in plain areas and 150 seats in hill areas.
- e) An auditorium shall have minimum two entry/exit gates on at least two side walls.
- f) Toilets, baby feeding rooms and accessible toilets for physically challenged shall be provided and located close to the auditoria. The size of such rooms or toilets shall comply to provisions given in Chapter 5 ‘Development and Building Controls’ of these regulations.
- g) The multiplexes, cinema buildings and auditoria shall be designed with accessibility features in compliance with the provisions of Part 3 ‘Development Control Rules and General Building Requirements’ of NBC 2016.
- h) All cinema and multiplex shall confirm the relevant provisions of the concerned Cinematographic Acts/rules.
- i) Multiplex and cinema building construction shall conform to IS 4878 ‘Byelaws for construction of cinema buildings’ and acoustics design of such buildings shall adhere to the requirements of IS 2526 ‘Acoustical design of auditoriums and conference halls’, as amended from time to time.

10.7.4 Multiplexes, cinema buildings and auditoria shall meet the sustainability requirements as per Chapter 12 ‘Sustainability’ of these regulations.

10.7.5 Conversion of existing cinema hall to multiplex shall be allowed as per the provisions of concerned state policies and are subject to compliance with **10.7.1** and **10.7.2** of these regulations.

10.7.6 All the requirements related to corridor, passage, basement shall be in accordance with of Chapter 6 'General Building Requirements' of these regulations.

10.8 Amusement Parks

10.8.1 All amusement parks shall have recreational facilities as the primary use and ancillary facilities to support their operation. Recreational facilities may include devices and structures such as giant wheel, roller coaster, merry-go-round or similar rides both indoor and outdoor, oceanic-park, swimming pool, magic mountain and lake, ethnic village, shops for souvenirs/citations, toys, goods, as principal uses. Ancillary activities may include facilities such as administrative offices, exhibition hall or auditorium, open air theatre, essential staff quarters, store buildings, fast food shops, museum, souvenir and small shops, public conveniences, resting places, restrooms, etc.

10.8.2 The development controls for amusement park shall be as specified in Table 75.

Table 75 Development Controls for Amusement Parks

| SI No. | Development Controls | Permissible Values |
|--------|---|--|
| (1) | (2) | (3) |
| i) | Minimum plot size (m^2) | 10,000 |
| ii) | Maximum FAR | 0.40 |
| iii) | Maximum ground coverage | 20 percent |
| iv) | Maximum height | No limit, subject of other norms if applicable in that area like proximity to airport, etc |
| v) | Minimum ROW (m) | 24 |
| vi) | Parking (ECS/100 m^2 of covered area) | 3.00 (minimum parking of 100 cars) |

10.8.3 50 percent of the total area shall have evergreen plantation and soft landscaping, 20 percent of the total area shall be utilized for permanent construction and maximum 30 percent can be used for hard landscape and open activities. The landscaping provisions shall comply with **5.8.5** of these regulations.

10.8.4 Parking shall be provided for cars, buses, autos, two-wheelers and taxis. Boarding and alighting points for taxis and private cars shall include kerb ramps similar to those at accessible parking places.

10.8.5 Power back-up systems shall be installed as per prescribed safety standards.

10.8.6 Provisions in Indian Standards, IS 15475 (Parts 1 to 6) 'Code of recommended practice for amusement rides safety' shall be followed for amusement rides safety.

10.8.7 In amusement parks, the following requirements shall be fulfilled for PwD:

- a) Accessible toilets and drinking water hydrants shall be installed as per specifications provided in Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.
- b) In the case of providing different amusement facilities in the same recreational building or amusement park, the majority of them shall be accessible for a large number of users.
- c) Depending on the facility dimensions, wheelchairs or other personal mobility devices shall be available at the users' disposal, whenever required.
- d) Reception counters and other facilities within the amusement park shall be in accordance with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

10.8.8 Toilets and baby feeding rooms shall be provided and the size of such rooms shall be in accordance with Chapter 6 'General Building Requirements' of these regulations.

10.8.9 In case ropeways are installed in the amusement park or elsewhere, the following Indian Standards for acceptance criteria for ropeways and their operation and maintenance may be suitably utilized for ensuring safety of passengers:

| SI No. | Title and Name of the Indian Standard |
|--------|---|
| 1) | IS 17233 'Acceptance and certification criteria for design and construction of all types of ropeways intended for transportation of passengers' |
| 2) | IS 17234 'Operation and maintenance of all types of ropeways intended for transportation of passengers — Code of practice' |
| 3) | IS 17236 'Prevention and safety against fire in ropeways — Code of practice' |
| 4) | IS 17237 'Code of practice for design and construction of civil engineering works for ropeways — General requirements' |
| 5) | IS 17238 'Safety requirements for ropeways installations designed to carry persons — Quality control' |
| 6) | IS 17240 'Corrosion protection of iron and steel sections used in passenger ropeways — Code of practice' |

10.9 Healthcare Facilities

10.9.1 The minimum area required for healthcare facilities shall be as specified in Table 76.

Table 76 Minimum Area Required for Various Types of Healthcare Facilities

| SI No. | Healthcare Facility | Minimum Area Required (m ²) |
|--------|---|---|
| (1) | (2) | (3) |
| i) | Dispensary | 500 |
| ii) | Nursing home, child welfare and maternity centre (25-30 beds) | 1,000 |

| | | |
|-------|--|--------|
| iii) | Polyclinic with some observation beds | 250 |
| iv) | Hospital (50 bedded) | 5,000 |
| v) | Hospital (100-200 beds) | 10,000 |
| vi) | General hospital (500 bedded) | 50,000 |
| vii) | Multi-speciality hospital (200 bedded) | 20,000 |
| viii) | Diagnostic centre | 500 |
| ix) | Veterinary hospital for pets and animals | 2,000 |
| x) | Dispensary for pet animals and birds | 300 |

10.9.2 The development controls for healthcare facilities shall be as specified in Table 77.

Table 77 Development Controls for Healthcare Facilities

| Sl No. | Type of Establishment | Maximum FAR | Minimum Width of Means of Access (m) | Maximum Ground Coverage (Percent) | Maximum Height (m) | Parking Standards (ECS/100 m ² of Floor Area) |
|--------|-------------------------------------|-------------|--------------------------------------|-----------------------------------|--------------------|--|
| (1) | (2) | (3) | (4) | (5) | (6) | (1) |
| i) | Laboratory/Clinics/Dispensary | 1.80 | 12 | 50 | 12 | 1.30 |
| ii) | Maternity homes/Nursing homes | 1.50 | 12 | 50 | 15 | 2.00 |
| iii) | Hospital up to 50 beds | 2.00 | 18 | 40 | 24 | 2.00 |
| iv) | Hospital with more than 50-200 beds | 2.50 | 30 | 35 | 45 | 2.00 |
| v) | Hospital with more than 200 beds | 2.50 | 30 | 35 | 45 | 2.00 |

10.9.3 Other controls shall be as follows:

- a) Provisions in Part 4 'Fire and Life Safety' of NBC 2016 shall be complied. In case of hospitals having area of floor plate less than 750 m², all critical care facilities, intensive care units (ICU) and operation theatres (OTs) shall not be placed in basements and above third floors.
- b) Proper disposal of bio medical waste shall be done in accordance with Chapter 11 'Solid Waste Management' of these regulations and 'Bio Medical Waste Rules 2016'.

- c) All the sustainable measures such as installation of rainwater harvesting, ground water recharge, zero discharge of sewerage, provision of rooftop solar plant and solar water heating systems, energy conservation, etc, shall be in accordance with Chapter 12 'Sustainability' of these regulations.

10.9.4 All public areas shall be accessible and designed for PwD and shall comply with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

10.9.5 The building design specifications of healthcare facilities shall comply with the Compendium of Norms for designing of Hospitals and Medical Institutions, Central Public Works Department (CPWD), MoHUA.

10.10 Educational Buildings

10.10.1 Land requirements for educational institutions shall be as specified in Table 78.

Table 78 Land Requirements for Technical Institutions

| SI No. | Course | Minimum Area Requirement (m ²) | | | | | |
|--------|---|--|---------|-------------------------|--------------------------------------|---------|-------------------------|
| | | Other than Rural Places | | | Rural Places as Defined by Authority | | |
| | | UG Programs | Diploma | Stand-alone PG Programs | UG Programs | Diploma | Stand-alone PG Programs |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) |
| i) | Engineering and technology | 10,000 | 6,000 | 10,000 | 40,000 | 20,000 | 40,000 |
| ii) | Pharmacy | 3,000 | 3,000 | 3,000 | 8,000 | 8,000 | 8,000 |
| iii) | Architecture and town planning | 4,000 | 4,000 | 4,000 | 10,000 | 10,000 | 10,000 |
| iv) | Applied arts and crafts | 3,000 | 3,000 | 3,000 | 8,000 | 8,000 | 8,000 |
| v) | Hotel Management and Catering technology (HMCT) | 4,000 | 4,000 | 4,000 | 10,000 | 10,000 | 10,000 |
| vi) | Master of Computer Applications (MCA) | - | - | 2,000 | - | - | 6,000 |
| vii) | Management | - | - | 2,000 | - | - | 4,000 |

| SI No. | Course | Minimum Area Requirement (m^2) | | | | | |
|--------|------------------------------|------------------------------------|---------|-------------------------|--------------------------------------|---------|-------------------------|
| | | Other than Rural Places | | | Rural Places as Defined by Authority | | |
| | | UG Programs | Diploma | Stand-alone PG Programs | UG Programs | Diploma | Stand-alone PG Programs |
| (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) |
| viii) | Medical college/institutions | 1,00,000 | - | - | 1,00,000 | - | - |

NOTES

- 1 Land area shall include hostel facilities.
- 2 Land parcel shall be continuous piece.
- 3 In hilly regions, institutes can be permitted in 3 land parcels which are not away from each other by more than 1 km.

10.10.2 All educational/training institutes may be permitted to use maximum 25 percent of permissible FAR for hostel/staff residential facilities.

10.10.3 The requirements for administrative area, amenities area, circulation area and parts of building shall be as per AICTE guidelines for land requirements, as amended from time to time.

10.10.4 Detailed built-up area requirements for medical colleges shall comply with the 'Minimum Standard Requirements For The Medical College,1999, Medical Council of India' and 'Compendium of norms for designing Medical institutions', CPWD, as amended from time to time.

10.10.5 Requirement for Schools

10.10.5.1 The minimum plot size for senior/higher secondary schools shall be 8,000 m^2 for plain areas and 4,000 m^2 for hilly areas.

10.10.5.2 The minimum plot size for preschools shall be 500 m^2 .

10.10.5.3 Other requirements for schools shall comply with Central Board of Secondary Education (CBSE) Affiliation Byelaws.

10.10.6 Requirement for Coaching Centres

10.10.6.1 An institutional centre (coaching centre) run by a person, society, trust or group of people where provision has been made for more than 50 students to study may be permitted in the commercial and institutional zones. The following shall be applicable to such coaching centres which has 50 or more students at one time:

- a) The minimum area for coaching centre shall be 300 m^2 with 4 m^2 space per student.
- b) The minimum width of means of access shall be 18 m for big cities and 15 m for medium and small towns.

10.11 Liquefied Petroleum Gas (LPG) Godowns

10.11.1 Permissibility of LPG godown shall be according to the master plan.

10.11.2 The development control for LPG godown shall be as specified in Table 79.

Table 79 Development Controls for LPG Godowns

| SI No. | Development Controls | Plain Areas | Hilly Areas |
|---------------|-----------------------------|--------------------|--------------------|
| (1) | (2) | (3) | (4) |
| i) | Minimum plot size (m^2) | 1000 (30 m x 35 m) | 750 (25 m x 30 m) |
| ii) | Minimum Means of access (m) | 18 | 12 |
| iii) | Maximum FAR | 0.25 | 0.25 |
| iv) | Maximum ground coverage | 25 percent | 25 percent |
| v) | Maximum height (m) | 7 | 7 |

10.11.3 LPG godowns shall not be permitted in a residential area.

10.11.4 A guard room with a toilet facility may be permitted on LPG godown plot and shall comply with Chapter 6 'General Building Requirements' of these regulations.

10.11.5 The proposed godown building/shed shall have open space all around it. The site shall also comply with all the requirements as per the provisions of Chapter 4 'Land Development' of these regulations.

10.11.6 The godown building/shed shall only be a single storey structure.

10.11.7 Building requirements shall be as follows:

- a) The construction of the godown/storage shed shall be of non-inflammable materials only with walls of brick cement, roof of RCC, asbestos and door of iron, etc and the trusses shall be made of iron. The storage shed shall have at least 25 mm thick non-flammable mastic flooring confirming to IS 13074 'Code of practice for laying of bitumen mastic flooring for industries handling LPG and other light hydrocarbon products' and IS 13026 'Bitumen mastic for flooring for industries handling LPG and other light hydrocarbon products', as amended from time to time.
- b) The door of the godown shall be double leaf one and shall open outwards.
- c) The height of the boundary wall shall be at least 1.80 m.
- d) The width of the main door of the godown building/storage shed shall be at most 1.20 m.
- e) The shed shall be adequately ventilated on each wall near the ground level and near or in the roof. The ventilators shall be provided with double layer of non-corroding metal wire gauge with size 0.75 m x 0.25 m for each ventilator.
- f) The length of godown shall not be more than one and a half times of width of godown. A floor area of 10 m^2 for every 1000 kg of LPG in cylinders may be proposed.
- g) The chowkidar and sales room shall be beyond safety distance.

10.11.8 Other provisions shall be as per the requirement mentioned in the Gas cylinder rules and the Explosives Act, as amended from time to time.

10.12 Petrol/Diesel/CNG Filling Stations

10.12.1 The minimum distance of filling station from the road intersections shall be as follows:

- a) 50 m for roads having less than 30 m width; and

- b) 100 m for roads having width 30 m and more.

10.12.2 The storage tank and dispensing station in the filling station shall not be located within 30 m distance from the boundary of any school, hospital, assembly and residential building.

10.12.3 Filling stations shall comply with ‘Petroleum Rules 1976’ under the ‘Petroleum Act 1934’ and the norms as prescribed in IRC 012 ‘Guidelines for Access, Location and Layout of Roadside Fuel Stations and Service Stations’.

10.12.4 The development controls for filling stations shall be as specified in Table 80.

Table 80 Specification for Filling Stations

| SI No. | Development Controls | Filling Stations | Filling cum Service Stations | CNG Stations |
|--------|---|---|------------------------------|--------------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Minimum plot size (m^2) | 1,000 | | |
| ii) | Minimum frontage (m) | 35 | | |
| iii) | Maximum FAR | 0.20 | 0.20 | 0.20 |
| iv) | Maximum ground coverage (percent) | 20 | 20 | 20 |
| v) | Minimum front setback (m) | 3 | 6 | 6 |
| vi) | Maximum height of building and canopy (m) | 6 | | |
| vii) | Minimum means of access (m) | 18 | 30 | 30 |
| viii) | Parking | For every 500 m^2 , parking space for 3 cars and 5 two wheelers | | |

10.12.5 Other requirements shall be as follows:

- a) Facilities for storage, office, public conveniences, kiosks, drinking water, etc shall be provided.
- b) Every petrol pump shall have public toilets with water-closet (WC) separately for men and women and the sizes of toilets shall be as per provisions of Chapter 6 ‘General Building Requirements’ of these regulations and relevant sections of Part 9 ‘Plumbing Services’ of NBC 2016.

10.13 Retirement Homes

10.13.1 Site Requirements

10.13.1.1 The land chosen for retirement home shall not be in a crowded/congested locality or in a secluded/isolated area.

10.13.1.2 The site shall be well connected with easy availability of public transport.

10.13.1.3 Good accessibility to local facilities, health services, markets, shops, educational institutions and religious centres shall be ensured.

10.13.2 Retirement home may be provided with different residential options, either as a group housing project or in the form of a hostel with rooms in a single/double occupancy or as dormitories.

10.13.3 The development controls for retirement home if developed as a group housing shall be as specified in Table 81.

Table 81 Development Controls for Retirement Homes if Developed as a Group Housing

| SI No. | Development Controls | Permissible Values | |
|---------------|--|---|-------------------------|
| | | Plain Area | Hilly Area |
| (1) | (2) | (3) | (4) |
| i) | Minimum plot size (m ²) | 3,000 | 1,500 |
| ii) | Minimum means of access (m) | 12 | 9 |
| iii) | Maximum FAR | 1.50 | 1.20 |
| iv) | Maximum ground coverage (percent) | 35 | 45 |
| v) | Maximum height (m) | 10 | 10 |
| vi) | Parking (ECS/100 m ² of covered area) | 2.00 | 1.00 |
| vii) | Open space | 65 percent of site area | 55 percent of site area |
| viii) | Urban design features | Shall comply with 5.6 of these regulations | |
| ix) | Average size of DU (m ²) | Plain area | Hilly area |
| a) | 1 BHK | 40-60 | 30-45 |
| b) | 2 BHK | 50-80 | 40-60 |
| x) | Dwelling density (DUs/ha) | 370 | 247 |

NOTE — The norms prescribed above are indicative in nature, which may vary from state to state and region to region, owing to factors including topography, local demand and affordability and other parameters.

10.13.4 The community facilities for retirement homes shall be designed as specified in Table 82.

Table 82 Controls for Community Facilities for Group Housing Projects in Retirement Homes

| SI No. | Community Facilities | Permissible Values | |
|---------------|-----------------------------|---|--|
| | | Plain Area | Hilly Area |
| (1) | (2) | (3) | (4) |
| i) | Medical room (minimum) | 15 m ² /25 DUs | 15 m ² /25 DUs |
| ii) | Community space (maximum) | 2 m ² /person or 500 m ² | 2 m ² /person or 300 m ² |
| iii) | Convenience store (maximum) | 2 percent of Built-up Area (BUA) or 30 m ² . | 2 percent of BUA or 20 m ² . |

10.13.4.1 Community facilities may also include spaces for meditation/prayer room, activity room, library/reading room, dining, visitor's room with toilet facility, security, caretaker residence and storage, etc, as per the requirement.

10.13.5 Other requirements shall be as follows:

- a) Attendants/staff accommodation may be provided on site as per requirement and shall be limited to one attendant per apartment within the permissible coverage and FAR.
- b) All buildings of more than one storey shall be provided with lifts that are suitably equipped to accommodate residents requiring assistance and using wheelchairs and similar equipment/mobility tools.
- c) Provisions related to accessible ramps, toilet facilities, lighting and ventilation, floor finishes, community facilities shall be provided in line with the specific provisions for Persons with Disability (PwDs) as per Part 3 'Development Control Rules And General Building Requirements' of NBC 2016.
- d) Other building requirements shall comply with Model Guidelines for Development and Regulation of Retirement Homes, MoHUA, as amended from time to time.

10.13.6 Requirements for dormitories shall be as follows:

- a) A maximum of only 10 residents shall be admitted to a dormitory.
- b) Each resident shall have at least 7.50 m² of bedroom space with minimum 1.50 m space between two beds.
- c) Each resident shall have a total of 12 m² of living space including the bedroom space and ancillary areas like kitchen, dining hall, recreation room, medical room, etc excluding service areas such as verandahs, corridors, etc.
- d) Windows shall be provided in the dormitory for better light and free flow of air.
- e) There shall be provision for emergency light and alarm bells at the bedside.
- f) Each dormitory and bed shall be numbered and displayed at the door.
- g) There shall be one toilet for every 7 residents, these shall be central to the dormitory and not the end of a long passageway.
- h) There shall be an isolation ward with a few beds for residents who are bedridden or are needing end of life care.

10.14 Hostels

10.14.1 Development control norms for a hostel building in a plot shall be as specified in Table 83.

Table 83 Development Control Regulation for Hostels

| SI No. | Development Controls | Permissible Value | |
|---------------|--|--|-------------------|
| | | Plain Area | Hilly Area |
| (1) | (2) | (3) | (4) |
| i) | Minimum plot size (m ²) | 500 | 300 |
| ii) | Minimum means of access (m) | 18 | 9 |
| iii) | Maximum FAR | 2.50 | 1.50 |
| iv) | Maximum ground coverage (percent) | 30 | 40 |
| v) | Minimum setbacks (m) | As per provisions of 5.3 of these regulations | |
| vi) | Parking (ECS/100 m ² of covered area) | 2.00 | 1.50 |
| | | One parking space for two-wheeler for every 10 rooms | |
| vii) | Landscaping and signages | Shall comply with 5.8.5 and 5.8.7 of these regulations | |
| viii) | Room height (m) | 2.75 | |

10.14.2 Minimum area requirements for different rooms in a hostel shall be as specified in Table 84.

Table 84 Minimum Area Requirements for Hostels

| SI No. | Description | Minimum Area (m²) |
|---------------|------------------------------------|-------------------------------------|
| (1) | (2) | (3) |
| i) | Single bedded room with a bathroom | 8 |
| ii) | Double bedded rooms | 15 |
| iii) | 3-seater | 21 |
| iv) | 4-seater | 29 |
| v) | 6-seater dormitory | 39 |

| SI No. | Description | Minimum Area (m²) |
|---------------|---|--|
| (1) | (2) | (3) |
| vi) | Kitchen cum pantry | 0.50 m ² /diner subject to a maximum of 60 m ² |
| vii) | Dining hall | 1 m ² /resident for at least 50 percent of the hostel strength, subject to maximum 40 m ² |
| viii) | Common room | 2 m ² /resident for at least 25 percent of the hostel strength, subject to maximum 60 m ² |
| ix) | Toilets | 2.00 |
| x) | Storeroom | 10.00 |
| xi) | Sick room | 1 room of 9.60 m ² |
| xii) | Office | 15.00 |
| xiii) | Warden's living quarters | For warden not living with family, area of two single rooms; for warden living with family/married, not exceeding 115 m ² . |
| xiv) | Day care centre (For working women hostel only) | 1.50-2.00 m ² /child including a small washroom (See Note) |
| xv) | Chowkidar room | 20.00 |
| xvi) | Computer cum reading room | 15.00 |

NOTE — For a 100 bedded hostel, provision of 30 children may be made in day care centre.

10.15 Night Shelters

10.15.1 Development controls for night shelters shall be as specified in Table 85.

Table 85 Development Controls for Night Shelters

| SI No. | Development Controls | Permissible Value |
|---------------|-------------------------------------|--------------------------|
| (1) | (2) | (3) |
| i) | Minimum plot size (m ²) | 500 |
| ii) | Minimum means of access (m) | 12 |
| iii) | Maximum FAR | 1.50 |
| iv) | Ground coverage (percent) | 40 |
| v) | Maximum height (m) | 12 |

| | | |
|-----|---------|---|
| vi) | Parking | 2 service vehicles for plot area 100 m ² and above |
|-----|---------|---|

10.15.2 Night shelters may be permitted in the following areas:

- a) integrated freight complex or wholesale markets;
- b) industrial zones; and
- c) railway terminal or integrated bus terminals.

10.15.3 The minimum living space available to each person shall be 4 m² excluding kitchen, toilet and other common spaces.

10.15.4 Requirements for night shelters shall be as follows:

- a) There shall be adequate community toilets in the night shelter. The community toilet shall have separate toilet units for men and women. Each toilet unit shall have one Indian WC, one western WC, one hand wash and mirror unit and one bath. Additionally, there shall be an accessible toilet unit, one washing area and a baby feeding room.
- b) Arrangements for disposal of waste shall be in accordance with provisions of Chapter 11 'Solid Waste Management' of these regulations.
- c) Fire requirements shall comply with provisions of Chapter 7 'Fire and Life Safety' of these regulations and Part 4 'Fire and Life Safety' of NBC 2016.

10.15.5 Night shelters shall have the following common facilities:

- a) common recreation space for watching television, reading space, etc;
- b) cooking space with gas connection;
- c) child-care facilities for dependent minor children and baby-feeding rooms may be provided;
- d) in case of more than 10 children, a separate mini anganwadi may be opened at the shelter with attendant facilities.

10.16 Prisons

10.16.1 Development controls for prisons shall be as specified in Table 86.

Table 86 Development Controls for Prisons

| SI No. | Development Control | Permissible Values |
|--------|--|--------------------|
| (1) | (2) | (3) |
| i) | Maximum ground coverage (percent) | 30 |
| ii) | Maximum FAR | 2 |
| iii) | Maximum height (m) | 30 |
| iv) | Parking (ECS/100 m ² of covered area) | 2.00 |

10.16.2 General requirements shall be as follows:

- a) Up to 30 percent of maximum FAR may be utilized for residential staff use.

- b) Area enclosed within four walls of a prison shall not be less than 83.61 m² per head of total capacity.
- c) Buildings in a prison complex shall have a minimum distance of 50 m from the prison's boundary wall.
- d) Each prison complex shall have separate enclosures for women prisoners. The enclosures shall have facilities such as segregation, protection, pregnancy, childbirth and family care, health care, training and rehabilitation, etc.
- e) The prison complex shall have an administrative block and a court room.
- f) Entry to the prison shall be through a single point only and it shall be accessible and shall comply with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.

10.16.3 The minimum requirements for a prison cell shall be as specified in Table 87.

Table 87 Minimum Requirements for a Prison Cell

| SI No. | Description | Minimum Requirements |
|--------|--------------------------|---|
| (1) | (2) | (3) |
| i) | Floor area per cell | 5.40 m ² , for single accommodation 3.40 m ² per person, for shared accommodation |
| ii) | Floor area per dormitory | 3.40 m ² /person containing single beds; 2.60 m ² /person containing double bunk beds; |
| iii) | Width of cell | 2.40 m |
| iv) | Height of the room | 3.40 m |
| v) | Ventilation area | At least 4 percent of the floor area |
| vi) | Day lighting area | Total clear glazed window area, at least 8 percent of the floor area |

10.16.4 Other controls for prison shall be as follows:

- a) The main gate shall be 6 m wide and 4 m in height to facilitate gate operations and movement of fire tenders/transport vehicles. Cabin, gatekeeper enclosures, search room and search for space and security equipment shall be provided near the gates.
- b) Prisoners shall be accommodated in dormitories (with not more than 20 prisoners) or single rooms or separate cells.
- c) All dormitories/cell shall be provided with verandas with minimum width of 2 m.
- d) The ratio of WCs and bathing place shall be one unit for 10 prisoners.
- e) The ratio of WCs in the prison complex shall be one WC for 6 prisoners.
- f) The standard size for toilet and washing places shall be 1.50 m x 1.50 m (length and breadth)

- g) In each dormitory, where toilets are provided, one should be of western type.
- h) Kitchen space shall be designed with the ratio of 150 m² for 100 prisoners. A single kitchen shall not cater to more than 500 prisoners.
- i) Provision for covered dining space shall exist within the complex.
- j) Each prison complex shall have a hospital facility situated near the main gate of the complex. The hospital shall have ward for patients, toilet and bathing facilities (1 for every 5 patients), storage room for hospital furniture, dressing-cum-injection room, room for minor surgery, room for pathological laboratory, room for medical officer, isolation rooms for contagious diseases and isolation room for accommodating mentally ill patients.
- k) Proper recreational facilities such as ground for outdoor games, auditorium for cultural activities, library, indoor games, yoga, gymnasium, etc.
- l) Arrangements for disposal of waste shall be in accordance with provisions of Chapter 11 'Solid Waste Management' of these regulations.
- m) The structure shall comply with provisions of Part 4 'Fire and Life Safety' of NBC 2016.
- n) All the sustainable measures such as installation of rainwater harvesting, ground water recharge, zero discharge of sewerage, provision of rooftop solar plant, STP and solar water heating systems, energy conservation, etc shall be in accordance with provisions of Chapter 12 'Sustainability' of these regulations.
- o) Other building requirements shall comply with Prison Manual, 2016, MoHA, as amended from time to time.

10.17 Bus Terminals

10.17.1 Development controls for bus terminals shall be as specified in Table 88.

Table 88 Development Controls for Bus Terminals

| SI No. | Development Control | Permissible Value |
|--------|---|----------------------------|
| (1) | (2) | (3) |
| i) | Area under operation | 70 percent |
| ii) | Area under building | 30 percent |
| iii) | FAR | 2.00 |
| iv) | Floor area that may be utilized for passenger accommodation | 25 percent |
| v) | Maximum height (m) | 30 |
| vi) | Minimum means of access (m) | 18 |
| vii) | Parking requirements | 2 ECS for private vehicles |

NOTES

- 1 The FAR shall be calculated on the building plot.
- 2 Area under bus queue shelter shall not be included in ground coverage and FAR.

10.17.2 Primary infrastructural requirements shall be as specified in Table 89.

Table 89 Primary Elements for Bus Terminal Infrastructure

| Passenger Areas | Areas for Terminal Staff | Areas for Bus Staff |
|--|--|--|
| (1) | (2) | (3) |
| Ticketing and queuing | Revenue office | Canteen |
| Passenger waiting areas, Parking space | Security, police control room and information | Resting areas |
| Passenger conveniences (drinking water facilities and toilets) | Ticketing booth | Lodging areas (if required) |
| Passenger circulation | Resting room | Bus staff conveniences (drinking water facilities and toilets) |
| Boarding/departing areas | Staff conveniences (drinking water facilities and toilets) | |
| Facility entry and exit | Canteen | |
| Tourist information, canteen, food kiosks | Space for maintenance and coolie/authorized porter staff and lockers | |
| Security including Closed Circuit Television (CCTV) cameras | Control room (CCTV surveillance) | |
| Retail, ATM, PCR booths, concessions and lease space | | |
| Dormitories and lodging (if required) | | |
| Cloak room | | |
| Railway/air reservation | | |

10.17.3 Supporting infrastructure shall be as specified in Table 90.

Table 90 Supporting Infrastructure for Bus Terminal

| SI No. | Component | Description |
|---------------|--------------------------------|--|
| (1) | (2) | (3) |
| i) | Feeder infrastructure | This shall include provision for parking of private vehicles, drop-off and pick-up bays for private vehicles, taxis, auto rickshaws, cycle rickshaws, shared vehicles such as vans/jeeps, etc, and bays and/or stops for local bus services to ensure higher passenger convenience and increased intermodal accessibility. |
| ii) | Seating | Seating in and around the bus terminal complex – shall be planned to cater to a minimum of 30 percent of all passengers in the facility. It shall be designed to combine comfort, ease of maintenance and resistance to vandalism. |
| iii) | Hardscape and landscaping | Landscaping interventions shall complement the spatial design of the bus terminal and enhance the visual appeal of the terminal. |
| iv) | Lighting | Lighting shall be designed to meet minimum illumination levels and quality standards for both indoor and outdoor application. |
| v) | Signage | Dynamic and fixed signage, providing relevant information, warnings and directions shall be strategically placed and be consistent and easy to interpret, so as to facilitate ease of access, convenience and safety. Public address system shall be integrated into the design at all terminal facilities. |
| vi) | Public art | Public art in the form of installations, urban furniture, lighting, multimedia, graffiti or commercial art shall be allocated planned spaces within the premises of the bus terminal in order to increase the imageability, cultural identity and social attractiveness of enclosed spaces. |
| vii) | In-terminal breakdown services | Provisions for in-terminal breakdown service shall be included in the bus terminal design to ensure efficient service planning. |

10.17.4 Every owner or occupier or an association of such owners and occupiers of bus stations or their premises shall appoint a fire safety officer who shall ensure the compliance of all fire prevention and fire safety measures and effective operation thereof as provided in State Fire Service Act and Part 4 'Fire and Life Safety' of NBC 2016.

10.17.5 Other requirements for bus terminals shall be as follows:

- a) The bus terminal shall not be located in core city areas.
- b) The ingress and egress points shall be located such that they are not in conflict with traffic circulation at the peripheral road network.
- c) Provisions for cycle/auto rickshaws, buses, private vehicles etc. shall be integrated in the facility design to ensure seamless transfers.

- d) Dynamic and fixed signage providing bus timetables, warnings and directions shall be provided. Public address system shall be integrated into the design at all terminal facilities.
- e) Bus terminal facilities shall be accessible in line with the specific provisions for PwDs, people carrying luggage, pregnant women, children, people traveling with infants and shall comply with Part 3 'Development Control Rules and General Building Requirements' of NBC 2016.
- f) Arrangements for disposal of waste shall be in accordance with provisions of Chapter 11 'Solid Waste Management' of these regulations.
- g) The bus terminal shall have clear fire-fighting plans, equipment and emergency exit plans. All the fire requirements shall comply with provisions of Part 4 'Fire and Life Safety' of NBC 2016.
- h) All the sustainable measures such as installation of rainwater harvesting, ground water recharge, zero discharge of sewerage, provision of rooftop solar plant and solar water heating systems, energy conservation etc, shall be in accordance with provisions of Chapter 12 'Sustainability' of these regulations.

10.18 Farm Houses

10.18.1 Farm house shall be permitted in the zones as specified in the Master Plan/Zonal Plan.

10.18.2 The minimum size of the plot for the farm house shall be 1 ha.

10.18.3 The maximum permissible ground coverage for all type of activities shall be 10 percent.

10.18.4 The maximum permissible FAR shall be 0.20.

10.18.5 The maximum height of the building shall be 9 m and it shall not be more than two storeys.

10.18.6 The front setback shall be minimum 15 m and all other setbacks shall be minimum 9 m.

10.18.7 Minimum 65 percent of the total area of the farmhouse shall be under plantation. At least 100 trees/ha shall be planted out of which 50 percent shall be evergreen trees.

10.18.8 The access to the farm house shall be from a 15 m wide road.

10.18.9 Farm house shall be used only for personal purpose. It shall not be permitted for any public or commercial purpose.

10.19 Metro Station Buildings and Trainways

10.19.1 The fire and life safety requirements for buildings constructed as a part of metro stations/metro rail systems shall be in accordance with Annex J, Part 4 'Fire and Life Safety' of NBC 2016. Further, the fire and life safety requirements for all portions of underground, elevated and at-grade metro trainway including tail buffer tracks and sidings not intended to be occupied by the passengers, shall be in accordance with Annex K, Part 4 'Fire and Life Safety' of NBC 2016.

10.19.2 The tunnel ventilation system for underground metro station tunnel shall be in accordance with Part 8/Section 3 'Building Services, Section 3 Air Conditioning, Heating and Mechanical Ventilation' of NBC 2016.

10.20 Electric Vehicle (EV) Charging Stations

10.20.1 Based on the occupancy pattern and the total parking provisions in the premises of the various building types, adequate charging infrastructure shall be provided for EVs, however, this shall not be less than 20 percent of all vehicle holding capacity/parking capacity including 2 wheelers and passenger vehicles at the premises. Minimum charging infrastructure requirements as mentioned above do not apply to private charging infrastructure meant for self-use of individual EV owners (non-commercial basis).

10.20.2 The minimum requirements for Public Charging Station (PCS) Infrastructure shall be as specified in the 'Charging Infrastructure for Electric Vehicles (EV) – the Revised Consolidated Guidelines and Standards, 2022' by Ministry of Power (MoP), as amended from time to time.

10.20.3 The building premise shall have an additional power load, equivalent to the power required for all charging points in a Public Charging Station (PCS) to be operated simultaneously, with a factor of safety of 1.25.

10.20.4 Charging station installed in group housing complexes, malls, office complexes, restaurants, hotels, etc may have provisions to allow charging of visitor's vehicles.

10.20.5 Captive charging station for internal use of an organization/company's own fleet will not be required to install all types of chargers.

10.20.6 Standalone Battery Swapping Stations may be added with the PCS.

10.20.7 All electric vehicle charging points shall be installed so that any socket-outlet of supply is at least 800 mm above the finished ground level.

10.20.8 The electric vehicle parking place shall be such that the connection on the vehicle when parked for charging shall be within 5 m from the electric vehicle charging point.

10.20.9 The norms for performance and safety requirements for EV charging infrastructure as specified in 'Charging Infrastructure for Electric Vehicles (EV) – the Revised Consolidated Guidelines and Standards, 2022, Ministry of Power', 'The Central Electricity Authority (Technical Standards for the Connectivity of Distributed Generation Resources) (Amendment) Regulations, 2019' and 'The Central Electricity Authority (Measures relating to Safety and Electric Supply) (Amendment) Regulations, 2019' shall be complied with, as amended from time to time.

10.21 Wind Electricity Generators (WEG)

10.21.1 WEG means the equipment used for converting wind energy to electricity including the medium voltage unit transformer by whatever name called including windmill, wind turbine generator or wind electric converter as approved for use by the Ministry of New and Renewable Energy, Government of India and included in its Revised List of Models and Manufacturers. WEG shall not fall within the definition of 'Building' as defined in these regulations.

10.21.2 The development of WEG shall be regulated as follows:

- a) WEG shall be permitted in all land use zones.
- b) The minimum required land size shall be not less than 150 m x 150 m.
- c) The minimum width of public road or uninterrupted access way/passage shall be not less than 9 m.
- d) Land proposed for parks and playgrounds shall not be used for development of WEG.
- e) Subdivision rules may not be applicable.

10.21.3 The development, erection, installation and operation of WEG shall be certified by the competent authorities. The Applicant shall submit an application as per **ANNEX Z** to BO for obtaining permission to install WEG.

10.21.4 NOCs from the following authorities/departments shall be submitted along with the application for obtaining permission:

- a) Electrical Safety Inspector of State/UT Government for compliance to Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023;
- b) State/UT Power Generation and Distribution agency for location clearance; and
- c) Airports Authority of India or Ministry of Defence, as applicable for WEG height clearance.

10.22 Telecommunication Towers

10.22.1 The telecommunication infrastructure shall be preferably done in large open/green areas. Installations of towers shall not be permitted on residential buildings, educational buildings, hospitals/health centres.

10.22.2 The building (other than those specified in **10.22.1** of these regulations) on which telecommunication tower is to be installed shall be structurally designed to take the loads of such structures/installations.

10.22.3 The applicant shall obtain the approval for such installations from the Authority.

10.22.4 The applicant shall submit the plans of the structure(s) to be erected to the Authority. They shall also submit the certificate of structural design sufficiency for the tower along with the building from the Registered Structural Engineer.

10.22.5 The applicant shall also obtain/procure the necessary permission/NOC from the other concerned Authority(ies).

10.22.6 No telecommunication tower shall project beyond the existing building line of the building on which it is erected in any direction.

10.22.7 The type of structures permitted are as follows:

- a) Steel fabricated tower or antennae on mild steel pole;
- b) Pre-fabricated shelters of fibre glass or Polyvinyl Chloride (PVC) on the building roof top/terrace for equipment;
- c) Masonry structure/shelter on the ground for equipment; and
- d) D.G. set with sound proof cover to reduce the noise level.

10.23 Transit Oriented Development (TOD)

10.23.1 Design principles to create TOD are given below:

- a) pedestrian and non-motorized transport friendly environment;
- b) efficient public and para-transport system supporting the transit system;
- c) multi-modal interchange and street connectivity;
- d) mixed land uses and appropriate intensity of development; and
- e) integrated parking management plans to reduce the parking requirements.

10.23.2 The implementation and regulation of TOD shall be in accordance with **ANNEX AA**.

10.24 Slaughter Houses

10.24.1 These shall comply with the Prevention of Cruelty to Animals (Slaughter House) Rules, 2001 as amended from time to time. The location of slaughter house/butcher house which would attract high flying birds like eagles/hawks, etc, shall not be permitted within a radius of 10 km from aerodrome reference point.

10.25 Emergency Shelters

10.25.1 Cyclone shelters shall be designed and constructed in accordance with IS 17164 'Design and construction of cyclone shelters — Guidelines'. The same guidelines may also be used suitably for other emergency shelters.

10.26 Data/Incubation Centres

10.26.1 For planning, design and construction of Data/Incubation Centre, the 'Guidelines for Setting Up of Atal Incubation Centres (AICs)' issued by Government of India may be referred.

ANNEX Z

(Clause 10.21.3)

APPLICATION FOR PLANNING PERMISSION/BUILDING PERMIT FOR INSTALLATION OF WIND ELECTRICITY GENERATOR

From,

To,

The Executive Authority of the Local body

1. I/We hereby apply for permission for installation of Wind Electricity Generator
2. I/We have absolute right over the land applied for and have not made any encroachment on any government land.
3. I/We shall fulfill my duties and responsibility in accordance with the provisions of the Development Rules.

Signature of the applicant

Date:

(contd.)

1. Applicant's name:
2. Postal Address for correspondence

Telephone number for communication:

3. Applicant's right over the land to make the proposed development (documentary evidence to be enclosed)

4. Development site address

5. Present use of the land [Please give details of each use]

6. Whether all the documents required to be enclosed with the application as per the Schedule have been enclosed

Signature of the applicant:

Date:

SCHEDULE

Details to be submitted:

- a) Details of the Applicant
- b) Details for the Project
 - i. Location
 - a. Land/Plot No.
 - b. Dimensions and area of Land
 - c. Revenue village
 - d. Taluk/Tehsil
 - e. District
 - ii. Grid interface arrangement
 - iii. Expected date of commissioning
 - iv. Grid connection
 - v. Nearest sub-station of Central Transmission Utility/State Transmission Utility
- c) Protection arrangement
 - i. Details of protection provided at the Wind Electricity Generator
 - ii. Details of protection provided at the transformer on the LV side
 - iii. Details of protection provided at the transformer on the HT side
 - iv. Details of lightning protection
 - v. Details of Earthing arrangement
- d) Details of Wind Electricity Generator
 - i. Rated capacity of the WEG proposed
 - ii. Make of the WEG
 - iii. Type approval
 - iv. Blade length
 - v. Hub height
 - vi. Types of Tower (metal/concrete)
 - vii. Tower height
 - viii. Whether elevator included
 - ix. Type of Foundation
 - x. Total comprehensive stress

ANNEX AA

(Clause 10.23)

TRANSIT ORIENTED DEVELOPMENT

A-1 The Authority shall demarcate a Transit Oriented Development (TOD) influence zone in the master plan/zonal plan, which may be upto 800 m on either side of the transit corridor/stations. The Authority shall also prepare Influence Zone Plans (IZP) for the TOD influence zone.

A-2 TOD shall be avoided in the following areas:

- a) classified special areas such as defence areas, high security areas, etc;
- b) heritage and national monument regulated zones;
- c) environmental protection zones; and
- d) seismic fault lines as identified in ‘Vulnerability Atlas of India 2019’ by Building Materials & Technology Promotion Council, MoH&UA, as amended from time to time.

A-3 IZP shall be prepared according to the site characteristics and context of each transit station. It shall include the following:

- a) traffic and parking management plan (including upgradation of transport infrastructure if required);
- b) projects for upgradation of physical infrastructure as defined in IZP;
- c) station Area Development plan;
- d) multi-Modal Integration (MMI) plan; and
- e) projects for improvement of open spaces, public utilities, vending zones, etc.

A-4 The development controls in the influence zones shall be as follows:

- a) minimum area: 1 ha;
- b) accessible from an existing road having a minimum RoW of 18 m;
- c) maximum FAR: 4.0;
- d) maximum ground coverage: 50 percent; and
- e) maximum density: 450 du/ha.
- f) Parking:
 - i) 1 ECS/100 m² of covered area
 - ii) At least 20% of the parking area shall be equipped with charging points for electric vehicles

A-5 Transit station development shall be carried out in the following manner:

- a) transit station development should be avoided in recreational area, green belt and other parks and playgrounds;
- b) on-street parking to be prohibited within 100 m of the transit station, except for freight delivery/pick up and universal accessibility requirements;
- c) dedicated parking spaces to be created for feeder services;
- d) The following structures should be provided for transit station development:

- i) transit stations including entry structures (at grade or elevated or underground);
 - ii) ancillary buildings to house building services;
 - iii) police stations;
 - iv) depots and maintenance workshops;
 - v) traction sub-stations;
 - vi) operational control centres;
 - vii) recruitment and training centres for operational and maintenance staff;
 - viii) housing for operational staff and essential security personnel;
 - ix) rehabilitation work to be undertaken for transit development;
 - x) shops to cater to the public amenities;
 - xi) structures above platform over the footprint of the transit stations;
 - xii) structures below the platform within the footprint of the transit station; and
 - xiii) supply, exhaust and tunnel ventilation shafts, etc.
- e) Parking spaces shall be provided at transit station depending upon the nature and requirement of different types of vehicles. A suggestive split of parking spaces for transit stations for different vehicles is given in Table 91.

Table 91 Parking Spaces for Transit Stations for Different Vehicles

| SI No. | Mode | Parking Space Dimensions | Percentage of Total Parking Space Provided |
|---------------|---------------------------------------|---------------------------------|---|
| (1) | (2) | (3) | (4) |
| i) | Cars/Taxis | 2.75 m x 5.00 m | 10 |
| ii) | 2 wheelers | 1.25 m ² | 10 |
| iii) | Auto rickshaws | 2.50 m x 2.50 m | 25 |
| iv) | e-rickshaws | 1.50 m x 2.50 m | 40 |
| v) | Cycles | 0.50 m x 2.00 m | 5 |
| vi) | Vans/RTVs/other feeder services, etc. | 12.00 m x 3.00 m | 10 |

SOLID WASTE MANAGEMENT

Explanatory note:

This chapter includes requirements of waste management for plots and buildings. Key points to consider while reading the chapter are as follows:

- 1) *The chapter is structured in two key sections - Waste Management (Other than C&D Waste) and Construction and Demolition Waste Management.*
- 2) *The section 'Waste Management (Other than C&D Waste)' includes guidelines on comprehensive management of different kinds of waste generated at various land uses to ensure proper collection, segregation, transportation, processing, and disposal of such wastes.*
- 3) *The second section 'Construction and Demolition Waste Management' deals with waste generated during construction and demolition of structures and provides general guidelines for management of such wastes.*

11 SOLID WASTE MANAGEMENT

11.1 Waste Management (Other than C&D Waste)

11.1.1 Comprehensive waste management onsite may include the following kind of wastes generated and facilities therefor:

- a) Waste collection for different types of waste;
 - i) Wet, dry and domestic hazardous waste;
 - ii) Garden and horticulture waste;
 - iii) Industrial waste;
 - iv) Hazardous waste;
 - v) Bio-medical waste; and
 - vi) Slaughter house waste;
- b) Litter bin;
- c) Collection point;
- d) Transfer station;
- e) Wet waste processing facility; and
- f) Dry waste processing facility/material recovery facility.

11.1.2 The requirements for collection, transfer and treatment of each type of waste listed in **11.1.1 (a)** are specified in Table 92. These guidelines shall be applicable to all land uses and plots except for individual residential plots, for which the requirements are listed in **11.1.4**.

Table 92 Waste Management (Other than C&D Waste) Requirements for All Land Uses

| SI No. | Components | Requirements |
|--------|--|--|
| (1) | (2) | (3) |
| i) | Waste collection | |
| | a) Wet, dry and domestic hazardous waste | <ul style="list-style-type: none"> 1) Wet, dry and domestic hazardous waste shall be collected from all waste generators through a door-to-door collection system. In a city, this is the responsibility of the Authority, however in multi-unit industrial areas, residential societies, marketplace, malls, etc, it shall be the responsibility of the developer/building owner. 2) Waste generators shall segregate waste in separate waste bins depending on type of waste as per the given below: <ul style="list-style-type: none"> i) Biodegradable waste/wet waste in green bins; ii) Non- biodegradable waste/dry waste in blue bins (including sanitary waste wrapped separately); iii) Domestic hazardous in red colour; and iv) E-waste to be handled by authorized e-waste vendors/recycling agencies. |

| SI No. | Components | Requirements |
|--------|----------------------------------|---|
| (1) | (2) | (3) |
| | | <p>3) The collected waste shall be stored separately in authorized storage bins within the site.</p> <p>4) Collection system shall ensure that waste remains segregated until the processing stage, and no mixing of waste occurs during transportation.</p> <p>5) Waste generators shall deposit domestic hazardous waste at dedicated centres or with the collection vehicles as directed by the Authority.</p> <p>6) In residential areas (group housing), if the number of houses/flats exceeds 100, waste booths/bins/kiosks shall be provided to collect paper, plastic, glass and metal separately.</p> <p>7) Delivery of segregated solid waste shall be ensured to the collection point, that shall be the edge of the plot, accessible from a public road and by the local Authority.</p> <p>8) For public gathering spaces, clubs, community halls and party plots, there shall be provision of space for storing segregated waste and providing garbage container with a minimum capacity of 4 t.</p> <p>9) All bulk waste generators shall submit their waste collection and disposal plan as per the format given in ANNEX AB and shall include the following:</p> <ul style="list-style-type: none"> • Type and estimation of waste generated in the site (see ANNEX AC); • Location of segregation and collection points; • Proposed capacity and space for wet waste processing facility; • Space provided for material recovery facility, if applicable; • Space provided for collection of all other types of waste; and • Number and location of litter bins to be installed. |
| | b) Garden and horticulture waste | <p>1) Garden and horticulture waste generated shall be stored separately within the plot.</p> <p>2) A minimum of 10 m² of space shall be provided for every 1 km² of horticulture area to store the waste.</p> <p>3) Storage of such waste shall be in big bags or in heaps with adequate protection to prevent scattering.</p> |
| | c) Industrial waste | Any industrial facility proposed shall obtain authorization and consent to establish and operate from the SPCBs. The |

| SI No. | Components | Requirements |
|--------------------------|-------------------|---|
| (1) | (2) | (3) |
| | | industrial waste generated in the establishment shall be stored separately and shall be sent or sold to an authorized user or shall be disposed of in an authorized disposal facility. |
| d) Hazardous waste | | Any building/facility that proposes to generate hazardous waste shall be responsible for safe and environmentally sound management of hazardous and other wastes, in accordance with 'Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2016'. The hazardous waste shall be sent or sold to an authorized actual user or shall be disposed of in an authorized disposal facility. |
| e) Bio-medical waste | | <p>1) Any medical facility proposed shall make a provision within the site for a safe, ventilated and secured location for storage of segregated bio-medical waste in coloured bags or containers in the manner as specified in Schedule I of 'Bio-Medical Waste Management Rules 2016' as amended from time to time, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals.</p> <p>2) The bio-medical waste from such facility shall be directly transported to a common bio-medical waste treatment facility or for appropriate treatment and disposal, as the case may be in the manner prescribed by the Bio-Medical Waste Management Rules, 2016 as amended from time to time.</p> <p>3) The medical facility shall obtain registration from a common bio-medical waste treatment and disposal facility for disposal of the bio-medical waste generated at the facility.</p> <p>4) In cases where a common bio-medical waste treatment facility is not available at a distance of 75 km from the medical facility, the Applicant shall set up a bio-medical waste treatment equipment as prescribed by the Bio-Medical Waste Management Rules, 2016 as amended from time to time and shall make provision of space for the same. In such a case, the RBP shall give an undertaking that the space has been provided as per standard requirements (see ANNEX AE).</p> |
| f) Slaughter house waste | | Any building/facility that proposes to generate slaughter house waste shall be responsible for storing the waste separately, and for its safe and environmentally sound management either through on-site treatment processes or handing it over to an appropriate agency for treatment and disposal. |

| SI No. | Components | Requirements |
|--------|-------------------------------|---|
| (1) | (2) | (3) |
| ii) | Litter bins | <ul style="list-style-type: none"> a) Segregated litter bins shall be installed along roads, street markets, public places, commercial spaces, etc, at a distance ranging from 25-250 m depending on local conditions. b) Separate bins shall be provided to store wet and dry waste, or the bins shall have separate compartments to store wet and dry waste. Litter bins shall have lids/cover to prevent rainwater from entering. c) On single-lane roads in residential area, litter bins shall be placed at a spacing of 50 m. d) On double-lane roads in residential area, litter bins shall be placed at a distance of 25 m on alternate sides. e) In public places such as markets, bus stands, railway stations etc, bins shall be provided depending on the number of people accessing the facility. The number, placement, size of the bins and frequency of emptying the bins shall be calculated based on pedestrian traffic in the area, number of shops, and use of the area. |
| iii) | Collection point | <ul style="list-style-type: none"> a) Bulk waste generators shall provide a space to transfer waste from pushcarts or smaller collection vehicles to bigger collection vehicles. b) These collection points shall be located such that the distance from the farthest collection spot shall not be more than 2 km. The safety and wellbeing of users of the layout shall also be an important factor in deciding the location. |
| iv) | Transfer stations | <ul style="list-style-type: none"> a) Transfer stations shall be provided when processing or disposal facilities are more than 15 km from the primary collection area/spot. b) The design of the transfer station shall be based on the estimated quantity of waste to be transported and type of collection vehicles proposed. |
| v) | Wet waste processing facility | <p>Bulk waste generator shall make the following provisions:</p> <ul style="list-style-type: none"> a) Wet waste processing plants shall be set up for all biodegradable waste to be processed, treated and disposed through composting, bio methanation or any other approved methods within the respective site. b) Adequate space shall be assigned within the layout for composting units or wet waste processing machines, for the wet waste generated. An overview of on-site wet waste treatment methods is given in ANNEX AD. |

| SI No. | Components | Requirements |
|---------------|---|---|
| (1) | (2) | (3) |
| | | <p>The area requirements of the processing facility shall be dependent on the type of/quantity of waste generated and the treatment option selected by the applicant. The RBP shall give an undertaking (see ANNEX AE) that the area provided is correct and in accordance with the technology requirements (see ANNEX AD) or any other appropriate source.</p> <p>NOTE — Appropriate processing technologies for waste treatment can be referred to in Part 9/Section 3 'Plumbing Services (including Solid Waste Management), Section 3 Solid Waster Management' of NBC 2016</p> |
| vi) | Dry waste processing facility/ material recovery facility | <ul style="list-style-type: none"> a) Dry waste shall be transported to the material recovery facility for further segregation. b) Material recovery facility shall be set up for layouts where dry waste collected is more than 10 metric tonnes per day. For other layouts, small dry waste processing facility for segregation of waste shall be set up based on quantity of waste generated. c) Material recovery facility shall have space for the sorting of recyclable materials to enable informal or authorized waste pickers and waste collectors to separate recyclables from the waste and to provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source or from material recovery facilities. d) Material recovery facility shall have separate bins for storage of different wastes. Bin for biodegradable wastes shall be painted green, those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black. e) The material recovery facility space required for the layout, shall be based on the estimated quantity of dry waste collected per day. f) There shall be provisions in the material recovery facility to ensure that the solid waste is stored safely, correctly and not exposed to open atmosphere. g) SEZs, industrial estates and industrial park shall earmark at least 5 percent of the total area of the plot or minimum five plots or sheds for waste recovery and recycling facility. |

11.1.3 The provisions of the ‘SWM Rules 2016’, ‘E-waste (Management) Rules 2022’ and ‘Plastics Waste (Management) Rules 2016’, as amended from time to time, shall be followed in all plans submitted for approval.

11.1.4 Guidelines for owners of individual residential plots shall be as specified in Table 93.

Table 93 Requirements for Individual Residential Plots/Buildings

| SI No. | Parameters | Requirements | |
|---------------|-------------------------|---|------------|
| | | (1) | (2) |
| i) | Waste collection system | <ul style="list-style-type: none"> a) Waste generators shall segregate the waste at source and into the following categories: <ul style="list-style-type: none"> 1) biodegradable/wet waste; 2) non- biodegradable waste or ‘dry waste’ including recyclable and non-recyclable waste and sanitary waste; 3) specified domestic hazardous waste including sanitary waste; and 4) e-waste. b) Waste generators shall store the waste separately in authorized storage bins within their site. c) Waste generators shall hand over waste to authorized waste pickers or waste collectors or collection vehicles as directed by the Authority from time to time. | (3) |
| ii) | Wet waste processing | <ul style="list-style-type: none"> a) Every individual plot owner or household shall be encouraged to undertake wet waste composting. Several technologies and treatment options are available for wet waste composting and individual owners may make provisions for the same (see ANNEX AD). | |

11.2 Construction and Demolition Waste Management

11.2.1 Construction and Demolition (C&D) waste management plan shall be submitted to the Authority for approval by all C&D waste generators and service providers (authorities who provide services like water, sewerage, electricity, telephone, roads, drainage, etc, and often generate construction and demolition waste during their activity, which includes excavation, demolition and civil work) with plot sizes greater than or equal to 500 m². The plan shall specify the following (see **ANNEX AF**):

- a) Estimation of quantity of C&D waste generation,
- b) Storage and segregation,
- c) Reuse and recycle on site,
- d) Collection and transportation,
- e) Processing facility,
- f) Record keeping, and
- g) User charges.

11.2.2 General guidelines for C&D waste management that are listed in **11.2.1** as specified in Table 94 shall be followed.

Table 94 Requirements for C&D Waste Management

| SI No. | Parameters | Requirements |
|--------|---|--|
| (1) | (2) | (3) |
| i) | Estimation of quantity of C& D waste generation | <ul style="list-style-type: none"> a) Quantity and composition of the C&D waste generated in building plan shall be assessed to plan measures for effective storage, collection and transportation of C&D waste. b) Proper assessment of the quantum of C&D waste generated shall determine the processing methods and technologies that may be adopted, and the products that may be manufactured out of recycled C&D waste. c) The quantity of C&D waste may be calculated using the Technology Information, Forecasting and Assessment Council (TIFAC) thumb rule as specified in Table 95 TIFAC Thumb Rule. The total built-up area of construction, demolition and renovation may be multiplied by the TIFAC thumb rule to obtain an approximate waste generation estimate for the layout plan. |
| ii) | Storage and segregation | <ul style="list-style-type: none"> a) C&D waste shall be stored separately within the site. Other wastes such as municipal solid waste, e-waste, etc shall not be mixed with C&D waste. b) C&D waste shall be stored in appropriate areas to protect waste from deterioration from rain or sunshine. C&D waste that may be degraded by mud or dust shall be stored away from heavy traffic areas. c) Segregation, storage and stockpiling locations shall be clearly sited on the layout plans. The area demarcated in the plan shall be in proportion to the estimated C&D waste generated. d) RBP shall be responsible for compliance of C&D waste management plan. e) Hazardous waste on the C&D site shall be segregated in a proper manner and stored in a designated location. The C&D waste management plan shall consider measures for safe |

| SI No. | Parameters | Requirements |
|---------------|-------------------------------|--|
| (1) | (2) | (3) |
| | | <p>disposal of any hazardous waste in the site. In case of a demolition site, waste generator shall remove the hazardous waste safely and systematically prior to demolition.</p> <p>f) Hazardous waste shall be safely stored, in clearly labelled containers, out of reach of unauthorized persons. Proof shall be maintained that the waste is transferred to a facility that is authorized to receive it.</p> |
| iii) | Reuse and recycle on site | <p>a) Waste generators may reuse and recycle the C&D waste generated on-site. C&D waste may either be recycled on-site into new construction resources or off-site at a recycling plant.</p> <p>b) Waste generator shall use, to the extent possible, C&D waste generated on site after due process as a backfilling material. C&D waste may also be used in applications such as in filler material in roof construction, wall decorative chips, etc, subject to strict quality control.</p> <p>c) Waste generator may reuse and recycle C&D waste using the end use processes. (see ANNEX AG).</p> <p>d) C&D waste may be supplied to nearby projects at mutually agreed terms and conditions for reuse/recycling.</p> <p>e) Municipal and government contracts may use to a minimum of 10-20 percent recycled C&D materials in their project. This shall be subject to strict quality control.</p> |
| iv) | Collection and transportation | <p>a) The collected C&D waste shall be stored within the site. There shall be no littering or deposition of C&D waste to prevent obstruction to the traffic, public or drains.</p> <p>b) Transportation of C&D waste shall be done only in covered vehicles to prevent dust pollution.</p> <p>c) C&D waste, that is not reused, recycled or processed on site, shall be transported by the waste generator on their own or through authorized private agencies. The waste shall be deposited at designated collection centres or processing plants.</p> |
| v) | Processing facility | <p>a) C&D waste may be processed using any of the following methods:</p> <ol style="list-style-type: none"> 1) C&D waste generator shall pay for waste to be processed at a dedicated processing plant set up by the local Authority. 2) C&D waste generators who generate more than 1 lac t of C&D waste shall process the waste material in-situ and shall use the produce/downstream products in the same project. |

| SI No. | Parameters | Requirements |
|---------------|-------------------|--|
| (1) | (2) | (3) |
| | | <p>3) Mobile C&D waste processing plants, that perform segregation and waste crushing related activities, may be set up for projects generating smaller quantities of C&D waste.</p> <p>b) Operator of the C&D waste processing facilities for both public and private plants shall follow the guidelines and regulations as specified in the C&D Waste Management Rules, 2016, as amended from time to time.</p> <p>c) Companies in the construction industry may set up their own private C&D waste processing plants to cater to the waste generated from various projects as well as cater to the C&D waste market on a commercial basis.</p> |
| vi) | Record keeping | <p>a) Records shall be maintained for all C&D waste which has been generated on-site, and which may be reused, recycled and processed or transported to a different location. The format for record keeping of C&D waste shall be as per ANNEX AH.</p> <p>The following details shall be recorded:</p> <ul style="list-style-type: none"> 1) on-site processing details of C&D waste; 2) course of action for reuse; 3) waste taken for reuse off-site; 4) reclaimed waste materials brought on-site for reuse; and 5) waste taken for disposal. <p>b) A copy of the C&D waste management plan shall be also kept at the site for verification by the Authority.</p> |
| vii) | User charges | <p>a) Based on the estimated quantity of C&D waste generated, waste generator shall pay relevant charges for collection, transportation, processing and disposal as notified by the Authorities, failing of which, they shall be levied a fine.</p> <p>b) The waste generator shall deposit fees in advance, along with the application for sanction of the building plan. The charges notified by the Authority may be refundable after due deductions in case C&D waste management plan has been duly followed by waste generator. In case of any default, the whole amount shall be confiscated.</p> |

ANNEX AB

(Clause 11.1.2, Table 92)

SOLID WASTE MANAGEMENT PLAN

| General Details | | | |
|---------------------------------|--|----------------------|---------------------------------|
| Company name: | Contact person (company): Address: Telephone No: Email: | | |
| Project name: | Project site/location: | | |
| Project Specific Details | | | |
| 1 | Estimated total quantity of solid waste generated per day in metric tonne per day. | | |
| | Type of waste | Metric tonne per day | |
| | Bio-degradable waste | | |
| | Non bio-degradable waste | | |
| | Domestic hazardous waste | | |
| 2 | Location and space for segregation of dry waste and collection spaces for segregation. (Attachment: Area demarcated on the layout plan of space for dry waste segregation and/or collection spaces) | | |
| | Sl.no. | Location | Area provided (m ²) |
| | | | |
| | | | |
| 3 | Location and space for processing of biodegradable waste treatment. The area proposed shall be as per space requirements for a certified/empanelled waste processing technology provider. (Attachment: Area demarcated on the layout plan of space for treatment of biodegradable waste) | | |

| | | | | |
|--|--|---------------------------------|---------------------------------|--|
| | Sl.No. | Location | Area provided (m ²) | |
| | | | | |
| | | | | |
| 4 | Location and space for material recovery facilities. (Attachment: Area demarcated on the layout plan of location of material recovery facilities) | | | |
| | Sl.No. | Location | Area provided (m ²) | |
| | | | | |
| 5 | Location and space for transfer station on the plan (if applicable). (Attachment: Area demarcated of location of transfer stations on the layout plan) | | | |
| 6 | Location and space for other types of waste (Attachment: Area demarcated on the layout plan of location and space provisions for other types of waste) | | | |
| | Type of waste | Area provided (m ²) | | |
| | Garden and horticulture waste | | | |
| | Bulky waste | | | |
| | C&D waste | | | |
| | Others (please specify) | | | |
| 7 | Streets/roads where litter bins are to be installed in the layout/site plan. (Attachment: Area demarcated on the layout plan of location of litter bins) Total number of litter bins to be installed: | | | |
| Please ensure to submit a copy of the layout plan with specific demarcations of the below: <ul style="list-style-type: none"> i. Q2: Dry waste segregation and/or collection spaces ii. Q3: Space for treatment of biodegradable waste iii. Q4: Material recovery facilities iv. Q6: Any other types of waste v. Q7: Location of litter bins | | | | |

ANNEX AC

(Clause 11.1.2, Table 92)

PER CAPITA WASTE GENERATION

An assessment states that per capita waste generation is increasing by about 1.30 percent per year. With an urban growth rate of 3.0-3.5 percent per year, the annual increase in waste quantities may be considered at 5 percent per year. Impacts of increasing urban local body jurisdiction shall be considered while assessing future waste generation rates.

The following municipal refuse generation rates shall be applicable:

| Refuse type | Rates (kg/capita/day) |
|----------------------|------------------------------|
| Residential refuse | 0.30 - 0.60 |
| Commercial refuse | 0.10 - 0.20 |
| Street sweepings | 0.05 - 0.20 |
| Institutional refuse | 0.05 - 0.20 |

Out of the total solid waste generated, 40 percent may be taken as organic waste and 60 percent as inorganic waste. The knowledge of chemical characteristics of waste is important for selecting and designing waste processing and disposal facilities. These generation rates may be subject to considerable site-specific factors and are required to be supported by field data. The calorific value of Indian solid waste varies between 800 and 1000 kcal/kg and the density varies between 300 and 500 kg/m³.

ANNEX AD

(Clause 11.1.2, Clause 11.1.4, Table 92, Table 93)

OVERVIEW OF ON-SITE TREATMENT OPTIONS FOR WET WASTE

On-site treatment options for wet waste may be adopted as specified in Table 96.

Table 96 On-site Wet Waste Treatment Options

| SI No. | Method | Capacity | Number of Households (4-5 Members per Household) | Other Infrastructure Requirements |
|---------------|----------------------------------|-----------------|---|---|
| (1) | (2) | (3) | (4) | (5) |
| i) | Drum composting | 50 kg | Individual | Covered space is required |
| ii) | Portable bio bin | 50 kg/day | 40 | Recommended dimension of the bin: Length: 180 cm, Width: 75 cm Height: 75 cm |
| iii) | Aerobic bin composting | 1,000 kg | 860 | 1.20 m x 1.20 m x 1.20 m shall treat 1000 kg waste in one bin. |
| iv) | Organic waste composting machine | 100 kg/day | 100 | Room of recommended dimension 3 m x 4 m with proper ventilation for installing machinery and safe storage of racks and baskets shall be required. |
| v) | Byobin | 250 - 300 kgs | 300 | - |
| vi) | Anaerobic composter | 20 - 500 kg | 20 - 500 | - |
| vii) | Large scale composting pits | 130 kg | 150 | - |
| viii) | Vermi composter | 50 kg - 3 t | 50 - 3000 | - |

ANNEX AE

(Clause 11.1.2, Table 92)

UNDERTAKING FOR ONSITE WET WASTE PROCESSING

To be submitted on letterhead of the RBP

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the _____ technology shall be used to process the wet waste generated at the project and the area/space required for the proposed wet waste processing technology is _____ m², and this is sufficient for the technology selected. The space demarcated for the on-site wet waste processing facility is indicated in the plan submitted.

If during installation or commissioning of the on-site wet waste processing facility, the space is found to be insufficient, I/we shall be liable to providing additional space as required and/or be fined as per the ULB byelaws.

.....
Signature of authorized person of RBP

ANNEX AF
(Clause 11.2.1)
C&D WASTE MANAGEMENT PLAN

Please fill the table below and provide a layout plan demarcating all the plan attachments as requested.

| General Details | |
|--|--|
| Company name: | Contact person (company): Address: Telephone no: Email: |
| Project name: | |
| Project site/ Location: | Name (person responsible for C&D Waste management plan): Contact Number: |
| Total area: | Project start date: / / (dd/mm/yy) Project end date: / / (dd/mm/yy) |
| Type of project: (<i>please tick as appropriate</i>) | |
| New construction | |
| Renovation | |
| Addition/Expansion | |
| Deconstruction | |
| Demolition | |
| Project Specific Details | |
| 1 | Location and space for storage and segregation of C&D waste. (Attachment: Area demarcated on the layout plan of storage and segregation of C&D waste) Area provided for storage (m ²): |
| 2 | Please fill in details below of reuse and recycle plan of C&D waste in format for proposed reuse and recycle of C&D waste . |

| | | | | | | | | |
|--|---|--|--|--|--------------------------|--|------------------------------------|------------------------------|
| 3 | <p>C&D waste collection and transportation:</p> <p>a. Estimated user charges to be paid for transportation to the local Authority:</p> <p>b. Proposed authorized point for disposal of the waste. (<i>Please tick next to the corresponding option, and fill in details on name and address</i>)</p> <ul style="list-style-type: none"> i. Local Authority designated site ii. C&D processing plant site iii. Other construction project site iv. Other (please specify) <p>Name:</p> <p>Address:</p> | | | | | | | |
| 4 | <p>If C&D waste processing plant is proposed on-site, please demarcate the area of C&D waste processing plant on layout plan.</p> <p>(Attachment: Area demarcated on the layout plan of location of C&D waste processing plant)</p> | | | | | | | |
| 5 | <p>Please fill in details below on hazardous waste management</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Estimated quantity of hazardous waste generated (<i>in tonnes</i>)</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Method of transportation</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Hazardous waste disposition centre</td> <td style="padding: 5px;"> <p>Name:</p> <p>Address:</p> </td> </tr> </table> | | Estimated quantity of hazardous waste generated (<i>in tonnes</i>) | | Method of transportation | | Hazardous waste disposition centre | <p>Name:</p> <p>Address:</p> |
| Estimated quantity of hazardous waste generated (<i>in tonnes</i>) | | | | | | | | |
| Method of transportation | | | | | | | | |
| Hazardous waste disposition centre | <p>Name:</p> <p>Address:</p> | | | | | | | |
| 6 | <p>Measures proposed for prevention of air (dust) and noise pollution.</p> <p>Please ensure to submit a copy of the layout plan with specific demarcations of the below:</p> <ul style="list-style-type: none"> i. Q1: Area for storage and segregation of C&D waste ii. Q4: Location of C&D waste processing plant | | | | | | | |

Proposed reuse and recycle of C&D waste

| Type of C&D waste | Estimate d quantity (in tonnes) | Method of processing (On-site/off-site) | Recovery details of waste (percent of recovered waste) | | | In case of any on-site processing of waste, method of technology used | Proposed usage/course of action of recovered waste. |
|-------------------|---------------------------------|---|--|------------|-----------|---|---|
| | | | Reuse | Process ed | Recy cled | | |

ANNEX AG
(Clause 11.2.2, Table 94)
C&D WASTE REUSE POTENTIAL

Table 97 C&D Waste Reuse Potential

| SI No. | Material | Process | End Use |
|---------------|---|--|--|
| (1) | (2) | (3) | (4) |
| i) | Demolition waste | Crushed and sorted | Recycled aggregate |
| ii) | Reinforced concrete | Crushed, sorted and steel bars removed Steel recycled | Recycled concrete aggregate For recycling |
| iii) | Clay bricks and roof tiles | Cleaned Crushed and sorted Pulverised | Reused for masonry Aggregate Mixed with lime to produce mortar |
| iv) | Calcium silicate bricks | Cleaned Crushed Pulverised | Reused for masonry Aggregate Recycled into new calcium silicate bricks |
| v) | Natural stone masonry | Cleaned Crushed | Reused for masonry Aggregate |
| vi) | Natural stone slabs | Cleaned Crushed | Flooring, cladding Aggregate |
| vii) | Ceramic tiles | Cleaned Crushed | Flooring, cladding Aggregate |
| viii) | Asphalt paving | Crushed and cold mixed Crushed and hot mixed | Road construction excluding wearing course |
| ix) | Mixed demolition waste (ABC, that is, asphalt, bricks, concrete) | Crushed | Fill material |
| x) | Steel | Cleaned Recycled | Reused steel components New steel components |

| SI No. | Material | Process | End Use |
|---------------|-----------------------------|--------------------------------|--|
| (1) | (2) | (3) | (4) |
| xi) | Aluminium | Cleaned Recycled | Aluminium recycling streams |
| xii) | Timber beams, doors etc. | Cleaned | Reused as beams, doors, etc (if free of hazardous preservatives). |
| xiii) | Timber boards | Cleaned | Reused as shuttering and other products Feedback for engineered woods |
| xiv) | Plastics | Recycled | Plastic recycling streams |
| xv) | Gypsum plasterboard | Cleaned Crushed Recycled | Reuse as boards Soil conditioner New gypsum products |
| xvi) | Glass | Cleaned Crushed Recycled | Glass recycling streams |

ANNEX AH

(Clause 11.2.2, Table 94)

RECORD OF C&D WASTE DETAILS

Table 98 Form for Record of C&D Waste Details

| Type of C&D Waste | Date of Generation of Waste (dd/mm/yyyy) | Total Quantity (tonnes) | Reused (in tonnes) | | Recycled (in tonnes) | | | Disposed (in tonnes) | Course of Action for Reuse |
|-------------------|--|-------------------------|--------------------|----------|----------------------|------------------|---|----------------------|----------------------------|
| | | | On site | Off site | For use on site | For use off site | Sent to recycling / processing facility | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | | | | | | | | | |
| | | | | | | | | | |

Reclaimed C&D waste materials brought on-site for reuse

| Sl No. | Date C&D waste brought on-site (dd/mm/yy) | Quantity (in tonnes) | Name and address of site/location |
|--------|---|----------------------|-----------------------------------|
| | | | |
| | | | |

SUSTAINABILITY

Explanatory note:

This chapter covers the provisions to be complied/considered during planning, construction and operation of structures/buildings, from the point of view of sustainability. Key points to consider while reading the chapter are as follows:

- 1) *The chapter is structured in three key sections- ‘Water Conservation’, ‘Energy Conservation’ and ‘Sustainable Construction and Other Sustainability Practices’.*
- 2) *The section ‘Water Conservation’ includes recommendations, regulations and guidelines on the judicious and sustainable utilization of water during the construction and operation of a building. It also entails provisions for rain water harvesting on various land uses which may be adopted after considering the geohydrological conditions of the area.*
- 3) *The provisions regarding practices to reduce energy consumption and promote the use of solar energy have been enunciated in the second section of the chapter. The requirements for Solar Photovoltaic Power Generation System may not be valid for some states. In such cases, the Authority may modify the concerned regulations of this chapter accordingly.*
- 4) *Lastly, sustainable construction and other sustainability practices have been outlined in the third section of this chapter.*

12 SUSTAINABILITY

12.1 General

12.1.1 The general principles for sustainability in buildings shall be in accordance with Part 11 'Approach to Sustainability' of NBC 2016.

12.2 Water Conservation

12.2.1 Water Management during Construction

12.2.1.1 Water from authorized sources shall be used for construction.

12.2.1.2 Where ground water is used for construction, permission from the concerned ground water authority shall be taken.

12.2.1.3 Less water intensive construction methods may be employed using prefabricated members, pre-mix concrete, curing agents, etc.

12.2.1.4 On construction sites, potable water shall be used only for drinking, human activities and concrete works. Use of potable water for any other construction activity may not be allowed. Treated wastewater from appropriate sources should be used in such construction activities after complying with all the required parameters for water use.

12.2.2 Water Management in Operational Buildings

12.2.2.1 Treatment and use of recycled water shall be in accordance with **9.3.6.4** of these regulations.

12.2.2.2 Water conservation may be achieved by using water efficient plumbing products conforming to the Indian Standards, IS 17650 (Parts 1 and 2). Use of such fixtures shall, however, be mandatory in case of public buildings and public toilets. One of the important considerations to ensure performance of low flow products is to design systems with correct pressures. These provisions may be ensured by the RBP submitting a certificate specifying the measures adopted at the time of completion.

NOTE – It is important to ensure that the user's functional needs and satisfaction is not compromised. Social attitudes and user habits may need analysis while selecting such products.

12.2.3 Rainwater Harvesting

12.2.3.1 Rain water harvesting shall be achieved by adopting the techniques given below:

- a) storage of rainwater on surface for future use; and
- b) recharge to ground water.

12.2.3.2 Buildings with a plot size of 100 m² or above shall provide rainwater harvesting structure.

12.2.3.3 All public open spaces and recreational area above 500 m² shall make provisions for rainwater harvesting.

12.2.3.4 The indicative provisions of rainwater harvesting in various building types are as specified in **ANNEX A1**. The rainwater harvesting structures shall be designed as per Part 9 'Plumbing Services', Section 2 'Drainage and Sanitation' of NBC 2016. A detailed proposal of the system comprising of collection, conveyance and storage/dispersion of rainwater harvesting structure shall be shown on the building plan submitted for approval. The RBP shall ensure that the design is compliant with the provisions of the code and shall give an

undertaking for the same at the time of submission of drawings for approval as per format given in **ANNEX AJ**.

12.2.3.5 RBP duly engaged for supervision and execution of the construction of the building shall submit a certificate stating that the rainwater harvesting system is functional at the site and it conforms to the provisions of NBC 2016 and RWH manual by CPWD, as amended from time to time. This certificate as provided in **ANNEX AK** shall be submitted at the time of applying for a completion certificate.

12.2.3.6 Ground water recharge through rainwater harvesting shall be based on geohydrological conditions of the site. In case of areas with low water table, low annual rainfall, etc, recharging of ground water shall be done for all public buildings having plot area of 1,000 m² and above, and for group housing societies having a plot area 3000 m² and above.

12.2.3.7 Minimum one recharge bore shall be provided for every 5,000 m² of BUA of a building or a building complex or a part thereof.

12.2.3.8 Rainwater from industrial units, slaughter houses, wet markets, service garages or service stations and from chemical based commercial activity shall not be permitted into the water recharge structures or borewells, as they may contain harmful effluents, contaminated water, organic matter, and other such liquids or hazardous substances. In case of any such event, the owner or the user shall be held responsible and appropriate action shall be taken by the Authority as per the applicable law. The requirements for rain water harvesting according to building types have been covered in **ANNEX AI**.

12.3 Energy Conservation

12.3.1 Sustainable conservation of energy may be achieved by designing building envelopes in accordance with the relevant clauses of Part 11 'Approach to Sustainability' of NBC 2016.

12.3.2 For all public buildings or building complexes with a connected load of 100 kW or greater or having a contract demand of 120 KV or greater and intended to be used for commercial purpose, Energy Conservation Building Code (ECBC) standards, as amended from time to time, shall be applicable.

12.3.3 Occupancy sensors, movement sensors, lux level sensors, etc, may also be considered as switching options for lights, fans, TV, etc, for different closed spaces.

12.3.4 Energy Conservation through Efficient Lighting

12.3.4.1 A substantial portion of the energy consumed on lighting may be saved by utilization of daylight and rational design of supplementary artificial lights. This shall be achieved by appropriate fenestration and optimising daylight design in accordance with relevant clauses of Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.

12.3.4.2 In common areas, cost effective and energy saving LED/solar lights may be provided.

12.3.4.3 All exterior lighting may use solar-powered lighting and be fitted with automatic controls so that the lights do not operate during daylight hours.

12.3.4.4 Lighting controls and choice of artificial lights in buildings shall be in accordance with relevant clauses of Part 8 'Building Services', Section 1 'Lighting and Natural Ventilation' of NBC 2016.

12.3.5 Energy Conservation through Efficient HVAC

12.3.5.1 Maximum possible use shall be made of wind induced natural ventilation. An adequate number of circulating fans shall be installed to serve all the rooms during summer

months in hot and warm regions and dry and humid conditions. Wind induced natural ventilation may be achieved by following the provisions given in Part 8 ‘Building Services’, Section 1 ‘Lighting and Natural Ventilation’ of NBC 2016.

12.3.5.2 Exhaust and supply air flow rates may be controlled by installing variable frequency drives (VFD) on the fan motors for energy efficiency.

12.3.5.3 To avoid conductive heat losses through HVAC piping and ductwork, insulation shall be provided in accordance with Part 8 ‘Building Services’, Section 3 ‘Air Conditioning, Heating and Mechanical Ventilation’ of NBC 2016.

12.3.6 Solar Energy

12.3.6.1 General Requirements

All efforts shall be made towards optimum and efficient use of renewable energy in buildings and, thereby reduce the building’s dependency on fuels derived from conventional sources. This may be achieved by installing solar water heater and Solar Photovoltaic (SPV) systems. In order to facilitate the installation of such a solar system, new buildings shall have the following provisions:

- a) Buildings where solar water heater and SPV systems needs to be installed shall have open roof.
- b) The roof loading adopted in the design of such buildings shall be at least 50 kg per m² for the installation of solar water heater/SPV.
- c) 25-50 percent of the roof area may be utilized for installation of the solar water heater and SPV system.
- d) Precaution shall be taken that architectural elevation treatment shall not cast shadow on terrace space.

12.3.6.2 Solar Photovoltaic Power Generation System

All plots having size 500 m² and above shall install solar photovoltaic power generation system. This should also be encouraged for plots smaller than 500 m². The power generated may be used for in-house utilization or for transfer to the grid. The minimum power generation requirement for installation of SPV system may be as per Table 99.

Table 99 Minimum Power Generation Requirement for SPV Installation.

| SI No. | Category | Plot Size (m ²) | Generation Requirements |
|--------------------|-----------------|-----------------------------|--|
| (1) | (2) | (3) | (4) |
| Residential | | | |
| i) | Plotted housing | 100 and above | 1 kWp or 5 percent of connected load, whichever is higher. |
| ii) | Group housing | All sizes | Minimum 5 percent of the connected load. |

| SI No. | Category | Plot Size (m²) | Generation Requirements |
|---------------------|--|--------------------------------------|---|
| (1) | (2) | (3) | (4) |
| All other buildings | | | |
| iii) | Business and educational buildings having a connected load above 30 kW | 500 and above | 5 kWp or 5 percent of connected load, whichever is higher. |
| iv) | Mercantile, hotels, motels, assembly, industrial and institutional | 500 and above | For buildings with connected load of: |
| | | | 50-1000 kW 10 kWp or 5 percent of connected load, whichever is higher. |
| | | Above 1000 kW | 10 kWp or 5 percent of connected load, whichever is higher. |

NOTES

- 1 Plots with size lesser than 500 m² shall be encouraged for installation of SPV panels.
- 2 At least 1 percent of connected applied load generated from a renewable energy source such as photovoltaic cells or windmills or hybrid shall be provided.

12.3.6.3 Solar Water Heating System**12.3.6.3.1** Solar water heating systems shall be provided in the following buildings:

- a) residential buildings (which are not hostels of educational buildings or plotted houses) having plot area of 4000 m² and above;
- b) plotted houses having plot area of 250 m² and above;
- c) hostels for schools, colleges, and training centres with more than 100 students;
- d) institutional buildings; and
- e) assembly buildings.

12.3.6.3.2 The solar water heater shall have the capacity to yield a minimum of 25 litres per day hot water for each bathroom and kitchen.

12.3.6.3.3 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 sun light. The load bearing capacity of the roof should at least be 50 kg/m². All new buildings of above said categories must complete installation of solar water heating systems before obtaining necessary license to commence their business.

12.3.6.3.4 Installation of Solar Assisted Water Heating Systems in the existing building shall be made mandatory at the time of change of use to above said category provided there is a system or installation for supplying hot water.

12.3.6.3.5 The capacity of solar water heating system to be installed on the building of different categories shall be decided in consultation with the local bodies. The recommended minimum capacity shall not be less than 25 litres per day for each bathroom and kitchen subject to the condition that maximum of 50 percent of the total roof area is provided with the system.

12.3.6.3.6 Solar water heating system shall conform to IS 12933 'Solar flat plate collector', as amended from time to time.

12.3.6.3.7 Wherever hot water requirement is continuous, auxiliary heating arrangement either with electric elements or oil of adequate capacity can be provided.

12.3.7 Energy Efficiency Compliance

12.3.7.1 For building permit, wherever energy efficiency measures are being adopted, the applicant shall also submit a certificate from the RBP/BEE certified energy auditor as per the format given in **ANNEX AL** confirming that the building plan conforms to the criteria set in these regulations.

12.3.7.2 For occupancy permit, wherever energy efficiency measures are being adopted, the applicant shall also submit the completion certificate along with a certificate from the RBP/BEE certified energy auditor as per format given in **ANNEX AM** certifying that the building has been constructed in accordance with these regulations.

12.4 Sustainable Construction and Other Sustainability Practices

12.4.1 Sustainability practices shall be integrated during construction activities with focus on efficient planning, water usage, building materials and controlling pollution. This may be ensured by following the provisions in IS 15883 'Construction project management guidelines' and Part 11 'Approach to Sustainability', Section 12 'Construction Practices' of NBC 2016, as amended from time to time.

12.4.2 For other sustainability practices including those for siting, form and design; external development and landscape; envelope optimization; building materials; building services optimization; and commissioning, operation, maintenance and building performance tracking, refer to the relevant clauses in Part 11 'Approach to Sustainability' of NBC 2016.

ANNEX AI

(Clause 12.2.3.4 and 12.2.3.8)

PROVISIONS FOR RAINWATER HARVESTING BASED ON BUILDING TYPES.

| SI No. | Category | Plot size (m²) | Provision to be made | Other condition |
|----------------------------------|-----------------|----------------------------------|---|---|
| Residential Plotted Houses | | | | |
| i) | New proposal | 100 and above | a) Construction of rainwater harvesting structure. | i) May have emphasis on both storage and reuse |
| Group housing | | | | |
| ii) | All proposals | All plot sizes | a) Construction of rainwater harvesting structure. b) Concrete paving shall be avoided, and permeable concrete/materials may be used for all open parking spaces. c) Shall have recharge pits and storage of rainwater. | i) Shall indicate the system of storm water drainage, rainwater harvesting structure and recharging well. |
| Public and semi-public buildings | | | | |
| iii) | All proposals | All plot sizes | a) Construction of rainwater harvesting structure. b) Concrete paving shall be avoided, and permeable concrete/materials may be used for all open parking spaces. c) Shall have recharge pits and storage of rainwater. | i) Shall have emphasis on both storage and reuse. |
| Commercial/Mixed use | | | | |
| iv) | All proposals | All plot sizes | a) Construction of rainwater harvesting structure. b) Soft landscape provisions and open spaces with percolation pits. | i) Shall indicate the system of storm water drainage, rainwater harvesting structure and recharging well. ii) Shall have emphasis on both storage and reuse. |

| SI No. | Category | Plot size (m²) | Provision to be made | Other condition |
|-------------------|-----------------|----------------------------------|---|---|
| | | | c) Common treatment plant shall be made part of the integrated development. | |
| Industrial | | | | |
| v) | All proposals | All plot sizes | a) Construction of rainwater harvesting structure. b) Soft landscape provisions and open spaces with percolation pits. c) Use of abandoned bore wells for recharging of ground water. d) Common treatment plant to be made part of the integrated development. | i) Shall indicate the system of storm water drainage, rainwater harvesting structure and recharging well. ii) Contaminated water shall not be injected into recharge structures in industrial areas and care shall be taken to keep such structures away from sewer lines, septic tanks, soak pits, landfill and other sources of contamination. |

ANNEX AJ

(Clause 12.2.3.4)

CERTIFICATE FOR RAINWATER HARVESTING DESIGN

(*to be issued on the RBP's letter head*)

This is to certify that the design for rainwater harvesting structure at
.....(Insert Plot address) satisfy the rainwater harvesting requirements as stipulated in these regulations, as amended from time to time. The information given herein is factually correct.

.....
Signature of applicant

.....
Signature of Registered Building Professional
(RBP) and registration number

Name:

Name:

Address:

Address:

Phone number:

Phone number:

Email:

Email:

Date:

Date:

ANNEX AK

(Clause 12.2.3.5)

CERTIFICATE FOR ONSITE OPERATIONAL RAINWATER HARVESTING SYSTEM

(to be issued on the RBP (Architect/Engineer) letter head)

This is to certify that the rainwater harvesting system at
.....(Insert address) is functional and it has been constructed in
accordance with the approved plan and as per provisions of National Building Code of India
2016, as amended from time to time.

.....

Signature of applicant

.....

Signature of Registered Building
Professional (RBP) and registration
number

Name:

Name:

Address:

Address:

Phone number:

Phone number:

Email:

Email:

Date:

Date:

ANNEX AL

(Clause 12.3.7.1)

CERTIFICATE FROM BEE CERTIFIED ENERGY AUDITOR/MANAGER/RBP FOR ENERGY EFFICIENCY COMPLIANCE FOR BUILDING PERMIT

To be enclosed with the application for Building Permit

I certify that the construction documents of building plan of
..... (*insert address*) shows all the relevant data and features of the building, equipment and systems in sufficient detail covering building envelope, comfort systems and controls (HVAC), lighting and controls, in compliance with the applicable guidelines/regulations. The required scrutiny and verification of the documents submitted have been carried out diligently and truthfully and all reasonable professional skill, care and diligence have been taken in scrutinizing and verifying the drawings of the buildings and compliance forms together with checklists covering the various components of energy efficiency. The contents of all the documents submitted along with the application are factually correct.

There is no objection for the issue of Building Permit in respect of the aforesaid proposed building in so far as requirements of energy efficiency are concerned.

Enclosed completed checklist of energy efficiency attached: Yes / No

.....
Signature of applicant

.....
Signature of Registered Building Professional (RBP)/BEE Certified Energy Auditor/Manager and registration number

Name:

Name:

Address:

Address:

Phone number:

Phone number:

Email:

Email:

Date:

Date:

ANNEX AM

(Clause 12.3.7.2)

CERTIFICATE FROM BEE CERTIFIED ENERGY AUDITOR/MANAGER/RBP FOR ENERGY EFFICIENCY COMPLIANCE FOR OCCUPANCY PERMIT

To be enclosed with the application for Occupancy Permit

I certify that the erection of building/erection of works at
..... (*insert address*) has been completed/constructed as per
the sanctioned building plan. The inspected building components, appliances and fixtures as
mentioned in the approval plan checklist, pertaining to building envelope, comfort systems and
controls (HVAC), lighting and controls, are in compliance with the applicable
guidelines/regulations as amended from time to time. (*Checklist provided during the approval
plan shall be attached bearing a verified stamp by the RBP in charge of inspection for ensuring
implementation of all energy efficiency complaint provision mentioned in the building plan*).

There is no objection for the issue of Occupancy Permit in respect of the aforesaid completed
building in so far as requirements of energy efficiency are concerned.

.....

Signature of applicant

.....

Signature of Registered Building
Professional (RBP)/BEE Certified Energy
Auditor/Manager and registration number

Name:

Name:

Address:

Address:

Phone number:

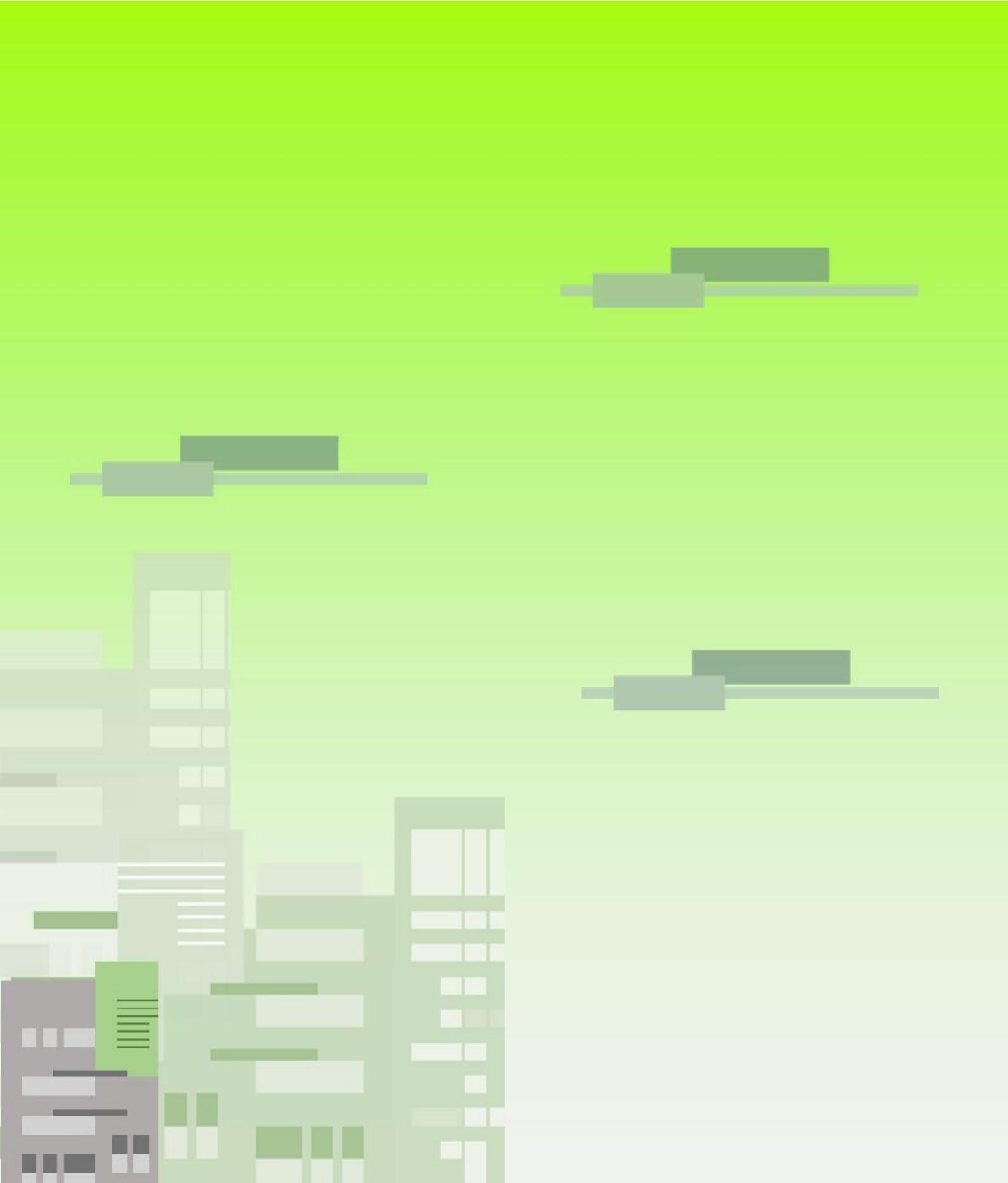
Phone number:

Email:

Email:

Date:

Date:



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