



GUJARAT INTEGRATED TOWNSHIP POLICY January, 2008	Urban Development & Urban Housing Department Government of Gujarat
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*Norms
(for circulation)*

For,
Gujarat Urban Development Company Ltd.
(A Government of Gujarat Undertaking)

1 INTRODUCTION

The State of Gujarat has already achieved leadership in industries like chemicals, petrochemicals, drugs & pharmaceuticals, dairy, cement & ceramics, textiles, engineering and jewellery. The Government of Gujarat (hereon referred as “Government”) also recognizes this fact that knowledge based activities will be the economic drivers in the future which will attract investment, create jobs and provide business opportunities. For Gujarat to attract investments in this sector, its cities will have to compete with similar cities across the world. The location of these businesses will be governed largely by the availability of high quality real estate and infrastructure services at competitive prices.

The Government of Gujarat is taking the lead for the increasing supply of high quality real estate through facilitating the development of integrated townships. Consistent with the overall strategy of the state government, it is proposed that the development of integrated townships be done through private, real estate initiatives. The government’s role would be to support and facilitate the real estate market operations and to regulate it, only to the extent necessary to realise public policy objectives. To provide a framework for the development of townships and to regulate the functions of the participants in such transactions, the Government of Gujarat has formulated the Gujarat Integrated Township Policy (hereon referred as “GITP” or “Policy”) in August 2007. The intent of the Policy is to give impetus to the new order economy in the State, by facilitating the creation of high quality living/working environments with adequate infrastructure and services, in the form of sustainable integrated townships.

The policy institutionalises the role of the state government, the developers, and other state level agencies. It is based on the premise that the state government’s involvement in the development would be limited to the extent necessary to achieve the public interest objective. The policy is directed towards achievement of the following objectives: -

- ❖ To promote economic development
- ❖ To facilitate the creation of efficient equitable sustainable urban settlements
- ❖ To facilitate public private partnerships in urban development
- ❖ To facilitate capacity building in the private sector and in government for urban development

Gujarat Urban Development Company Ltd. (GUDC) has been designated as the nodal agency for the implementation of the Gujarat Integrated Township Policy. GUDC is in the process of developing operational procedures for the policy’s implementation. An external consultant has been appointed by GUDC to facilitate the policy implementation process. A High Power Committee (HPC) has been constituted, headed by the Chief Secretary to lead the implementation of the policy.

The Township Policy defines the implementation strategy by which various development proposals will be responded. Two such strategic approaches have been identified in the policy.

- ❖ First, is to delineate the area where policy will be made applicable, and
- ❖ Second, to extend provisions of the policy for the proposals received for development outside the delineated area on case-to-case basis.

Government is in process to delineate areas for township policy implementation. Norms and standards have been developed and circulated herewith, for the projects to be developed within delineated area. This would form a base for developers to prepare project proposal.

2 DRAFT NORMS FOR TOWNSHIP DEVELOPMENT

According to the Gujarat Integrated Township Policy, “consistent with overall approach of the Gujarat Government to be a facilitator rather than a provider, it is proposed that the development of integrated townships to be done through private, market initiatives. The government’s role will be to support and facilitate the market operations and regulating it only to the extent required to realise public policy objectives”.

Therefore the considerations which determined the choice and design of norms for the development of the townships under the aegis of the policy are:

1. That the norms should ensure achievement of public policy objectives without being restrictive
2. That the norms should be directed towards raising the standards of the real estate industry, especially in the following considerations:
 - Transparency and disclosures
 - Quality assurance
 - Concern for the environment
3. That the norms should direct the development activities towards creation of high quality infrastructure, not only to meet the current needs of service industries but also offering value for the future needs.

2.1 Town Planning Norms

The key objectives behind the formulation of township norms is to safe guard public interests as well as facilitate the creation of good quality real estate. Therefore the effort is to deter from being overly prescriptive and regulate where absolutely essential. The objectives of the town planning norms can be elaborated as follows:

- ❖ To ensure a long term economic development perspective,
- ❖ To ensure basic quality of life and predictability from the point of view of external (trunk and higher order social) infrastructure demands/ provisions,
- ❖ To address any negative externalities from development of the township, and
- ❖ To ensure integrated, sustainable development within the township, but also with a view to well-planned and balanced development in the larger regional context.

Regulatory parameters as stated earlier must be prescriptive to the extent of safeguarding public policy objectives, quality of life, public safety and economic development. The planning mechanism includes the design of nature, intensity and extent of use, locational decisions and systems for access and networks. Draft town planning norms have been annexed to this document.

The Town Planning and Development Control Norms will cover the following categories:

1. Land Use

The basic land use mix is related to the classification of townships by use, and to the criteria for eligibility, wherein a minimum proportion of built-up area is to be allocated to the proposed economic activity. In addition to this, land use norms will cover compatibility of adjacent uses, integration with transportation network, distribution of service facilities and provisions to ensure social inclusiveness. Norms relating to land use mix will cover the classification of land uses. The percentage of land area as well as built-up area to be devoted to the various uses will be prescribed in broad ranges.

2. Road Network, Traffic and Transportation

Norms relating to the road network will specify minimum density of road length per unit area, classification of roads by hierarchy, road widths at different hierarchical levels etc. Traffic and transportation norms will put forward requisites for public transport, non-motorized vehicles (bicycles, etc), comfort and safety of pedestrians, parking standards, etc.

3. Open Spaces, Parks and Gardens

Town Planning norms will indicate the total quantum of open spaces to be provided in relation to the working/residential population of the township and built-up area, including the hierarchical distribution from neighbourhood to township level.

4. Density, Height and Bulk

To ensure predictable infrastructure requirements, the overall density of the township will be specified – both in terms of residential population density (expressed in minimum and maximum number of dwelling units per unit land area) and in terms of density of built-up area (expressed in minimum and maximum FSI). Plot size, margin/setback and building height ranges will also be stipulated. To ensure harmonious built form, urban design guidelines will be laid down and the developer will be required to submit an urban design plan specifying the characteristics of the building envelope including facades, finishes, etc for all buildings proposed in the township.

5. Provision for Informal Service Providers and EWS Housing

To ensure that the lowest income groups including the informal services providers have access to formal housing, there will be specific norms for providing a minimum number of dwelling units for the EWS in proportion to the total estimated population and the nature of economic activity proposed in the township. Allotting of compensatory built up area to the Developer for provision of EWS housing may be considered. The percentage of land allocation and distribution of dwelling unit sizes to ensure inclusion of lower income groups will be indicated. The mechanism for construction and delivery of housing will be notified.

The values for all the above parameters will be calibrated to the objectives of each category of township and the nature of public interest to be protected. While these generic norms will apply to all townships, specific norms may be framed in each Master Plan for areas where townships are to be promoted, based on the imperatives of the local context.

Infrastructure norms

The key objective of prescribing infrastructure norms is to establish the minimum design and performance standards, to ensure a minimum quality of life for the residents of the township. The objective can be elaborated as follows:

- ❖ To ensure basic quality of life and predictability from the point of view of external (trunk and higher order social) infrastructure demands/ provisions,
- ❖ To address any negative externalities from development of the township, and

- ❖ To ensure integrated, sustainable development within the township, but also with a view to well-planned and balanced development in the larger regional context.

The parameters to be regulated for provision of infrastructure must be prescriptive to the extent of ensuring minimum quality of life, scalability, managing the impact on environment, and specific needs of the economic activity. Infrastructure design and performance norms are being developed and will be made available soon. The infrastructure norms will cover the following categories:

1. Service standards

The norms related to infrastructure service standards would prescribe the minimum level and quality of service for water supply, sewerage collection and treatment, solid waste collection and disposal. The norms would be based on generally accepted standards for such services.

2. Design standards

The norms related to infrastructure design standards would prescribe the capacity and quality of the physical structures of physical structures like roads, pavements, storm water drainage systems, water distribution systems. These norms would be specifically directed towards scalability, and sustainability.

3. Provision of social infrastructure

The norms related to social infrastructure would prescribe the minimum standards for providing social infrastructure facilities like schools, hospitals, fire fighting stations, police stations, community halls and public parks. These norms would be specifically directed towards providing a wholesome living environment for the residents of the townships.

4. Environmental guidelines

The norms in this category would be for ensuring that the impact of the township project on the surrounding environment is kept to a minimum.

5. Operations and maintenance standards

The norms in this category would be prescribed to establish the standards for operations and maintenance of the physical infrastructure and services within the township after the township has been operationalised.

DRAFT FOR DISCUSSION ONLY

3 DRAFT TOWN PLANNING NORMS FOR DELINEATED AREA

The process of developing detailed town planning norms is under way based on detailed review related documents as discussed above. Land use norms are discussed here as a snapshot.

3.1.1 Land Use

The key aspect in regulating the land use mix and compatibility is the classification of the township. Therefore the minimum area criterion for the core activity as prescribed in the township policy is mandatory.

Table 1 Categorisation of townships according to policy document

No.	Use category name	Description	Measurable parameter	Value
1	Technology Parks	Such as parks of IT, ITES, Biotechnology, Apparel, Gems & Jewellery and other R & D Institutions with Ancillary Housing	Proportion of total Built Up Area used for Economic Activity	70 % or more
2	Education Based Townships	Such as complexes of schools/ colleges/ universities/ research centres with Hostels and Ancillary Housing		60 % or more
3	Medical/ Health care Townships	Such as complexes of hospitals/ health resorts/ medical colleges/ medical research facilities with Hostels and Ancillary Housing	Proportion of total Built Up Area used for health care facilities	60 % or more
4	Tourism Related Infrastructure	Includes all Tourism related activities with Ancillary Housing	Proportion of total Built Up Area used for Economic Activity	70 % or more
5	Logistics Parks	Includes all large scale logistics (freight handling) and trading activities (wholesale or retail), with ancillary activities such as office complexes, entertainment complexes and Ancillary Housing	Proportion of total Built Up Area used for commercial activity	70% or more
6	Residential	Where Housing is developed as serviced plots or constructed Dwelling Units and is contiguous to an accessible economic activity.	Proportion of total Built Up Area used for Dwelling Units	80% or more
7	Mixed Use Townships	Are also eligible		

NOTE: Hazardous Industries are not allowed in all types of townships under the policy.

3.1.1.1 Space Allocation

Broad percentages of land area under each use sub category in the proposed township are defined below. The colour coding differentiates the mandatory from the recommended norms.

Legend

Mandatory	
Recommended	

Table 2 Space Allocation/Land Use Mix

NO.	Use Category Name	Description	Measurable Parameter	Value	What does the value include?	Minimum Land Area by Use Sub-Category								
						Residential	Residential for EWS	Commercial	Commercial for EWS	Institutional	Institutional (Social infrastructure)	Industrial	Road	Functional Open Spaces
1	Technology Parks	Such as parks of IT, ITES, Biotechnology, Apparel, Gems & Jewellery and other R & D Institutions with Ancillary Housing	Proportion of total Built Up Area used for Economic Activity	70 % or more	Residential, Commercial, Institutional and Industrial area as specified	30% of the developed land area	10% of land under residential development to be allocated	-	5% of land under commercial development to be allocated	-	1% of developed land area	-	10% of the developed land area	10% of the developed land area
2	Education Based Townships	Such as complexes of schools/ colleges/ universities/ research centres with Hostels and Ancillary Housing		60 % or more	Residential and Institutional	15% of the developed land area	10% of land under residential development to be allocated	5% of the developed land area	5% of land under commercial development to be allocated	-	1% of developed land area	-	10% of the developed land area	10% of the developed land area
3	Medical/ Health care Townships	Such as complexes of hospitals/ health resorts/ medical colleges/ medical research facilities with Hostels and Ancillary Housing	Proportion of total Built Up Area used for health care facilities	60 % or more	Residential and Institutional	15% of the developed land area	10% of land under residential development to be allocated	5% of the developed land area	5% of land under commercial development to be allocated	-	1% of developed land area	-	10% of the developed land area	10% of the developed land area
4	Tourism Related Infrastructure	Includes all Tourism related activities with Ancillary Housing	Proportion of total Built Up Area used for Economic	70 % or more	Commercial, Institutional, residential	20% of the developed land area	10% of land under residential development	-	5% of land under commercial development	-	1% of developed land area	-	10% of the developed land	10% of the developed land

NO.	Use Category Name	Description	Measurable Parameter	Value	What does the value include?	Minimum Land Area by Use Sub-Category								
						Residential	Residential for EWS	Commercial	Commercial for EWS	Institutional	Institutional (Social Infrastructure)	Industrial	Road area	Functional Open Spaces area
		Activity					nt to be allocated		nt to be allocated				area	area
5	Logistics Parks	Includes all large scale logistics (freight handling) and trading activities (wholesale or retail), with ancillary activities such as office complexes, entertainment complexes and Ancillary Housing	Proportion of total Built Up Area used for commercial activity	70% or more	Commercial, Industrial, Residential	20% of the developed land area	10% of land under residential development to be allocated		5% of land under commercial development to be allocated	5% of the developed land area	1% of developed land area	-	10% of the developed land area	10% of the developed land area
6	Residential	Where Housing is developed as serviced plots or constructed Dwelling Units and is contiguous to an accessible economic activity.	Proportion of total Built Up Area used for Dwelling Units	80% or more	Residential	-	10% of land under residential development to be allocated	10% of the developed land area	5% of land under commercial development to be allocated	5% of the developed land area	1% of developed land area	-	10% of the developed land area	10% of the developed land area
7	Mixed Use Townships	Are also eligible				-	10% of land under residential development to be allocated	10% of the developed land area	5% of land under commercial development to be allocated	-	1% of developed land area	-	10% of the developed land area	10% of the developed land area

3.1.1.2 Compatibility of uses

The use categories prescribed above may be the predominant use of the land in the land use zone. The following table specifies uses which are permitted and those which are not permitted.

LAND USE ZONING IN HAZARD PRONE AREAS

In Natural Hazard prone areas namely the earthquake prone zones as per IS:1893, the cyclone prone areas as per IS:875 Part-3, and flood prone areas as per the Flood Atlas prepared by the Central Water Commission and/or the flood departments of the State, the development shall be regulated to ensure special protection from hazards for any type of development irrespective of use zone. Whereas the hazard prone areas identified as per the Vulnerability Atlas of India-1997 (or revisions thereof) prepared by Govt. of India or as may be prepared by State Government from time to time shall be used for such regulations, as given in Appendix-A. Further action for protection from these hazards is to be dealt with taking into consideration the Guidelines given in Appendix-B. The following has been adapted from the existing General Development Control Regulations (GDCR).

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
1	Residential	a) Residential Dwellings, Play fields, gardens, gymnasium, swimming pool etc.	a) L.P.G., Cylinder delivery centre for the domestic consumption, coal depot, etc. on ground floor of building used for permissible nonresidential use. club house, wadi, party plot, petrol pump with or with out service station, garages etc.	Obnoxious and hazardous uses, steel stock yard, truck terminal, saw mill, timber mart, ice factory and cold storage, junk yard, non-obnoxious and non-hazardous industries, wholesale market, ware houses, storage of perishable and inflammable goods, hospital for infectious and contagious diseases, mental hospital, jail etc.	a)All permissible non-residential uses in residential zone may be permitted in a residential dwelling only on ground floor or any other floor with separate means of access/staircase.
		b) Pre-primary and primary schools, dispensary, clinic, maternity home, pathological laboratory.	b) Development Activities related to tourism sponsored / recommended by tourism Department of Government. Development activities related to Information Technology.		b) Club house, party plot, wadi, community hall, auditorium, town hall, public assembly shall be permitted as specified in note under this table.

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
		c)The part of residential building may be permitted to use as office in case of professional requirements such as advocates ,doctors, architects ,engineers ,chartered accountants etc. bank, public buildings, educational institutions, such as secondary, high school, college, technical and vocational educational institutions, research institutions, library, community hall, auditorium, town hall.			
		(d)Cottage industries not involving use of or installation of any machinery driven by power of any kind and which do not create noise, vibration, fume dust etc. provided that such home occupations and cottage industries shall not be permissible in the tenement dwellings or flats, service establishment (residential) light home workshop etc. lodging house boarding house,etc. Commercial uses such as shopping / commercial centre, restaurants, hotel, hostels, indoor hospital, nursing home, surgical hospital etc.			
2	Residential for EWS	a) Residential Dwellings, Play fields, gardens, etc.	a) L.P.G., Cylinder delivery centre for the domestic consumption, coal depot, etc	a) Gymnasium, swimming pool	a) All permissible non-residential uses in residential zone may be permitted in a residential dwelling only on ground floor or any other floor with separate means of access/staircase.

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
		b) Pre-primary and primary schools, dispensary, clinic, maternity home, pathological laboratory.	b) Daily shopping, grocers, vegetable and fruit markets	b) Offices in case of professional requirements such as advocates, doctors, architects, engineers, chartered accountants etc. bank, public buildings, educational institutions, such as secondary, high school, college, technical and vocational educational institutions, research institutions, library, community hall, auditorium, town hall.	
		c) Cottage industries not involving use of or installation of any machinery driven by power of any kind and which do not create noise, vibration, fume dust etc. provided that such home occupations and cottage industries shall not be permissible in the tenement dwellings or flats, service establishment (residential) light home workshop etc.	c) Garages may be provided	c) Lodging house boarding house, etc. Commercial uses such as shopping / commercial centre, restaurants, hotel, hostels, indoor hospital, nursing home, surgical hospital etc. subject to provisions of regulation XXXXX (width of the road to use)	
				d) Club house, wadi, party plot, petrol pump with or without service station, etc.	
				e) Obnoxious and hazardous uses, steel stock yard, truck terminal, saw mill, timber mart, ice factory and cold storage, junk yard, non-obnoxious and non-hazardous industries, wholesale market, ware houses, storage of perishable and inflammable goods, hospital for infectious and contagious diseases, mental	

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
				hospital, jail etc.	
3	Commercial	a) Retail commercial use such as Retail shops, Restaurants, Boardings, lodging, Hostels, Maternity homes, Clinic /Commercial Centre, professional office, Banks, Hotels, Public Buildings, Educational Institutions such as secondary high schools, colleges, technical & vocational educational Institutions, libraries, Indoor hospitals, Nursing Homes, Service Establishment, Club House, Community Hall, Wadi, Party Plot, Town hall, Petrol Pump with or without service stations, garage and light home workshops and cottage industries not involving use of or installation of any machinery driven by power of any machinery driven by power of any kind and which do not create noise, vibration, fume dust etc., L.P.G. cylinder delivery centre for domestic consumption, coal depot etc. on ground floor or building used for permissible non-residential uses.	a) Cinema, video hall, news paper, printing press, Timber Stock yard (lati), Junk Yard (Kabadi), Saw Mill, residential dwelling. Provided that some home occupations and cottage industries shall not be permissible in the tenement dwellings or flats. Development activities related to tourism, sponsored/recommended by tourism corporation of Government Development activities related to Information Technology.	a) Obnoxious and hazardous uses, and non-hazardous industries, hospitals for infectious and contagious diseases, mental hospital, jail.	a) Residential use is permitted but regulations of commercial development shall be applicable.
		b) Wholesale market and their ancillary uses, ice factory and cold storage, ware houses, godowns, transport terminal for goods and passengers, kerosene depot, steel stock yard.			

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
4	Commercial for EWS	a) Retail commercial use such as Retail shops, Fruit and Vegetable markets, Restaurants, Boardings, lodging, Hostels, Maternity homes, Clinic /Commercial Centre, professional office, Banks, Hotels, Public Buildings, Educational Institutions such as secondary high schools, colleges, technical & vocational educational Institutions, libraries, Indoor hospitals, Nursing Homes, Service Establishment, Community Hall, Wadi, Party Plot, Town hall, Petrol Pump with or without service stations, garage and light home workshops and cottage industries not involving use of or installation of any machinery driven by power of any machinery driven by power of any kind and which do not create noise, vibration, fume dust etc., L.P.G. cylinder delivery centre for domestic consumption, coal depot etc. on ground floor or building used for permissible non-residential uses.	a) Cinema, video hall, news paper, printing press, Timber Stock yard (lati), Junk Yard (Kabadi), Saw Mill, residential dwelling. Provided that some home occupations and cottage industries shall not be permissible in the tenement dwellings or flats.	a) Obnoxious and hazardous uses, and non-hazardous industries, hospitals for infectious and contagious diseases, mental hospital, jail.	a) Residential use is permitted but regulations of commercial development shall be applicable.
		b) Wholesale market and their ancillary uses, ice factory and cold storage, ware houses, godowns, transport terminal for goods and passengers, kerosene depot, steel stock yard, timber stock yard (lati), Junk yard (kabadi), saw mill, stone cutting and polishing industries.			

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
		LPG cylinder storage depot, storage of permissible goods.			
5	Institutional	a) Schools, Colleges, Educational Buildings, research institutions, hostels, boarding houses, staff quarters, Banks, canteens, sports complex gymnasium, dispensary, auditorium, library	Retail shops & restaurants as a part of educational institute. Development activities related to Information Technology.	All other uses not mentioned in column 3 and column 4.	
		b) Hospital, Nursing Home, Doctor's clinic, Dispensary, Maternity home, Xray clinic, Radiology centre, Diagnostic centre, Blood Bank, Pathology laboratory, Medical research centre, Health treatment centre, Medical staff hostels, Staff quarters,	Bank & Restaurant as a part of Medical institute, Auditorium for hospital use. Development activities related to Information Technology.		
		c) Canteens, as a part of Medical institute, Medicine shops, Health instrument shops, Library, Surgical hospital, Centre for Health care related activities.			
		d) Government and semi Government buildings and their activities, Autonomous bodies and public sector undertaking buildings and activities like G.H.B. university, L.I.C. and A.P.M.C. etc. Non government organisation buildings, registered charitable trust building or education, medical, health, religious and public welfare activities. Development activities related to tourism, sponsored/ recommended by Tourism	Building of Public Utility and Services and assembly buildings including swimming pool, auditorium, club, stadium, theatre etc. Open space proposed for party and marriage ceremony and amusement and recreational activities. Office buildings, business building and mercantile building.		

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
		Corporation of Government			
6	Institutional (Basic Social Infrastructure)	a)Pre-primary and primary schools, dispensary, clinic, maternity home, pathological laboratory.	Retail shops & restaurants as a part of educational/medical facilities	All other uses not mentioned in column 3 and column 4.	
		b)Banks, public buildings, educational institutions, such as secondary, library, community hall.	Open space proposed for party and marriage ceremony and amusement and recreational activities.		
7	Industrial	All Industries except obnoxious and hazardous industries as mentioned in Appendix-C.	Public buildings, public utility service buildings, place of public entertainment, offices. Technical institutions for research and development pertaining to concerned industries. Medical Centres.		
		Development activities related to tourism, sponsored/recommended by tourism corporation of Government Development activities related to Information Technology.	Transport terminals for goods and passengers, petrol pumps with garages and service stations, parking taxis, scooter and cycle stand, junk yard.		
		All types of light industries service industries, workshops, newspaper offices with printing press and necessary uses, small factories, ware house shops co-operative stores, wholesale business and godowns, business buildings, commercial establishments, hotels and restaurants stone cutting and polishing.	Development activities related to tourism sponsored recommended by tourism corporation of Government.		
		Residential buildings for industrial workers and or other public utility service.	Restaurants & Retail shops as part of industries. Recreational use and open space.		

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
8	Functional Open Spaces/Agriculture Zone	Recreation of any type, Residential accommodation and shops incidental to recreation, golf courses, aquarium, natural reserve and sanctuary, race track, shooting range, zoo, nursery, stadium, botanical garden, planetarium, amusement park, swimming pool, exhibition and mela, drive-in-cinema, party plots, recreational use of water park.	Institutional Buildings, govt., semi govt. buildings, Buildings of public sector undertakings, Garden houses, petrol filling station, educational and Medical institutions (excluding infectious and contagious diseases, mental hospitals), Training and research centres, building for autonomous bodies related to their activities statutory organisations, convention centres.	Slaughter houses, Dumping of solid industrial waste	
		Horticulture, poultry keeping subject to the N.O.C./approval and conditions laid down by the Department of poultry, Dairy Development, fisheries, animal rearing and breeding, open storage of drying manure. Farm house located in land of not less than 4000 sq. m. Agricultural equipment, repair of tools and equipment of agricultural use, tannery, saw mill, timber depot, uses pertaining to processing of agro/farm/milk products, institutional uses, vocational training centre, for agriculture purposes wayside shops, restaurant, ice factory & cold storage, godowns and warehouses subject to N.O.C./approval & conditions laid down by warehousing corporation/ FCI/ Appropriate Govt./ Semi Govt. Department,	Hotels as per norms notified by the tourism Corporation of Gujarat	All other uses not mentioned in column 3 and column 4.	

1 Sr. No.	2 Zone	3 Type of development for which it is primarily intended	4 Type of development which may be permitted by Competent Authority.	5 Type of development which may not be permitted.	6 Remarks
		Development activity related to tourism sponsored/recommended by tourism Department of the Government	Petrol pump with or without service station, garages, and workshop, Studio, roofing tiles and cement pipes, brick kiln, mining and quarrying, cemetery and burial ground, jail.		
9	Gamtal and Gamtal Extensions	As recommended by the master plan for the applicable area			
10	Nalas, Natural water courses, drains, water bodies such as talavs, kins, lakes, etc. and buffers/green areas as prescribed in the master plan	Embankments, ghats, gardens, parks, walk ways, jogging tracks, bicycle tracks, golf courses.	temporary restaurants/small retail vendors in designated hawker spaces	All other uses not mentioned in column 3 and column 4.	
			Car, two-wheeler and bicycle parking in designated spaces		

3.1.2 Density

3.1.2.1 Built Area Density

The gross FSI in the 'applicable area' will be determined at the time of preparation of Master Plan based on the expected investments, infrastructure development to be undertaken and its carrying capacity. As a matter of right the townships will have a base FSI as prescribed in the Master Plan. Additional development right will be available for sale within a specified time frame.

The guiding principles for designing the density of built up area within the township are as follows:

Table 3 Density by Use sub-category

No.	Use Type	FSI	Ground Cover (Upto)
1	Commercial (differing built-typology)	By road width and plot size	50%
2	Commercial for EWS	By road width and plot size	70%
3	Residential (differing built-typology)	By road width and plot size	60%
4	Residential for EWS	By road width and plot size	90%
5	Institutional	By road width and plot size	60%
6	Basic Social Infrastructure	By road width and plot size	70%
7	Industrial	By road width and plot size	50%
8	Functional Open Spaces such as parks, gardens, open recreational areas	0.3	30%
9	Green areas	0.2	20%
10	Water bodies	0	0%

Table 4 Density by width of abutting road and plot size

	Plot Size (in sq m)	Maximum FSI	Plot Size (in sq m)	Maximum FSI
Arterial (60 m or more)	upto 5000	2	5000 or more	Unlimited
Sub-Arterial (40 to 60m)	upto 2500	2	2500 or more	Unlimited
Collector Street (30 to 40 m)	upto 1500	1	1500 or more	3
Local Street (15 to 30 m)	upto 500	1	500 or more	2

3.1.2.2 Dwelling Unit Density

The dwelling unit density will be as specified in the Master Plan for the 'applicable area'.

3.1.3 Road Networks

3.1.3.1 Hierarchy

As per the UDPFI guidelines, the different categories of roads have been defined as;

- A. **Arterial road:** Roads for intra-urban through traffic, with no frontage access, no standing vehicle and very little cross traffic and minimum roadway intersection spacing 500m.
- B. **Sub-Arterial road:** Roads for intra-urban through traffic with frontage access but no standing vehicles having high cross traffic, high capacity intersections and minimum roadway intersection spacing 300m.

- C. **Collector street:** Streets for collecting and distributing traffic from and to local streets and also for providing access to arterial and sub-arterial roads, having free frontage access but no parked vehicles and having heavy cross traffic and minimum roadway intersection spacing 150m.
- D. **Local street:** Street for access to residence, business or other abutting property, having necessary parking and pedestrian movement.

The Master Plan for the applicable area will lay out the Arterial road network. This alignment must be demarcated and handed over to the relevant authority. This alignment is final and binding and cannot be changed. The developer will include sub-arterial, collector and local roads in his layout.

3.1.3.2 **Completeness**

Roads of each hierarchical class will be complete and connect to roads of equal or higher ROW at both ends

- A. Arterial roads will connect to arterial roads of equal or higher ROW at both ends
- B. Sub-Arterial roads will connect to sub-arterial roads or arterial roads of equal or higher ROW at both ends
- C. Collector streets will connect to collector streets, sub-arterial roads or arterial roads of equal or higher ROW at both ends
- D. Local streets will connect to local streets, collector streets, sub-arterial roads or arterial roads of equal or higher ROW at both ends

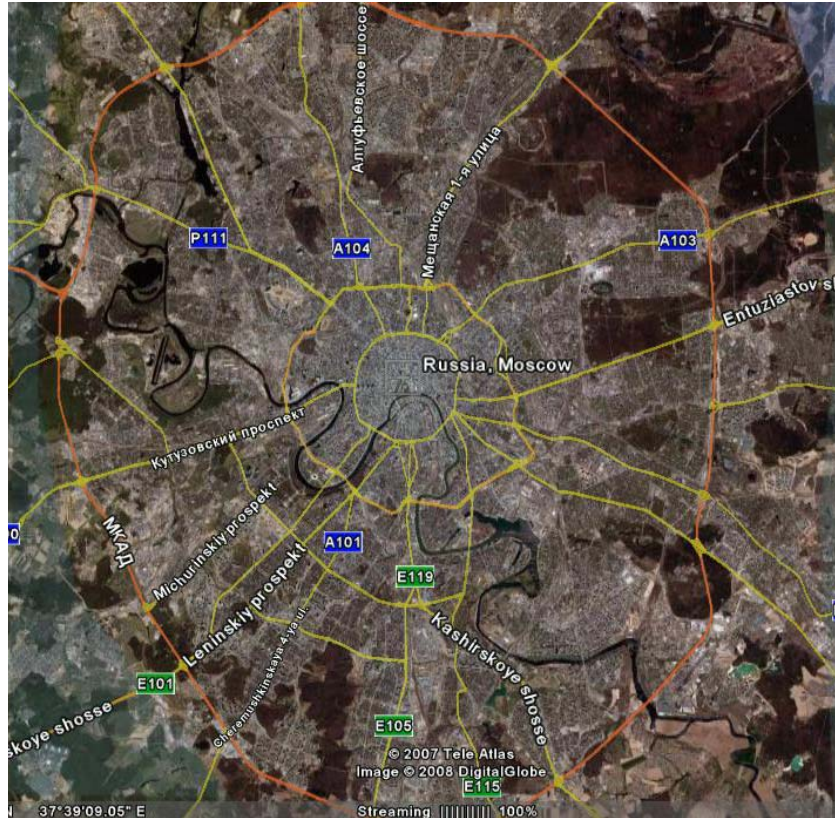
3.1.3.3 **Topology/pattern**

The road network will have the topology of a grid so as to

- A. Provide alternate routes of movement,
- B. For ease of provision of infrastructure services and
- C. For reducing vulnerability to disasters.

Loose ends and cul-de-sacs must be avoided. Cul-de-sacs will be allowed only on 'local streets' where there is a case for preventing through traffic. The following images represent hierarchy, continuity and topology of the road structure

Figure 1 A Ring Radial Pattern in Development can also conform to the norms on hierarchy, topology & continuity



3.1.3.4 Road length per unit of developed land area

6 to 8 km of road for every 1 sq km of developed area shall be provided by the developer.

3.1.3.5 Road Width

The road design and widths shall be as prescribed below

Table 5 Road design speeds

S. No.	Type of road	Design speed (kph)
	Arterial	80
	Sub-Arterial	60
	Collector street	50
	Local street	30

Table 6: Road space standards

S. No.	Type of road	Space standards (Minimum land width/Right of Way) in meters
	Arterial	60
	Sub-Arterial	40

Collector street	30
Local street	15

Table 7: Carriageway widths

S. No.	Description	Minimum width in meters
	Single lane without kerbs	3.5
	2- lane without kerbs	7
	2- lane with kerbs	7.5
	3- lane with/ without kerb	10.5/ 11.0
	4- lane with/ without kerbs	14

3.1.3.6 NMV & Pedestrian Networks

The townships must have an independent network of movement for non-motorized vehicles and pedestrians integrated with the network for vehicular movement, transportation stops and terminals. These must be well connected with the locations of EWS housing and EWS commercial also. Existing nalas, drains, village roads, sides of water bodies may be utilized for this purpose.

Besides these all roads in the township shall have foot paths on both ends within the right of way. The width of the footpath shall be as prescribed in section 4 of the infrastructure norms.

3.1.4 Urban Design

The urban form, height and bulk within the township shall concur with the following parameters.

3.1.4.1 Consistency in Character

Homogenous grain

Similar size plots must be aligned together along roads of similar widths. However these may vary with varying use categories. As a general principle it will be preferable to have smaller plots on roads of smaller ROW and bigger plots on roads of bigger ROW.

Homogenous Building Typology

Buildings aligned along a street may have common build-to-line, height and façade treatments to lend a consistent character to the space

Consistent Landscaping

Continuous green ways interlinking water bodies and other recreational areas may be considered.

Consistent Street Design

Streets of varying ROW must have uniform character in terms of street design, furniture, landscaping, etc and must include pedestrian pathways and bicycle tracks.

3.1.4.2 Set backs and margins

Margins, setbacks and build-to-line will be as specified in the Master Plan for the 'applicable area'.

3.1.4.3 Building Height

The building height will be determined based on the disaster mitigation measures the developer is willing to undertake such as the fire resistance and fire fighting measures prescribed by the National building Code 2005 part 4 relating to fire and life safety and/or annexe C 'fire requirements of high rise buildings'. Similarly other structural safeguards must be undertaken as specified in the building performance norms [2.1.6]

3.1.4.4 Parking & Street Design

All parking requirements of the township will be taken care of within the township and no free on-street parking will be allowed on any arterial road and the development authority will have the right to capture parking rights on the street. As a principle on-street parking will also be discouraged on sub-arterial and collector roads also. If provided, these will be clearly high-lighted in the street design drawings and will be on chargeable basis.

DRAFT FOR DISCUSSION ONLY

4 DRAFT BUILDING PERFORMANCE NORMS

The building performance norms have been adapted from the '**Proposed New Development Control Regulations for Gujarat [Model Protocols]**' produced with the financial assistance of the European Union prepared by Environmental Planning Collaborative, Ahmedabad.

4.1 Buildings & Infrastructure

4.1.1 Minimum Clearances from Trunk Infrastructure

4.1.1.1 *Minimum Clearances from Electrical Lines*

Clearances to be provided between any development or part thereof and electrical lines shall be in accordance with provisions of the Indian Electricity Rules, 1956.

4.1.1.2 *Minimum Clearances from Petroleum Pipelines*

Clearances to be provided between any development or part thereof and petroleum pipelines shall be in accordance with provisions of the Petroleum Pipelines (Acquisition of Right of User in Land) Act, 1962.

4.1.2 Architectural Elements

4.1.2.1 *Minimum Clearance Height in Developments*

All habitable and circulation spaces in a development shall have a minimum clearance height of 2.2 m.

4.1.2.2 *Railings*

A railing (parapet) with a minimum height of 1.0 m shall be provided at all accessible edges of a development where the Architect on Record deems it necessary to ensure safety. The height of railing (parapet) shall not exceed 1.5 m.

4.1.2.3 *Staircases*

All staircases in all developments shall conform to specifications listed in the National Building Code of India, Part III – Development Control Rules and General Building Requirements.

4.1.2.4 *Signage and Hoardings*

It is not permitted to erect advertisement hoardings on terraces of the development or on the plot. Signage directly pertaining to the use of the development may be erected on the plot. Such signage shall be subject to approval by the Competent Authority.

4.1.3 Parking

4.1.3.1 Parking to be provided

It is recommended that off-street parking spaces for vehicles be provided for every new building constructed for the first use or when the use of old building is changed to any of the uses mentioned in the table below:

Table 8 Minimum off street parking spaces

Sr. No.	Type of use	Parking space Required	Remarks
1	Residential (Flats/Apartments)	15% of maximum permissible F.S.I	(1) Dwelling units Above 80 Sq. Mts. built up area 50% of the total parking space requirement shall be reserved for cars. (2) Upto 80 Sq. Mts. built up area 25% of the total parking space requirements shall be reserved for Cars. (3) 10% of the total parking space requirements shall be reserved for visitors at ground level.
2	Cinema theatre, public assembly hall auditorium, stadium etc.	1 Sq Mts. per seat	50% of the total parking space requirements shall be reserved for Cars.
3	Industrial	10% of Building Unit	50% of the total parking space requirements shall be reserved for Cars.
4	Commercial and business establishments including business office, bank, hotel, guest house, lodge, eating house, restaurant, institutional building etc. and Health facilities including Hospitals & Nursing Homes etc.	30% of maximum permissible F.S.I Note:(1) The parking space so required shall be provided excluding required marginal space and Built up area with solid plinth subject to other regulation (2) 20% of the parking space required at the ground level shall be exclusively provided for visitors.	50% of the total parking space requirements shall be reserved for Cars.
5	Community buildings such as community hall/ marriage hall/ community wadi/recreational club/ and religious building, party plot, club house etc.	50% of Building Unit..	50% of the total parking space requirements shall be reserved for Cars.
6	a) Primary schools. b) Secondary and higher secondary schools c) Colleges and coaching classes.	20 Sq. Mts. for every 100 students 50 Sq. Mts. for every 100 students 70 Sq. Mts. for every 100 students	For computing number of students 0.75 sq. m. floor area is equal to 1 (one) student.
7	Special building for uncommon uses :	For (a) and (b) 30% of maximum permissible F.S.I	For (a) 50% of the total parking space requirement shall

Sr. No.	Type of use	Parking space Required	Remarks
	(a) stock exchange (b) grain market, timber market, iron market, agricultural market, and such other wholesale Trade.		be reserved for cars. For (b) 50% of the total parking space requirement shall be reserved for heavy motor vehicles. Competent Authority/Municipal Commissioner shall specify the number and types of vehicles likely to be use in addition to Col. No. 4. For (a) and (b) of col. No.2

NOTE:

(1) Building Units/Plots abuts on 9.00 Mts. or more width road Parking shall be provided as under.

For Ground floor Built-up Area without hollow plinth the Parking shall be provided as per Commercial Standards and for other floors Built-up Area Parking shall be provided as per Regulations.

(2) Above space shall be provided in addition to adequate vehicular access to the street.

(3) In a marginal space of 3.0 m or more may be allowed for parking if it forms part of parking layout

(4) Parking requirement shall be calculated on the basis of maximum permissible F.S.I.

(5) In cases where misuse of parking space is noticed, the use of entire building shall be discontinued and the use shall be permitted only after the parking spaces are made possible for parking use. High penalty as decided by Competent Authority from time to time shall be levied considering the period of misuse of the parking space and the benefit derived out of misuse.

(6) In case where more parking space is requested, the Competent Authority may grant the request for providing parking in cellar or at upper floors with specific conditions to take care of genuine requirements.

(7) Parking reserved for the visitors shall be provided on ground level only.

4.1.3.2 Design of Parking for Cars

1. Parking layout for cars in all developments shall conform to the following specifications:
2. Minimum dimension of a space provided for parking a car shall be 2.5 m x 4.5 m.
3. Each car parking space should be connected to the street providing access to the plot by means of an access/exit lane. Minimum width of the access/exit lane shall be 3.0 m provided that the lane does not provide access/ exit to more than 10 cars.
4. Minimum width of the access/exit lane shall be 3.0 m for one-way movement of cars and 6.0 m for two-way movement in case the lane provides access/exit to more than 10 car parking spaces. The minimum turning radius along the centre of the lane shall be 5.0 m.
5. The maximum slope of access/exit lane at any point along the lane shall be 1:7.
6. A minimum clear height of 2.4 m shall be maintained at all points in the parking space and access/exit lanes.

4.1.3.3 Design of Parking for Two - Wheelers

Parking layout for two-wheelers in all developments shall conform to the following specifications:

1. Minimum dimension of a space provided for parking a two-wheeler shall be 0.90 m x 1.75 m.
2. Each two-wheeler parking space should be connected to the street providing access to the plot by means of an access/exit lane. Minimum width of the access/exit lane shall be 2.0 m provided that the lane does not provide access/exit to more than 10 two-wheelers.
3. Minimum width of the access/exit lane shall be 2.0 m for one-way movement of two wheelers and 4.0 m for two-way movement in case the lane provides access/exit to more than 10 two-wheeler parking spaces. The minimum turning radius along the centre of the lane shall be 4.5 m.
4. The maximum slope of access/exit lane at any point along the lane shall be 1:7.
5. A minimum clear height of 2.4 m shall be maintained at all points in the parking space and access/exit lanes.

4.1.4 Lighting

Adequate natural and artificial lighting as published in the National Building Code of India, Part VIII – Building Services, Section I, shall be provided in all parts of a development in a manner that the Architect on Record deems necessary.

4.1.5 Ventilation

Adequate natural and mechanical ventilation as published in the National Building Code of India, Part VIII – Building Services, Section I, shall be provided in all parts of a development in a manner that the Architect on Record deems necessary.

4.1.6 Heating and Air Conditioning

Adequate heating and air-conditioning as published in the National Building Code of India, Part VIII – Building Services, Section III, shall be provided in all parts of a development in a manner that the Architect on Record deems necessary.

4.1.7 Water Supply

Adequate water supply storage facilities as published in the National Building Code of India, Part IX – Plumbing Services, Section I, shall be provided in all development in a manner that the Architect on Record deems necessary.

The use of ground water as a source of water supply shall conform to regulations of the Central Ground Water Authority.

4.1.8 Sanitation

Adequate sanitation facilities as published in the National Building Code of India, Part IX – Plumbing Services, Section II, shall be provided in all development in a manner that the Architect on Record deems necessary.

4.1.9 Drainage

Adequate drainage facilities as published in the National Building Code of India, Part IX – Plumbing Services, Section II, shall be provided in all development in a manner that the Architect on Record deems necessary.

4.1.10 Electrical Infrastructure

Adequate electrical infrastructure as published in the National Building Code of India, Part VIII - Building Services, Section II, shall be provided in all developments in a manner that the Architect on Record deems necessary.

4.1.11 Lifts and Escalators

Lift(s) shall be provided in all developments having a habitable floor at a height above 13.5 m from the plinth level.

Number and type of lifts to be provided in different types of developments shall conform to standards specified in the National Building Code of India, Part VIII – Building Services, Section V. Lifts and escalators shall also meet fire prevention and safety requirements, and accessibility requirements

4.1.12 Accessibility

All developments shall provide adequate access to Persons with Disabilities. Provisions made to enable access for the disabled shall conform to the standards published by the Office of the Chief Competent Authority for Persons with Disabilities, Government of India, in a manner that the Architect on Record deems necessary.

An Accessibility Report prepared by an Architect on Record shall be submitted along with the application for Development Permission using the format to be determined by the Office of the Chief Competent Authority for Persons with Disabilities, Government of India.

[An architect must have the following qualifications –

1. A person registered under the provision of Architect Act, 1972 as an Architect OR Bachelors Degree in Architecture/Diploma in Architecture equivalent to B. Arch.
2. 2 years of experience in an architectural firm.

The accessibility report shall conform to 'Planning a Barrier Free Environment', a manual recommended by the Ministry of Social justice and empowerment, office of the chief commissioner of persons with disabilities. (Refer website: ccdisabilities.nic.in)

4.2 Structural Safety

4.2.1 Applicability

The following structural and seismic safety regulations shall apply to all new developments other than those listed in Appendix F

4.2.2 Additions and Alterations to Existing Developments

An alteration or addition to an existing development that is not structurally independent shall be designed and constructed such that the entire structure conforms to the structural and seismic safety requirements for new developments, unless the following three conditions are complied with:

1. The alteration or addition complies with the requirements for new developments.
2. The alteration or addition does not increase the seismic forces in any structural element of the existing development by more than 5% unless the capacity of the element subject to the increased force is still in compliance with the requirements for new developments.
3. The alteration or addition does not decrease the seismic resistance of any structural element of the existing development unless the reduced resistance is equal to, or greater than, that required for new developments.

4.2.3 Change of Use of Developments or Part of a Development

When a change of use results in a structure being reclassified to a Higher Importance Factor (I) as defined in the IS: 1893-2002 "Criteria for Earthquake Resistant Design of Structures (Fifth Revision)", the development shall conform to seismic requirements for a new development with the Higher Importance Factor.

4.2.4 Design for Structural and Seismic Safety

4.2.4.1 Design Standards

The structural design of foundations, elements of masonry, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall conform to:

- a. The provisions of the National Building Code of India, Part VI - Structural Design (Section – 1 Loads, Section – 2 Foundation, Section – 3 Wood, Section – 4 Masonry, Section – 5 Concrete and Section – 6 Steel), and,
- b. The following Indian Standards:

Structural Safety:

1. IS: 456: 2000 “Code of Practice for Plain and Reinforced Concrete”
2. IS: 800: 1984 “Code of Practice for General Construction in Steel”
3. IS: 801: 1975 “Code of Practice for Use of Cold Formed Light Gauge Steel Structural Members in General Building Construction”
4. IS: 875 (Part 2): 1987 “Design loads (other than earthquake) for Development and structures” Part 2 Imposed Loads
5. IS: 875 (Part 3): 1987 “Design loads (other than earthquake) for buildings and structures” Part 3 Wind Loads
6. IS: 875 (Part 4): 1987 “Design loads (other than earthquake) for buildings and structures” Part 4 Snow Loads
7. IS: 875 (Part 5): 1987 “Design loads (other than earthquake) for buildings and structures” Part 5 Special loads and load combination
8. IS: 883: 1966 “Code of Practice for Design of Structural Timber in Building”
9. IS: 1904: 1987 “Code of Practice for Structural Safety of Buildings: Foundation”
10. IS: 1905: 1987 “Code of Practice for Structural Safety of Buildings: Masonry Walls”
11. IS: 2911 (Part 1): Section 1: 1979 “Code of Practice for Design and Construction of Pile Foundation”
Section 1:
 - ❖ Part 1: Section 2 Based Cast-in-situ Piles
 - ❖ Part 1: Section 3 Driven Pre-cast Concrete Piles
 - ❖ Part 1: Section 4 Based Pre-cast Concrete Piles
 - ❖ Part 2: Timber Piles
 - ❖ Part 3: Under-Reamed Piles
 - ❖ Part 4: Load Test on Piles

Seismic Safety:

12. IS: 1893-2002 "Criteria for Earthquake Resistant Design of Structures (Fifth Revision)"
13. IS: 13920-1993 "Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces - Code of Practice"
14. IS: 4326-1993 "Earthquake Resistant Design and Construction of Buildings - Code of Practice (Second Revision)"
15. IS: 13828-1993 "Improving Earthquake Resistance of Low Strength Masonry Buildings - Guidelines"
16. IS: 13827-1993 "Improving Earthquake Resistance of Earthen Buildings - Guidelines"
17. IS: 13935-1993 "Repair and Seismic Strengthening of Buildings - Guidelines"

Cyclone/ Wind Storms:

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

19. "Guidelines (based on IS 875 (3): 1987) for Improving the Cyclonic Resistance of Low-rise Houses and Other Building"

Landslides:

20. IS 14458 (Part 1): 1998 "Guidelines for Retaining Wall for Hill Area: Part 1 Selection of Type of Wall"

21. IS 14458 (Part 2): 1997 "Guidelines for Retaining Wall for Hill Area: Part 2 Design of Retaining/ Breast Walls"

22. IS 14458 (Part 3): 1998 "Guidelines for Retaining Wall for Hill Area: Part 3 Construction of Dry Stone Walls"

23. IS 14496 (Part 2): 1998 "Guidelines for Preparation of Landslide – Hazard Zonation Maps in Mountainous Terrains" Part 2 Macro-zonation.

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

4.3 Fire prevention and safety

Any reference in these regulations to the National Building Code shall be taken to mean the latest edition of the National Building Code of India, 2005, Part IV: Fire and Life Safety. The following terms used in these regulations should be taken to have the meaning ascribed to them in the National Building Code of India, 2005, Part IV: Fire and Life Safety.

- a. Combustible Material
- b. Fire Load
- c. Fire Resistance
- d. Fire Separation
- e. Floor Area Ratio
- f. Fire Separating Wall
- g. Automatic Fire Detection and Alarm System
- h. Dry Riser
- i. Emergency Lighting and Emergency Lighting System
- j. Fire Exit
- k. High Rise Building

I. Occupancy or Use Group

m. Travel Distance

4.3.1 Structural Fire Precautions

1. Every part of a building specified below must be constructed of non-combustible materials.

- ❖ A floor separating two parts of a building which are in different occupation or are used for different purposes
- ❖ A wall separating two parts of a building which are in different occupation or are used for different purposes
- ❖ A floor or wall separating different compartments of the building.
- ❖ A wall separating a lift well from the remainder of the building.
- ❖ An external wall on a boundary or less than 1m from a boundary
- ❖ The enclosing structure to a protected escape route including a stair enclosure where the stair is required for escape purposes except for a stair in a buildings containing only one single occupancy dwelling.
- ❖ A stair which is required for escape purposes except for a stair in a buildings containing only one single occupancy dwelling.

2. Every building other than individual dwellings must be designed and constructed in such a way that in the event of an outbreak of fire within the building, fire and smoke are inhibited from spreading beyond the compartment of origin until any occupants have had the time to leave that compartment and fire containment measures have been initiated.

The requirements of this regulation will be satisfied where the floor area of the compartment does not exceed the maximum value contained in the table below, and the walls and floors surrounding the compartment and any structural elements supporting these walls and floors are constructed from non-combustible material with the appropriate Fire Resistance Rating for a Fire Resisting Wall as set out in the table 11 of section 3.3.1.

Table 9 Floor Area of the compartment

Occupancy Classification	Maximum Floor Area of Compartment in sq. m.
Residential	2000
Educational	1500
Institutional	1500
Assembly	2000
Business	4000
Mercantile	1000
Industrial	7500
Storage low risk	2500
Storage high risk	500
Hazardous	500

Note 1: Definitions of occupancy classifications can be obtained from the National Building Code of India, 2005, Part 4 - Fire and Life Safety

Note2: The above areas may be increased at the discretion of the local fire officer where an appropriate fire control system has been provided

3. All elements of structure in a building must have a minimum Fire Resistance Rating in accordance with the table below except an element of structure in a single storey building which does not form part of, or support, a separating wall, compartment wall, or the enclosing structure of a protected zone.

Table 10 Fire Resistance

	Fire Resistance In Hours For Element of Structure				
	1	2	3	4	5
Occupancy Classification	Structural Frame Beam	Load bearing wall or Floor other than in column 3	Compartment Floor Or Separating Floor Or Stair	External Wall less than 'd' m from boundary other than in column 2	Structure enclosing an escape route including an escape stair and lift shafts
Residential	1	1	1	1 for all values of 'd'	1
Educational	1.1	1.5	2		1.5
Institutional	1.5	1.5			2
Assembly	1.5	1.5			2
Business	1.5	1.5			2
Mercantile	1.5	1.5			2
Industrial	1.5	2			2 when $d < 3.7$
Storage	3 when supporting only 1 floor else 4			1.5 when $3.7 < d < 9$	2
Hazardous			4	1 when $d > 9$	3

Note1: Definitions of Occupancy Classifications and Fire Resistance of an Element of Structure can be obtained from the National Building Code of India, 2005, Part 4 - Fire and Life Safety.

2. An opening in a wall or floor, must be fitted with a self closing door or shutter or access hatch which has the same fire resistance and resistance to the passage of smoke and hot gasses as is required for the wall or floor in which it is located.

3. An opening in a wall in a floor for the passage of pipes, ducts or other services must be adequately fire stopped to prevent the passage of smoke and hot gasses as is required for the wall or floor in which it is located.

4.3.2 Means of Escape

1. There must be at least one exit from any room, storey, space, gallery, catwalk or openwork floor of a building, or from a dwelling

2. Every upper storey or basement storey within a building must have at least 2 escape stairs, except in the case of:

- a. An upper storey containing dwellings only or
- b. An upper storey having an entrance directly from the level of the adjoining ground; or

- c. An upper storey in a residential building at a height of not more than 11m where the building has an occupancy capacity, excluding employees, of not more than 10; or
- d. An upper storey in any other building other than a hospital, at a height of not more than 11m; or
- e. An upper storey at any height containing only plant (including lift machinery) or
- f. A basement storey at a depth of not more than 4.5m which is not intended for use by members of the public other than for access to any sanitary accommodation, and storage contained in the basement.

3. The minimum number of exits in relation to the occupancy capacity of room, storey or space etc should be as follows:

- a. where the occupancy capacity is not more than 60, then minimum exits to be 1
- b. where the occupancy capacity is between 61 and 600, then minimum to be 2
- c. where the occupancy capacity is more than 600, then minimum exits to be 3

Note: Guidance on calculating the occupant capacity of a room or storey is given in Part IV: Fire and Life Safety, National Building Code of India, 2005

4. The maximum travel distances for a building or part of a building other than a part of a building containing only dwellings, related to available directions of travel is given in the table below:

Travel distances

Residential Educational Institutional Hazardous	22.5m	11m
Assembly Business Storage	30m	15m
Industrial	45m	22.5m

Note1: Definitions of occupancy groups are given in Part IV – Fire and Life Safety, National Building Code for India, 2005

Note2: Travel distance is the distance measured along the actual route of escape from any point within a storey to the nearest protected door or to a door in a compartment wall.

5. An escape route must not be by way of

- ❖ a lift,
- ❖ a passenger conveyor, or
- ❖ a turnstile other than a suitably designed and installed turnstile unit with an emergency pressure operated facility enabling the entire unit to open in the direction of escape; or
- ❖ a shutter, other than a shutter which is installed for security purposes across a shop-front and which does not close automatically in the event of fire, but not a shutter across an opening between a protected zone and a place of safety; or

- ❖ a revolving door, an automatic sliding door or an automatic door other than one of suitable design and construction; or
- ❖ a sliding door, other than one to which the public does not have access and which is clearly marked on both sides with a suitable sign; or
- ❖ a fixed ladder, other than a suitable fixed ladder constructed of non-combustible materials providing access to a plant room other than a place of special fire risk which is normally unoccupied except for maintenance purposes.

6. An escape route or circulation area must have a clear height of at least 2m, except in a doorway it may be reduced to not less than 1.9 m.

7. The aggregate unobstructed width in mm of all escape routes from a room, storey or space must be at least 5.3 x the occupancy capacity of the room, storey or space.

8. The width, clear of handrails or other obstructions, of an escape stair must be at least the width required for any escape route giving access to it, except where the number of people using the escape route is not more than 225 it may be reduced to not less than 1100mm, and where the number of people using the escape route is not more than 100 it may be reduced to not less than 1000mm.

9. An escape stair, which is not an external stair, must be entirely surrounded in by non-combustible construction having a fire resistance specified in the table to Regulation No. 3.3.1 (3). Any openings in the stair enclosure must be fitted with self-closing fire and smoke control doors having the equivalent fire resistance as the enclosing structure. The enclosure must have an operable ventilator of not less than 1.0 sq. m. for use by the fire brigade at the top of the stair, or an opening window at each storey.

10. An escape stair enclosure may enclose only an escape stair and any one or more of

- a. a wheelchair refuge giving access only to the escape stair,
- b. a lift well;
- c. a water closet compartment or washroom.

11. Where a corridor forming part of an escape route provides access to 2 exits and exceeds 12m in length between the exits it serves it must be sub-divided, for purposes of smoke control, by fire doors in the middle third of the corridor.

12. A door across an escape route must open in the direction of escape.

13. A door which is a revolving door or an automatic sliding door must, in the event of a power failure, be able to be bypassed by an alternative door or break open in the direction of travel. Revolving doors may only be used in buildings containing only residential, business and mercantile occupancies and must not constitute more than half the total required door width for escape purposes.

14. A door shall not open immediately on to a flight of stairs. A level landing, of a length not less than 900mm, must be provided at the top and bottom of every flight of stairs.

15. Every escape stair landing, where there is access from a storey, must be provided with a wheelchair refuge space measuring 700mm x 1200mm which does not obstruct the escape route except on a storey which is not accessible to wheelchair users.

16. In a building which is other than a place of lawful detention, a door across an escape route has to be secured against entry when the building is occupied it must be fitted only with a lock or fastening which is

readily operated, without a key, from the side approached by people making an escape. The door must have a suitable notice, on the inside, explaining the operation of the device. In a building other than a dwelling and where the occupancy exceeds 50 persons any lock or fastening must be capable of being over-ridden when depressed by hand or body pressure by a bar that extends across the inside face of the door.

17. In every building a room, or a corridor, or stair forming part of an escape route, the surface interior finishes including any ceiling must adequately resist the surface spread of flame. The requirements of this regulation will be met by following the guidance contained in Part IV – Fire and Life Safety, National Building Code of India, 2005.

18. In every building other than a dwelling, suitable emergency and escape lighting must be provided in accordance to clause 4.16 of the Part IV – Fire and Life Safety, National Building Code of India, 2005.

19. A room in a building which may be used for the purpose of sleeping must have a direct access to an exit or direct access to an enclosed circulation area having an exit and the route to that exit must not pass through another room.

20. Every building must be provided with suitable access for fire-fighting purposes.

4.3.3 Minimum Requirements for Fire Safety Installations

Adequate fire safety installations as published in the National Building Code of India, 2005, Part IV – Fire and Life Safety shall be provided in all parts of the development in a manner that the Architect on Record deems necessary. These are specified in Appendix E

For developments not exceeding 15 m adequate fire safety installations as specified in Appendix E shall be provided in all parts of the building. For buildings exceeding 15 m all developments which are more than 15.0 m in height shall provide fire prevention and safety provisions as prescribed.

All buildings with a storey at a height of 15.0 m or more must, in addition to complying with other regulations specified in this chapter:

- ❖ Be surrounded on all sides by a minimum of 6m wide open space, free of obstructions and capable of giving access to a fire appliance weighing up to 18 tonnes,
- ❖ Conform to the requirements set out in Annex C - Fire Requirements of High Rise Buildings, National Building Code of India: 2005, Part IV – Fire and Life Safety, and

Industrial Buildings - Large single storey industrial and storage buildings must, in addition to the requirements specified under other regulations contained in this chapter, be fitted with a means of automatically venting smoke and hot gasses in the event of a fire as set out in Annex D - Fire Protection Considerations for Venting in Industrial Buildings of the National Building Code of India, 2005, Part IV – Fire and Life Safety.

4.4 MAINTENANCE AND UPGRADATION

4.4.1 Maintenance of Buildings

4.4.1.1 *Responsibility for Maintenance of Developments*

It shall be the responsibility of the Owner of a development to ensure that the development is kept in good repair, such that its structural stability is not compromised.

4.4.1.2 *Periodic Inspection and Maintenance Certificate*

All developments shall require periodic inspection by a competent authority. The authority shall inspect the development to ascertain and certify that the development's structural stability has not been compromised due to lack of adequate maintenance. It shall be the responsibility of the Owner to submit the certificate to the Competent Authority no later than one month after the date on which inspection is due.

If the certificate is not submitted within the stipulated period, the Competent Authority may post on prominent locations on the development or otherwise advertise a notice to be issued to the owner that the development has not been inspected for adequate maintenance as required by these Regulations and that the development may not be safe for use.

It shall be the responsibility of the Owner to ensure posted notices are not removed until the Maintenance Certificate is submitted and accepted by the Competent Authority. The cost of affixing and removing notices shall be payable by the Owner. If the Maintenance Certificate is not submitted within six months of issue of notice, the Competent Authority shall revoke Development Use Permission for the development.

4.4.2 Maintenance of Lifts and Escalators

4.4.2.1 *Responsibility for Maintenance of Lifts and Escalators*

It shall be the responsibility of the Owner of a development to ensure that lifts and escalators in the development are kept in good repair, such that their use is safe.

4.4.2.2 *Maintenance Protocol*

Maintenance protocol for lifts and escalators shall be as per: IS: 1860 – 1980 Code of Practice for Installation, Operation and Maintenance of Electric Passenger and Goods Lift; IS: 6620 – 1972 Code of Practice for Installation, Operation and Maintenance of Electric Service Lifts; and IS: 4591 – 1968 Code of Practice for Installation and Maintenance of Escalators.

4.4.2.3 *Maintenance of Fire Prevention and Safety Provisions*

It shall be the responsibility of the Owner of a development to ensure that all the fire prevention and safety provisions in a development are kept in good working condition/not violated at all times.

4.5 ENVIRONMENTAL MANAGEMENT

4.5.1 Rain Water Management

4.5.1.1 Rain Water Disposal

The roof (terrace) of a development and the remaining area of the plot shall be provided with an effective rain water drainage system so as to ensure that the rain water is not discharged into adjacent plots. Rain water shall not be discharged onto a street at a height more than 1.0 m from the level of the street.

The manner of channelling rain water discharge from a plot to a public storm water drain, if available, shall be determined by the Competent Authority.

4.5.1.2 Rain Water Harvesting

Rain water harvesting is mandatory for all developments for plot sizes 100 sq. m and above. The system of storm water drainage and storage in reservoirs and recharge should conform to specifications published by the Central Ground Water Authority.

4.6 Distance from Water Course

No development whatsoever, whether by filling or otherwise shall be carried within the no-development buffer (as prescribed in the Master Plan for the applicable area of which the township is a part), along water courses such as kansas, nalas, canals, talavs, lakes, other water-bodies. However pedestrian pathways and bicycle tracks may be permitted by the competent authority.

If a water course passes through a low lying land without any well defined bank, the developer may be permitted re-direct the water courses to an alignment and cross section determined by the competent Authority.

4.7 POLLUTION CONTROL

4.7.1 Air Pollution

All developments shall conform to provisions of Air Pollution Control Act, 1981.

4.7.2 Water Pollution

All developments shall conform to provisions of Water (Prevention and Control of Pollution) Act, 1974.

4.7.3 Noise Pollution

All developments shall maintain ambient air quality standards in respect of noise, as prescribed in the Noise Pollution (Regulation and Control) Rules, 2000.

5 DRAWINGS, SPECIFICATIONS AND DOCUMENTS TO BE SUBMITTED FOR CLEARANCE UNDER TOWN PLANNING & BUILDING PERFORMANCE NORMS

5.1 Copies of documents, drawings and specifications

- a. 4 copies of all plans and statements shall be made available. One copy shall be laminated on both sides
- b. All documents, drawings and specifications to be submitted along with the notice shall be duly signed by the Owner/developer
- c. The Owner and the Architect on Record, the Structural Engineer on Record, and the Construction Engineer on Record shall sign every drawing, document and report as the case may be. If copies of original maps or drawings are submitted, they shall be true copies

5.2 Template for submission of Township Master Plan

The developer shall submit the following layers of information for approval as part of the Detailed Project Report in order to prove conformity to the town planning norms. The drawings shall be prepared in the prescribed format and 3 hard copies and 3 soft copies on CD ROM drive shall be submitted. (NOTE: This is a generic list of information to be submitted on the proposed township. Additional information may be asked for in the Master Plan document for the applicable area in which the township is located).










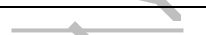


Table 11 List of Maps

No.	Information	Details	Scale (hard copy)
1	Site plan	Base map/survey drawing showing all existing man-made and natural features including topography, drains, water bodies, rivers, buildings, etc	1:2000
2	Land Use Plan	Proposed land use plan showing location of uses by sub-category	1:2000
3	Built up area Density Plan	Proposed density plan showing FSI variation	1:2000
4	Dwelling Unit density plan	Proposed dwelling unit density plan	1:2000
5	Road Network Plan	Proposed road network plan showing arterial, sub-arterial and neighbourhood level roads in the prescribed format	1:2000
6	Network plan for NMV and pedestrians	Proposed network plan for NMV and pedestrians super-imposed on the road network plan	1:2000
7	Building footprint plan	Building footprint plan showing the plot boundaries, set-backs, margins, building lines, etc	1:400
	Landscape and street design Plan	Landscape and street design plan showing drainage pattern of the development, road design, etc	1:400
8	Road sections	Road sections showing typical design of ROW, building heights, etc	1:400

The following color codes and notations shall be used in the land use plan

Table 12 Codes and Notations

No.	Use type	Notation	Color coding
1	Commercial (differing built-typology)	C ₁ , C ₂ , C ₃ ...	

2	Commercial for EWS	C _[EWS]	
3	Residential (differing built-typology)	R _{1, R₂, R₃...}	
4	Residential for EWS	R _[EWS]	
5	Institutional	INS ₁	
6	Basic Social Infrastructure	INS _[S]	
7	Industrial	IND	
8	Arterial Road (24 m and above ROW)	AR	
9	Sub-arterial road (12 m upto 24 m ROW)	SR	
10	Neighborhood level road (7.5 m upto 12 m ROW)	NR	
11	Functional Open Spaces such as parks, gardens, open recreational areas	P	
12	Green areas	G	
13	Water bodies	W	

5.3 List of drawings for Scrutinizing Building Performance and Standards

5.3.1 Key Plan

A key plan shall be drawn to explain the boundary and location of the site with respect to neighbourhood land marks.

5.3.2 Site Plan

The site plan shall be drawn to scale of minimum 1:500 and showing the following details wherever applicable. In case where plot is more than 10 hectares, scale shall be drawn to scale of minimum 1:1000.

- a. Boundaries of the plot and of any contiguous plots belonging to the Owner, positions of the plot in relation to neighbouring streets, street names and direction of north point relative to the plan of buildings;
- b. Plot No. of the plot on which the building is intended to be erected;
- c. All existing buildings standing on, over or under the plot;
- d. The position of the building, and of all other buildings (if any) which of the applicant intends to erect upon his contiguous land referred to in (a) in relation to:
 - i. The boundaries of the plot and in case where the plot has been partitioned, the boundaries of the portion owned by the applicant and also of the portions owned by others;
 - ii. All adjacent streets, buildings (with number of storeys and height) and premises within a distance of 12m of the plot and of the contiguous land, if any, referred to in (a); and;
 - iii. If there is no street within a distance of 12m of the plot, the nearest existing street;

- e. The width of the street, if any, in front and of the street, if any, at the side or rear of building;
- f. The means of access from the street to the buildings, and all other buildings, if any, which the applicant intends to erect upon his contiguous land referred to in (1);
- g. Open spaces to be left around the buildings to secure free circulation of air, admission of light and access for scavenging purposes;
- h. Any physical feature such as trees, wells, drains, O.N.G.C. well & pipeline, high tension .Line, railway line.
- i. Area classified for exemption of built-up area calculations.
- j. Parking layout, indicating the parking spaces;
- k. The lines of drainage of the building, the size, depth and inclination of every drain and the means to be provided for the ventilation of the drains.
- l. The position and level of the out fall of the drain.
- m. The position of sewer, where the drainage is intended to be connected to sewer.
- n. Tree plantation required under these regulations.

5.3.3 Building Plan

A detailed plan showing the plans, sections and elevations of the proposed development work to a scale of 1:100 must be submitted showing the following details as applicable:

- a. All floor plans together with the covered area, size of rooms and the position and width of staircases, ramps and other exit ways, lift wells, lift machine room and lift pit details
- b. The use or occupancy of all parts of the development.
- c. Exact location of essential services, like W.C., sink, bath, kitchen, etc
- d. Section drawings showing clearly the size of the footings, thickness of basement wall, wall construction, sizes and spacing of structural members, floor slabs and roof slabs with their materials. The section shall indicate the heights of building and rooms and also the height of the parapet, and the drainage and the slope of the roof.
- e. All elevations;
- f. Dimensions of the projections beyond the permissible building line;
- g. Terrace plan
- h. Parking spaces provided and the parking layout;
- i. Such other particulars as may be required to explain the proposed development clearly

5.3.4 Building Service Plans

Position and level of sewer, where the drainage is to be connected to municipal sewer

5.3.5 Additional Fire Prevention and Safety Provisions

Additional fire prevention and safety provisions to be provided in buildings eligible for Deemed Development Permission are specified in Appendix D according to different uses and occupancies. Details of these shall be indicated in the drawings as may be deemed necessary by the Architect on Record.

5.3.6 Specifications

The Architect on Record and the Structural Engineer on Record shall sign general specifications of the proposed building giving type and grade of material.

5.3.7 Additional Information

In addition to the above mentioned information, the following additional information is required to be submitted with application for obtaining/revising Development Permission for developments having more than 15.0 m height:

1. Access to fire appliances/ vehicles with details of clear motor able access way around the building and vehicular turning circle.
2. Size (width) of main and alternate staircase along with balcony approach, corridor, and ventilated lobby approach as the case may be.
3. Location and details of lift enclosures.
4. Location and size of fire lift(s).
5. Smoke stops lobby/ door, where provided.
6. Refuse chutes, refuse chamber, service duct etc., where provided.
7. Vehicular parking space.
8. Refuse area, if any.
9. Details of building services, air-conditioning system with position or dampers, mechanical ventilation system, electrical services, boilers, gas pipes etc., where provided.
10. Details of exits including provision of ramps etc. for hospitals.
11. Location of generator, transformer and switch gear room where required.
12. Smoke exhauster system, if any.
13. Details of fire alarm system network.
14. Location of centralized control, connecting all fire air, chute, built-in fire protection arrangements and public address system etc. where provided.

15. Location and dimension of static water storage tank and pump room.
16. Location and details of fixed fire protection installations such as sprinkles wet risers, house reels, drenchers, CO2 installations etc.
17. Location and details of first-aid fire fighting equipment/ installations.
18. Location for electric transformer.

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6 DISCLOSURE NORMS

6.1 Legal Disclosures

The developer shall create a title deed repository, where the title deeds for all land holdings in the project area should be open for viewing by prospective customers. The title deeds will need to be legally vetted before such presentation. The place where the title deeds are kept for inspection should be communicated to all prospective customers.

The developer shall also disclose and provide for inspection on request Letters of Intent from suppliers of trunk infrastructure, other essential service providers and all related permissions to the developer. The reference number and the ledger number of such permission should be communicated by the developer in all his communications.

The developers' memorandum and articles of association should be made available for inspection by prospective buyers on request.

The resolution of the board of directors identifying and authorizing the authorised signatory of the company shall be made available for inspection by prospective buyers on request.

6.2 Transaction Disclosures

The area statement of every piece of property bought should be made available to its buyer. Along with the area statement the buyer should be provided with a map of all properties in the township with the property bought marked in it.

The developer shall clearly communicate the status of sale of properties in the township to each successive buyer. This communication shall be in the form of a map of properties with the properties already sold clearly marked.

Variations in the area offered to be sold while prospecting for customers/ disclosed in the building specifications and actually sold will be confined to the minimum. If there are such variations then causes of such variation shall be disclosed to the buyer;

6.3 Quality Disclosures

The developer shall provide its corporate profile to each buyer, with the following minimum details;

Corporate history

Shareholding profile

Development track record

References of buyers of earlier developments

The developer shall disclose the name of the architect designing the project while prospecting to potential buyers, in its publicity material

The time frame for execution of the project including the phasing of development shall be disclosed to all prospective buyers in the publicity brochures for the project.

The developer shall disclose a comprehensive statement of the physical specification of the finished unit at the time of prospecting for potential customers.

The developer shall disclose the names of the suppliers and sub contractors for the particular project to all buyers, before the agreement is completed.

The developer shall communicate the quality assurance procedures for the project to all prospective buyers before the sale agreement is completed.

The developer shall disclose the type/ class of safety norms that he is going to comply with at the time of prospective for potential buyers.

The developer shall disclose the standards/ policy he has followed for ensuring that the buildings are disaster resistant to the prospective buyers before the sale is completed.

6.4 Financial Disclosures

The total cost of the project and major sources of funds shall be disclosed to the buyers before completion of the sale agreement.

Accounts for the operation maintenance activities after the township is occupied shall be maintained by the developer recording the collections from the residents and the cost of operation and maintenance. These accounts shall be made available to each and every resident of the township.

6.5 Service Disclosures

The service level standards for the following services should be disclosed to all prospective buyers before the sale is completed;

Water supply

Solid waste collection

Road maintenance

Electricity supply

Communication network

If the developer has sub contracted the activity of providing services within the township then the identity of all such sub contractors/ service providers and suppliers shall be disclosed to the prospective buyers before the sale of property is completed

While prospecting for new buyers, the developer shall disclose the complete list of ancillary services and the fees proposed to be charged for them.

6.6 Environmental Disclosures

The environmental quality standards intended to be followed after the township is occupied, for the following components of environment shall be disclosed to all prospective buyers before the sale is completed;

Ambient air quality

Ambient noise levels

The developer shall prepare a comprehensive disaster management plan. Such plan shall be displayed at the township office of the developer and shall be made available to the residents of the township on request.

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APPENDIX A - . LAND USE ZONING IN HAZARD PRONE AREAS – GUIDELINES

1 OBJECTIVES

1.1 The basic objective of land use zoning is to regulate land use in hazard prone areas to minimise the damage caused to the habitat, as a result of natural hazards viz. earthquakes, cyclonic storms and floods which recur from time to time. Land Use Zoning, therefore, aims at determining the locations and the extent of areas likely to be adversely affected by the hazards of different intensities and frequencies, and to develop such areas in a fashion that the loss to the development is reduced to the minimum.

1.2 Land Use Zoning envisages certain restrictions on the indiscriminate development of the "unprotected" hazard prone areas and to specify conditions for safer development by protecting the area from severe losses. In the former case, boundaries of different zones are to be established to prevent unrestricted growth there.

2. SCOPE

2.1 Areas covered under Development Plan

The guidelines for Land Use Zoning in Hazard Prone Areas are to be taken into consideration while formulating the Development Plan and Area Plan under the Town Planning and Urban Development Act.

2.2 Areas not covered under Development Plan

In such areas, these guidelines may be issued to the various local bodies, Municipalities, Individual Areas and Panchayats, enabling them to act while siting various development projects and deciding on construction of buildings, etc.

3. IDENTIFICATION OF HAZARD PRONE AREAS

3.1 Earthquake Prone Areas

a. Intensities of VII or more on Modified Mercalli or MSK intensity scale are considered moderate to high. Areas under seismic zone III, IV and V as specified in IS 1893 are based on intensities VII, VIII, IX or more. Therefore, all areas in these three zones will be considered prone to earthquake hazards.

b. In these zones the areas which have soil conditions including the level of water table favourable to liquefaction or settlements under earthquake vibrations will have greater risk to buildings and structures which will be of special consideration under Land Use Zoning.

c. Under these zones, those hilly areas which are identified to have poor stability conditions and where landslides could be triggered by earthquake or where due to prior saturated conditions, mud flow could be initiated by earthquakes and where avalanches could be triggered by earthquake will be specially risk prone.

d. Whereas, earthquake hazard prone areas defined in 'a' above are identified on the map given in IS 1893 to small scale and more easily identified in the larger scale state wise maps given in the Vulnerability Atlas of India, the special risky areas as defined in 'b' and 'c' above, have to be determined

specifically for the planning area under consideration through special studies to be carried out by geologists and geo-technical engineers.

3.2 Cyclone Prone Areas

a. Areas prone to cyclonic storms are along the sea coast of India where the cyclonic wind velocities of 47 meter per second or more are specified in the Wind Velocity Map given in IS 875 (part 3) to a small scale and easily identified in the Vulnerability Atlas of India where the Maps are drawn state wise to a larger scale.

b. In these cyclone prone areas, those areas which are likely to be subjected to heavy rain induced floods or to flooding by sea-water under the conditions of storm surge, are specially risky due to damage by flood flow and inundation under water.

c. Whereas, areas under 'a' are easily identified, those with special risk as under 'b' have to be identified by special contour survey of the planning area under consideration and study of the past flooding and storm surge history of the area. These studies may have to be carried out through the Survey of India or locally appointed survey teams, and by reference to the Central Water Commission, Government of India and the concerned department of Gujarat State.

3.3 Flood Prone Areas

a. The flood prone areas in river plains (unprotected and protected by bunds) are indicated in the Flood Atlas of India prepared by the Central Water Commission and reproduced on larger scale in the statewide maps in the Vulnerability Atlas of India.

b. Besides the above areas, other areas can be flooded under conditions of heavy intensity rains, inundation in depressions, backflow in drains, inadequate drainage, failure of protection works, etc.

c. Whereas, the flood prone areas under 'a' are identified on the available maps as indicated, the areas under 'b' have to be identified through local contour survey and study of the flood history of the planning area. Such studies may be carried out through Survey of India or local survey teams, and by reference to the Central Water Commission and the concerned department of Gujarat State.

3.3.1 Land Use Zoning for Flood Safety

Some important considerations for regulating the land use in the planning areas are given below:

i. Every settlement needs some open areas such as parks, play-grounds, gardens etc. In one way it will be possible to develop such areas by restricting any building activity in vulnerable areas. Such a development will be in the interest of providing proper environment for the growth of such settlement.

ii. On the same analogy, certain areas on either side of the existing and proposed drains (including rural drains) should be declared as green belts where no building or other activity should be allowed. This will not only facilitate improvements of these drains in future for taking discharges on account of growing urbanisation, but will also help in minimising the damage due to drainage congestion wherever rainfall of higher frequency than designed is experienced. These green belts at suitable locations can also be developed as parks and gardens.

iii. In the existing developed areas, possibilities of protecting/ relocation/exchanging the sites of vital installation like electricity sub-station/power houses, telephone exchange, etc. should be seriously examined, so that these are always safe from possible flood damage. Similarly, the pump station the tube wells meant for drinking water supply should be raised above the high flood levels.

iv. Similarly, possibility of removing or bypassing buildings/structures obstructing existing natural drainage lines should be seriously considered. In any case, with immediate effect unplanned growth can be restricted so that no construction obstructing natural drainage or resulting in increased flood hazard is allowed.

4. APPROACH FOR LAND USE ZONING

Following two alternatives can be adopted for dealing with the disaster risk problems.

a. *Leaving the area unprotected.* In this case it will be necessary to specify Land Use Zoning for various development purposes as recommended under Para 6.

b. Using protection methods for the areas as a whole or in the construction of buildings, structures and infrastructure facilities to cater for the hazard intensities likely in the planning area as recommended under Appendix-B.

It will be appropriate to prioritise buildings, structures and infrastructures in terms of their importance from the point of view of impact of damage on the socio-economic structure of the society. Prioritisation scheme is suggested under Para 5.

5. PRIORITISATION

In regard to Land Use Zoning, different types of buildings and utility services may be grouped under three priorities as indicated below.

Priority 1. Defence installation, industries, public utilities like hospitals, electricity installations, water supply, telephone exchange, aerodromes, railway stations, commercial centres, libraries, other buildings or installations with contents of high economic value.

Priority 2. Public institutions, Government offices, universities and residential areas.

Priority 3. Parks, play grounds, wood lands, gardens

6. REGULATION FOR LAND USE ZONING

i. Installations and Buildings of Priority 1 should be located in such a fashion that the area is above the levels corresponding to a 100 year flood or the maximum observed flood levels whichever higher. Similarly they should also be above the levels corresponding to a 50 year rainfall flooding and the likely submersion due to drainage congestion.

ii. Buildings of Priority 2 should be located outside the 25 year flood or a 10 year rainfall contour, provided that the buildings if constructed between the 10 and 25 year contours should have either high plinth level above 25 year flood mark or constructed on columns or stilts, with ground area left for the unimportant uses.

ii. Activities of Priority 3 viz. play grounds, gardens and parks etc. can be located in areas vulnerable to frequent floods.

APPENDIX B - . PROTECTION OF BUILDINGS STRUCTURES AND INFRASTRUCTURES IN HAZARD PRONE AREAS

A. PROTECTION OF AREAS FROM EARTHQUAKES

i. In those areas where there are no dangers of soil liquefaction or settlements or landslides, all building structures and infrastructures should be designed using the relevant Indian Standards as provided in the Building Regulations and the National Building Code

ii Soils subjected to liquefaction potential under earthquake shaking, can be improved by compaction to desired relative densities, so as to prevent the possibility of liquefaction.

iii. Buildings and structures could be founded on deep bearing piles going to non-liquefiable dense layers.

iv. Steep slopes can be made more stable by terracing and construction of retaining walls and breast walls, and by ensuring good drainage of water so that the saturation of the hill-slope is avoided.

iii. Any other appropriate engineering intervention to save the building structures or infrastructure from the fury of the earthquake.

Note : The protective action given under (ii) to (v) will usually involve large amount of costs and should only be considered in the case of large and costly structures. For ordinary buildings the cost of improvement of the site will usually be uneconomical, hence bad sites should be excluded by Land Use Zoning.

B. PROTECTION FROM CYCLONIC WIND DAMAGE

i. Buildings, structures and infrastructures in the cyclone prone areas should be designed according to the Indian Standards and Guidelines as provided in the Regulations and the National Building Code.

ii. Light utility structures used for electrical transmission and distribution, and towers for communications, chimney stacks of industrial structures require special design considerations against the cyclonic wind pressures, suction and uplifts.

iii. In case the buildings, structures and infrastructures are founded on marine clay deposits it will be advisable to adopt either under-reamed piled foundations, or individual column footing with a reinforced concrete beam located at the level of the ground, or a continuous reinforced concrete strip footing.

iv. Wherever, the top soil could become slushy due to flooding, the top layer of 30 cm depth of soil should not be considered for providing lateral stability

v. In storm surge prone areas, it will be preferable to construct the community structures, like schools, cyclone shelters, etc. by raising the level of the ground protected by provision of retaining walls at sufficient distance away from the building, taken to such depth that no erosion takes place due to receding storm surge. Alternatively, construct the community structures on stilts with no masonry or bracing upto the probable maximum surge level.

C. PROTECTION OF AREAS FROM FLOODS

This may require one or more of the following actions.

- i. Construction of embankments against the water spills from the source of flooding like rivers, large drain etc.
- ii. Construction of high enough embankments/bund around the planning area.
- iii. Raising the planning area above the high flood level.
- iv. Construction/improvement of drainage paths to effectively drain the water from the planning area.
- v. Construction of buildings and structures on deep foundations going below the depth of scour or on stilts with deep enough foundations under water.
- vi. Flood proofing works such as the following:
 - Providing Quick Drainage facility, consisting of
 - Revitalisation of secondary and primary drainage channels after establishing the drainage blockage points;
 - Provision of additional waterways;
 - Clearing of clogged cross drainage works;
 - Providing Human and Animal Shelters for population living within embankments in the form of raised platform or use of available high ground.
- vii Anti-erosion actions in affected areas
- viii. Any other suitable measure.

Note:

1. Similar protection methods could be used against flooding caused in cyclone prone areas by high intensity rains or by the storm surge.
2. The concept of land zoning should be kept in mind for areas where protection works are taken up to decide inter-se priority for location of structures considering possibility of failure of protection works during extreme disaster events.

APPENDIX C - . LIST OF NOXIOUS INDUSTRIES

S.No.	Industrial Group	Noxious Characteristics
[1]	CHEMICAL INDUSTRY :-	
A.	Inorganic Manufacturing Industries :	
1	Acids, sulphuric acid, nitric acid, acetic acid (glacial) picric acid, hydrochloric acid, phosphoric acid, etc.	Fire hazards, offensive fumes and smokes.
2	Alkalis, caustic soda, caustic potash, soda ash etc.	Fire hazards, corrosive substances.
3	Production of mineral salts which involves use of acids.	
4	Carbon disulphide, ultramarine blue, chlorine, hydrogen.	Risk of fire, dust and fumes.
B.	Organic Manufacturing Industries :	
1	Dyes and dyestuff intermediate manufacture.	Washer water is acidic contain quantities of sluge.
2	Synthetic plastic like polyethylene P.V.C. rexin, raisin nylon.	Distillates from reaction vessels, fire risk also.
3	Synthetic rubber.	Liquid effluents with unpleasant smell. Unpleasant smell and dust; fire hazards.
4	Insecticides, fungicides and pesticides.	Risk of fire.
5	Phenoils and related industries based on coal tar distillations.	Fire hazards, unpleasant smell
6	Organic solvents, chlorinated minerals, methanol, methylated spirits.	
7	Manufacture of compressed 'Permanent' liquified and dissolved gases.	Risk of fire.
8	Acetylides pyridines, Iotoform.	
9	B-Nepthol etc.	Risk of fire, smell.
[2]	MISCELLANEOUS :-	
1	Electro-thermal industries such as manufacture of calcium carbide, phosphorous, aluminum dust, paste, powder, copper, zinc etc.	Risk of fire.
[3]	POSITIONS	

S.No.	Industrial Group	Noxious Characteristics
a	Ammonium Sulpho-cyanide, arsenic and its compound, barium acetates, barium bodies, barium carbonate, barium cyanide, barium ethylsulphate, barium acetate, cinnabar copper sulphocyanide, Ferrocyanides, nitrocyanic acid, pottassium cyanide etc.	Contamination if stored on same floor as or on floors above food (fire hazards in any case)
1	Manufacture of cellulosic products :	
2	rayon fibre, waster products, rayophans paper etc. cellulose, nitrate, celluoid articles, scrap & solution.	Risk of fire.
3	Paints, enamels, colours, varnish (other than Litho Varnish) and Varnish remover of all kinds.	
4	Turpentine & turpentine substitutes.	Risk of fire and smell.
5	Matches.	
6	Printin ink.	
7	Industrial alcohol.	
8	Manufacture of newsprint.	Fire hazards.
b	Petroleum Products :	
1	Crude oil refining, processing & cracking, petroleum jelly, neptha cracking, including gas cracking for any purpose.	Unpleasant smell, enormous quantity of contaminated waste, fire hazards.
2	Carbon black manufacture and black of all kinds.	
3	Petroleum coke usage for graphite production.	Inflammable fumes & noise.
4	Lubricating & fuel oils & other oils such as schise oil, shale oil etc.	Fire hazards.
c	Rubber Industry	
1	Reclamation of rubber and production of tyres, rubber solutions containing mineral neptha and rubber waste.	Fire hazards.
d	Heavy Engineering & Forgoing shops:	Noise, vibration & smoke.
1	Using steam & power hammers & heavy metal forgings.	
e	Wood & Wood Products :	
1	Distillation of Wood.	
f	Textiles :	Fire hazards.
1	Oil sheets & waterproof clothing	Wool washing liquors containing certain impurities.
2	Wool spinning.	
3	Clean rags (not including clean textiles cutting only) and grassy rags.	Fire hazards.
4	Flax yarn & other fiber.	Fire hazards.
5	Textile finishing, bleaching and dyeing.	Waste water containing acid etc.
g	Foods :	
1	Vegetable oils.	Noise, unpleasant smell.

S.No.	Industrial Group	Noxious Characteristics
2	Abottories.	Water, water with obnoxious smell.
3	Alcohol distilleries and breweries & potanis spirit.	Oxygen causing unpleasant smell, noise, fire hazards.
4	Suger refining.	Unpleasant smell, fire hazards.
h	Transport :	
1	Manufacture of aircraft, locomotives, tractors etc.	Smoke and noise.

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APPENDIX D - . MINIMUM REQUIREMENTS FOR FIRE SAFETY INSTALLATIONS

ONLY

Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)	
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground	Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq
1)	C-1 Hospitals, Sanatoria and Nursing Homes-Less than 15 m in height with plot area upto 1000 sq.m- Upto ground plus one storey, with no beds													
2)	C-1 Hospitals, Sanatoria and Nursing Homes-Less than 15 m in height with plot area upto 1000 sq.m- Upto ground plus one storey, with beds	R	R	NR	NR	NR	NR	R (see Note 2)	R	NR	NR	2500 (2500) (see Note 4)	NR	NR
3)	C-1 Hospitals, Sanatoria and Nursing Homes-Less than 15 m in height with plot area upto 1000 sq.m- Ground plus two or more storeys, with no beds	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	5000 (5000) (see Note 4)	NR	450 (450) (see Note 4)
4)	C-1 Hospitals, Sanatoria and Nursing Homes-Less than 15 m in height with plot area upto 1000 sq.m- Ground plus two or more storeys, with beds	R	R	NR	R	NR	NR	R (see Note 2)	R	R	50000	5000 (5000) (see Note 4)	(see Note 19)	NR
5)	C-1 Hospitals, Sanatoria and Nursing Homes-Less than 15 m in height with plot area upto 1 000 sq.m- Less than 15 m in height with plot area more than	R	R	NR	R	NR	R	R (see Note 2)	R	R	100000	10000	(see Note 19)	NR

DK

Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)	
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq	
	1000 sq.m													
6)	C-2 Custodial and Penal and C-3 Plental-Less than 10 m in height-Upto 300 persons													
7)	C-2 Custodial and Penal and C-3 Plental-Less than 10 m in height- More than 300 persons	R	R	NR	NR	NR	NR	R (see Note 2)	R	NR	NR	10000 (5000) (see Note 4)	NR	450 (900) (see Note 4)
8)	C-2 Custodial and Penal and C-3 Plental-10 m and above but not exceeding 15 m in height	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	15000 (5 000) (see Note 4)	NR	450 (900) (see Note 4)
9)	D-1 Assembly Buildings (see Note to 12)-Less than 10 m in height- D-5 Upto 300 persons	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	10000 (5000) (see Note 4)	NR	450 (450) (see Note 4)
10)	D-1 Assembly Buildings (see Note to 12)-Less than 10 m in height- D-5 More than 300 persons	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	15000 (5000) (see Note 4)	NR	900
11)	D-1 Assembly Buildings (see Note to 12)-Above 10 m but not D-5 exceeding 15 m in height	R	R	NR	R	NR	NR	R (see Note 2)	R	R	50000	5000 (5000) (see Note 4)	(see Note 20)	450 (450) (see Note 4)
12)	D-6 Multiplex & D-7	R	R	NR	R	NR	R	R (see Note 10)	R	R	200000	20000	(see Note 22)	NR
13)	E-1 Business Buildings-Less than 10 m in height	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	10000 (5000) (see Note 4)	NR	450 (450) (see Note 4)

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Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)	
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq	
14)	Business Buildings-Above 10 m but not exceeding 15 m in height	R	R	NR	R	NR	NR	R (see Note 2)	R	R	50000	5000 (5000) (see Note 4)	(see Note 20)	450 (450) (see Note 4)
15)	Business Buildings-Less than 10 m in height	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	10000 (5000) (see Note 4)	NR	450 (450) (see Note 4)
16)	Business Buildings-Above 10 m but not exceeding 15 m in height	R	R	NR	R	NR	NR	R (see Note 2)	R	R	50000	5000 (5000) (see Note 4)	(see Note 20)	450 (450) (see Note 4)
17)	Mercantile Buildings-Less than 15 m in height -Ground + one storey, with total covered area not more than 500 sq.m	R	R	NR	NR	R	NR	R (see Note 2)	NR	NR	NR	5000 (5000) (see Note 4)	NR	450 (450) (see Note 4)
18)	Mercantile Buildings-Less than 15 m in height -Ground plus one storey and covered area exceeding 500 sq.m	R	R	NR	NR	R	NR	R (see Note 2)	R	NR	NR	25000	NR	900
19)	Mercantile Buildings-Less than 15 m in height -More than ground plus one storey	R	R	R	NR	R	NR	R (see Note 2)	R	NR	NR	5000 (5000) (see Note 4)	NR	"
20)	G-1 Industrial Buildings (see Note 14)-Low Hazard (see Note 15) - Built up area up to 100 sq. m	R	NR	NR	NR	NR	NR	R (see Note 2)	NR	NR	NR	5000 (see Note 3)	NR	450 (see Note 3)
21)	G-1 Industrial Buildings (see Note 14)-Low Hazard (see Note 15) - Built up area more than 100 sq.m and upto 500 sq.m	R	R	NR	NR	R	NR	R (see Note 2)	NR	NR	NR	5000 (5000) (see Note 4)	NR	450
22)	G-1 Industrial Buildings (see Note 14)-Low Hazard (see Note 15) -	R	R	NR	R	R (see Note)	R	R	NR	R	100000	10000	(see Note 20)	450

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Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)		
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq		
	Built up area more than 500 sq.m					7)									
23)	G-2 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area up to 100 sq. m	R	R	NR	NR	NR	NR	R		NR	NR	NR	10000	NR	450
24)	G-2 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area more than 100 sq. m and upto 500 sq.m	R	R	NR	NR	NR	NR	R		NR	NR	NR	10000	NR	900
25)	G-2 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14) - Built up area more than 500 sq.m and upto 1000 sq.m.	R	R	NR	R	R (see Note 7)	R	R		R	R	75000	20000	(see Note 20)	900
26)	G-2 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area more than 1000 sq.m.	R	R	NR	R	R (see Note 7)	R	R		R	R	100000	20000	(see Note 20)	900
27)	G-3 Industrial Buildings (see Note 14)-High Hazard (see Note 16)- Built up area up to 50 sq. m.	R	R	NR	NR	NR	NR	R		NR	NR	NR	5000	NR	450
28)	G-3 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area more than 50 sq. m and upto 150 sq. m.	R	R	NR	NR	NR	NR	R		NR	R	NR	5000	NR	450
29)	G-3 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)- Built up area more than 150 sq.m and upto 300sq.m	R	R	NR	R	NR	NR	R		NR	R	25000	10000	(see Note 19)	450

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Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)	
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq	
30)	G-3 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area more than 300 sq.m and upto 500sq.m	R	R	NR	R	NR	R	R	R	R	50000	20000	(see Note 19)	900
31)	G-3 Industrial Buildings (see Note 14)-Moderate Hazard (see Note 14)-Built up area more than 500 sq. m	R	R	NR	R	R (see Note 7)	R	R	R	R	100000	20000	(see Note 20)	900
32)	Storage Buildings (see Note 17)-Below 15m in height and covered area less than 250sq. m	R	R	NR	NR	NR	NR	R	NR	NR	25000	5000	(see Note 19)	450
33)	Storage Buildings (see Note 17)-Below 15 m in height and covered area more than 250 sq.m -Ground floor only	R	R	NR	R	NR	R	R	NR	R	50000	10000	(see Note 20)	450
34)	Storage Buildings (see Note 17)-Below 15 m in height and covered area more than 250 sq.m -Ground plus one floor	R	R	NR	R	NR	R	R	NR	R	75000	10000	(see Note 20)	450
35)	Storage Buildings (see Note 17)-Below 15 m in height and covered area more than 250 sq.m -More than ground plus one floor	R	R	NR	R	NR	R	R	NR	R	100000	10000	(see Note 20)	450
36)	Hazardous Buildings (see Note 17)-Upto 15 m in height-Single storey building	R	R	NR	NR	NR	R	R	R	R	Minimum 4 h fire-fighting	NR	(see Note 18)	NR

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Sr. No.	Type of Development/ Occupancy	Type of Installation									Water Supply (in l)		Pump Capacity (in l/min)		
		Fire Extinguisher	Hose Reel	Dry Riser (see Note 6)	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually operated Electric Fire Alarm System	Automatic Detection and Alarm System	Underground Static Water Storage Tank	Pump near UG Static Water Storage Tank (Fire Pump) with minimum pressure of 3.5 kg/cm.sq at terrace level	Terrace Tank level with minimum pressure of 2.0 kg/cm.sq		
											requirements				
37)	Hazardous Buildings (see Note 17)-Upto 15 m in height- More than one floor building but not exceeding 15 m	R	R	NR	R	R	R	R		R	R	Minimum 4 h fire-fighting requirements	50000	(see Note 18)	900

R – Required, NR – Not Required

NOTES:

The terms used in this Appendix shall have the same meaning as in the National Building Code of India.

Note 2: Required to be installed in basements, if area of the basement exceeds 200 sq.m.

Note 3: Required to be provided, if area of the basement exceeds 200 sq.m.

Note 4: Additional value given in parenthesis shall be added if basement area exceeds 200 sq.m

Note 6: As per the requirement of Development Authority, Dry Riser may be used in hilly areas, industrial areas or as required

Note 7: Required to be provided for buildings with height over 15.0 m

Note 14: The requirements given in this table for Group G Industrial Buildings are for small scale industry units. For other industries the

requirements will have to be worked out on the basis of relevant Indian Standards and also in consultation with local fire authorities

Note 15: Developments above 18m in height not to be permitted for G-1 and G-2 occupancies

Note 17: Developments above 15m in height not to be permitted for Group H and Group J occupancies

Note 18: Pump capacity should be based on covered area of the building

Note 19: One electric and one diesel pump of capacity 1620 LPM and one electric pump of capacity 180 LPM

Note 20: One electric and one diesel pump of capacity 2280 LPM and one electric pump of capacity 180 LPM

Note 22: Two electric and one diesel pump of capacity 2850 LPM and one electric pump of capacity 180 LPM

APPENDIX E - . SPECIFICATIONS FOR BARRICADING THE PLOT ON WHICH CONSTRUCTION IS UNDERTAKEN

The Construction Engineer on Record and the Owner of the plot shall ensure that plot on which construction is being undertaken is adequately barricaded to reduce nuisance and danger to the neighbourhood and to the abutting streets. Specifications for barricading the plot are listed below:

1. Barricading around the site shall be a minimum of 2.2 m height from the adjoining ground level
2. Barricade fencing shall be installed on all excavations more than 3 feet deep. It is mandatory to have fencing with reflective stripes for night visibility.
3. Development on all sides should be protected by loose cloth material (e.g. gunny sack, canvas or other materials) to prevent construction/demolition debris falling within and outside the plot
4. All mud/dirt spills that create a hazard to traffic movement shall be cleaned as soon as possible as well as barricaded or warning signs posted until cleaned
5. All debris blocking public streets or creating a hazard to traffic shall be barricaded until the debris is removed
6. Appropriate regulatory, warning, guide and agency identification signs shall be installed at appropriate places for the Period of Construction on site.

Failure to comply with these requirements may result in revocation of the Development Permission/ Deemed Development Permission

APPENDIX F - . LIST OF DEVELOPMENT THAT DOES NOT REQUIRE A DEVELOPMENT PERMISSION

Development Permission shall not be required for undertaking the following minor developments:

1. Plastering and patch repairs
2. Construction of non-load bearing false ceilings
3. Flooring and re-flooring
4. Opening and closing windows, ventilators and doors not opening directly onto adjoining plots
5. Replacing and repairing fallen bricks, stones, pillars, beams etc.
6. Construction or repair of weather-shades not more than 75 cm in width within the plot and not projecting onto a public street
7. Construction or repair of parapets
8. Construction or repair of boundary walls
9. Construction out of any work by any authority in exercise of its powers under any law for the time being in force
10. White-washing, painting and coating of building surfaces
11. Construction of internal partitions,
12. Excavation, including excavation of wells made in the ordinary course of an agriculture operation
13. Construction of a road intended to give access to land solely for agriculture purposes

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APPENDIX G - . LIST OF DEVELOPMENT TO WHICH STRUCTURAL AND SEISMIC SAFETY BYELAWS DO NOT APPLY

- 1) Developments as listed in Appendix F
- 2) Nuclear installations controlled by National Legislations
- 3) Small structures ancillary to dwellings used solely for the storage of vehicles, animals, equipment, or materials.
- 4) Agricultural buildings in rural areas used for the storage of vehicles, animals, equipment, feedstock or produce and which are not used for human habitation or places of work.
- 5) A Development into which people cannot or do not normally go except:
 - i. Wall or fence which is greater than 2.2 m high and which is within the equivalent of its height of the boundary or any road, public access way or public right of way, river, stream, canal, common land or public open space.
 - ii. A hoarding/advertising sign and a telecommunication tower.
 - iii. A Development used for the storage of hazardous materials or chemicals.
 - iv. A work of civil engineering construction including a dock, wharf, harbour, pier, quay, sea defence, lighthouse, embankment, river-work, dam, bridge, tunnel, filter station or bed, inland navigation, reservoir, water works, pipe line, sewage treatment works, gas holder or main, electricity supply line and supports.
 - v. A Development essential for the operation of a railway including a locomotive or carriage shed but excluding a signalling and/or control centre.
 - vi. A temporary structure erected on a plot for a period not exceeding 28 consecutive days or 60 days in any period of 12 months
 - vii. A fixture or notice for which there is no requirement provided in these regulations
 - viii. Replacement of a fixture or appliance, in whole or in part, by another of the same general type as it is replacing, including a sanitary appliance or sink (together with any relevant branch soil or waste pipe), rainwater gutter or down take pipe, combustion appliance, electrical fixture, ventilation fan, door or window.