THE KHYBER PAKHTUNKHWA MODEL BUILDING BYE-LAWS 2017

GOVERNMENT OF KHYBER PAKHTUNKHWA
LOCAL GOVERNMENT, ELECTIONS & RURAL DEVELOPMENT
DEPARTMENT

NOTIFICATION

Dated: the Peshawar 24th May, 2017

No. SOG/LG/B-133/Advertisement/2017: In exercise of the powers conferred by section 112 of the Khyber Pakhtunkhwa Local Government Act, 2013 (Khyber Pakhtunkhwa Act No. XXVIII of 2013) and in suppression of previous notification issued in this behalf, the Government of Khyber Pakhtunkhwa is pleased to make and notify Model Building Bye-Laws, 2017 known as **"THE KHYBER PAKHTUNKHWA MODEL BUILDING BYE-LAWS, 2017 (annexed with Notification and be considered as part and parcel of this Notification)"**

Sd/-

SECRETARY TO GOVT: OF KHYBER PAKHTUNKHWA
LOCAL GOVT; ELECTIONS & RURAL DEVELOPMENT
DEPARTMENT

Copy forwarded to the:

1. Additional Chief Secretary, Planning & Development Department.
2. Additional Chief Secretary (FATA), FATA Secretariat.
3. Senior Member, Board of Revenue.
4. All Administrative Secretaries to Government of Khyber Pakhtunkhwa.
5. Advocate General, Khyber Pakhtunkhwa.
6. Principal Secretary to Governor Khyber Pakhtunkhwa.
7. Principal Secretary to Chief Minister Khyber Pakhtunkhwa.
8. All Divisional Commissioners in Khyber Pakhtunkhwa.
9. Registrar, The Peshawar High Court Peshawar.
10. All Deputy Commissioners in Khyber Pakhtunkhwa.
11. PSO to Chief Secretary, Khyber Pakhtunkhwa.
12. Director General, LG&RD.
13. Director General, Peshawar Development Authority.
14. Director General, Galiyat Development Authority.
15. Director Information for publication in the Government Press.
16. Secretary, Local Council Board.
17. All Project Directors, Local Area Authorities in Khyber Pakhtunkhwa.
18. Assistant Director (IT), LG,E&RD Department for uploading on the official website.

P.T.O

19. All Section Officers, LG,E&RD Department.
20. All Assistant Directors (LG&RD) in Khyber Pakhtunkhwa.
21. All Town/Tehsil Municipal Officers, Town/Tehsil Municipal Administrations in Khyber Pakhtunkwha.
22. PS to Senior Minister for LG,E&RD, Khyber Pakhtunkhwa.
23. PS to Secretary, LG,E&RD Department.
24. PS to Special Secretary, LG,E&RD Department.
25. PA to Additional Secretary, LG,E&RD Department.
26. PAs to Deputy Secretaries (Admin/Development), LG,E&RD Department.
27. Office Order File.
28. Manager, Government Stationery & Printing Press Department for publication in the official Gazette.

DEPUTY SECRETARY (ADMIN)
LG,E&RD DEPARTMENT

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CHAPTER I
PRELIMINARY

1.1. Short title extends and commencement

Peshawar, Dated the 24-05-2017

No. SOG/LG/8-133/Advertisement/2017. - In exercise of the power conferred by section 112 of the Khyber Pakhtunkhwa Local Government Act, 2013 (Khyber Pakhtunkhwa Act No. XXVIII of 2013), and in suppression of previous notifications issued in this behalf, the Government of the Khyber Pakhtunkhwa is pleased to make the following bye-laws, namely:

THE KHYBER PAKHTUNKHWA MODEL BUILDING BYE-LAWS,2017.

1. **Short title and commencement.** ---(1) These Bye-laws may be called the Khyber Pakhtunkhwa Model Building Bye-laws,2017.

   (2) These bye-laws shall come into force at once.

1.2. Definitions.

1.2.01. ACT: means Building Bye-laws under Local Government Act 2013

1.2.02. Addition: means the addition of any unit/structure to any building/structure constructed in accordance with these bye-laws.

1.2.03. Alteration: means any change brought about after the approval of building plan without affecting or violating any provision of these bye-laws.

1.2.04. Amalgamation: means the joining of two or more adjoining plots of the same land use into a single plot in accordance with these bye-laws.

1.2.05. Amenity Plot: means a plot allocated exclusively for the purpose of amenity uses, such as Government uses, Health and Welfare uses, Education uses, Assembly uses, Burial grounds, Transportation right-of-way, Parking and Recreational Areas.

1.2.06. Approved: means approved in writing by the Building Control Authority.

1.2.07. Arcade: Covered foot path/verandah for pedestrians in the building, facing a road.

1.2.08. Architect: means a person currently registered as such with PCATP.

1.2.09. Balcony: A stage or platform projecting from the wall of the building surrounded with a railing or parapet wall.

1.2.10. Basement: The lowest portion of building partly (leaving not more than 4 feet above the ground) or wholly below Ground level.

1.2.11. Building Line: Means a line upon which any part of a building from its lowest level, including any and all foundations, or other structure, butting on a public street or a road planned future public street, may extend, provided always the such line is within the property line of such building or cut line as provided in these by-laws of such plots.

1.2.12. Means the Local Area Authority, District Government and Tehsil Municipal Authority notified by the Government of Khyber Pakhtunkhwa.

1.2.13. Bye Laws: The Building Bye-Laws and regulations made by the Authority.

1.2.14. Cardinal Points: The Direction of North, South, East and West.

1.2.15. Commercial Building: Means a building constructed for commercial use on commercial plot.

1.2.16. Completion Plan: Means an as-built plan submitted to the Authority for the purpose of obtaining approval and occupancy certificate.

1.2.17. Compulsory Open Space: Means that part of a plot which is to be left completely open to sky, over which no structure or any integral part of the building shall be permitted except ramp upward/downward, permissible projections, steps, septic tanks, soak pits, water reservoirs and lines for sewage, water, electricity, gas, telephone etc.

1.2.18. Damp Proof Course: Layer of material impervious moisture.

1.2.19. Executive Officer: The Executive Officer of the Authority.

1.2.20. Form: Forms appended to these Bye-Laws.

1.2.21. Foundation: Structure entirely below the level of the ground which carries and distributes the load from pillars, beams or walls on to the ground.

1.2.22. Floor Area: Means horizontal area of floor in a building covered with roof, whether or not enclosed by walls but excluding ancillary covered spaces and projection allowed under these bye-laws.

1.2.23. Foot Print: Means the portion of a plot of land covered, at any level, by a building or part thereof other than basement.

1.2.24. Floor Area Ratio (FAR): Means the total floor area of a building as permissible under these bye-laws divided by the area of the plot, excluding the basement.

1.2.25. Gallery: An open or a covered walk way or a long passage and underground Passage.

1.2.26. Housing Unit: A part or whole of a residential building capable of being used independently for human habitation.

1.2.27. Height of a Building: Means the vertical measurement from the mean level of the road/street adjoining the building to the highest part of the roof.

1.2.28. Kanal: A size of land equal to 20 Marlas or 605Sq Yards.

1.2.29. Marla: A size of land equal to 30.25SqYards or 272.25 Sq feet.

1.2.30. Multi Story Building: Any building above ground plus two or more storey.

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1.2.31. Master Plan: Means a Development plan for an area providing short terms and long terms policy guideline for a systematic and controlled growth in future.

1.2.32. Owner: Means a person or persons holding title to a piece of plot or land/construction thereupon.

1.2.33. Parapet: A wall, whether plain, perforated or paneled, protecting the edge of a Roof, Balcony, Verandah or Terrace.

1.2.34. Pergola: Structures with perforated roof consisting of cross bars in the form of reinforced concrete, wood or steel etc. of which upto 50% of roof is open to sky.

1.2.35. Plinth: Means the height of the finished floor level of the ground floor, measured from the top of the finished surface of the road serving the plot, taken from the centre of the property line of the plot along the road. In case of more than one road serving the plot, the plinth will be measured from the road providing principal access at the higher level. The height of the plinth shall be limited to 4'-6".

1.2.36. Engineer: Means registered with Pakistan Engineering Council (PEC) as Consulting Engineer (Structural Design).

1.2.37. Property Line: For the purposes of bye-laws means that part of plot boundary which separates private property from the public property or a private property from another private property.

1.2.38. Public Building: Means a building designed for public use such as Dispensary, Post Office, Police Station, Town Hall, Library, Recreational Buildings, etc.

1.2.39. Residential Building: Building exclusively designed for use for human habitation together with such houses as are ordinarily ancillary to main building and used in connection therewith.

1.2.40. Residential Zone: Means a zone earmarked for buildings exclusively designed for human habitation and in no case shall include its use in whole or a part thereof for any other purpose e.g. shops, clinics, offices, schools, workshops, store/godown or any other commercial activity.

1.2.41. Registered Geo-Technology Consultant: Means a person's holding registration from Pakistan Engineering Council as a Geo-Technologist.

1.2.42. Registered Structural Engineer: Means a qualified structural engineer registered with Pakistan Engineering Council.

1.2.43. Repair/Renovation: Means repair work to services, painting, white-washing, plastering, flooring, paving, and replacement of roof of corrugated sheets or of T-iron/girders or wooden roof with RCC slab without change in the approved/completion plan.

1.2.44. Septic Tank: Tank in which sewage is collected and decomposed before the discharge into a public sewer or soakage pit.

1.2.45. Soakage Pit: A pit filled with aggregate, boulders or broken brick and intended for the reception of waste water or effluent discharged from a septic tank.

1.2.46. Sun Shade: An outside projection from a building over a minimum height of 7 feet (2.15 meters) from the plinth level meant to provide protection from weather and protruding not more than 3 feet from the building.

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1.2.47. Sub-Division: Means the division of land held under the same ownership into two or more plot.

1.2.48. Sub-Division Plan: Means a layout plan for a proposed sub-division duly approved by the Authority as provided in these byelaws.

1.2.49. Temporary Structure: Means a structure built/constructed purely on temporary basis, wholly within the plot with the approval of the Authority for a specific period of time and which shall be demolished on completion of the project.

1.2.50. Total Floor Area: Means the sum of the floor areas of all the floors of all the buildings on a plot, less exemption as permitted in these bye-laws.

1.2.51. Verandah: A roofed gallery, terrace or other portion of building with at least one side open to courtyard or a permanent open space.

CHAPTER 2

SUBMISSION OF APPLICATION AND PLANS FOR SANCTION

2.01. Every person intending to erect, re-erect, or alter a building shall apply for sanction under Act, on Form-A & B along with necessary documents specified therein.

2.02 The building plan shall be signed by a registered Architect/Structural Engineer duly qualified and enlisted with the PCATP and PEC as per the schedule appended at the end.

2.03 No building shall be erected, modified or amended without the plans being approved by the Authority.

2.04 Any construction without prior permission of the Authority shall be liable to be demolished at the risk and cost of the owner/allottee either completely or partially or the un-authorized construction which shall not be more than 0.5% of the allowable FAR shall be regularized on payment of fine as per the relevant schedule, if it fulfills the bye-laws.

2.05 The minimum panel required for the approval or disproval at the Authority level will have at least the following technical persons:

i. One representative Technical from the TMA
ii. One Architect with valid membership of Pakistan Council of Architects and Town Planners.
iii. One Civil Engineer with valid membership of Pakistan Council or Engineers.

2.1. Plan and Documents:

1. Every notice on Form–A shall be accompanied by ownership documents / proof, duly updated by the concerned revenue authorities, or the in charge of an approved housing colony and a site plan drawn to a scale of not less than 40 feet to an inch. The scale used shall be indicated on the plan which shall clearly show:

a. The direction of north point.

b. The boundaries of the site on which it is proposed to erect, re-erect or add to or alter in the building (s).

c. The position of all adjacent streets, vacant lands and drains.

d. Fixed distance from the center of road(s).

e. The names and width of streets on which the site abuts, together with the numbers, of adjoining houses or premises, if any.

f. The alignment of adjoining buildings.

g. The alignment of drains showing the manner in which the roof / house / surface drainage will be disposed off.

h. Building plan to a scale of not less than 8 feet to an inch. The scale used shall be indicated on the plan which shall include the section elevation and shall show:

I. The external dimension of the building.
II. The ground floor, first floor and upper floors (if any) and the roof.

(3) The thickness and composition of all the beams, and rafter supports.

(4) The position and dimensions of all projections beyond the walls of the building.

(5) The position of all the proposed and existing drains, urinals, privies, fireplaces, kitchens, gutters and down pipes.

(6) The dimensions of all rooms and position of doors, windows and ventilators in each room.

(7) The materials to be used in the foundations, walls, floors and roofs.

(8) The purpose for which it is intended to use the building.

(9) The level and width of the foundation and the ground floor with reference to the level of the center of the street on which the front of the proposed building is to abut.

(10) Boundary wall corners on roadside are rounded off by a 5'-0" arc properly and there shall be no blind corners.

4. Complete soil investigation report in case of multi-story building(s).

5. Any other information or document required by the Authority.

6. New works shall be indicated on the site / building plans in a distinct color code as under: -

Proposed work - RED.

Existing work - BLUE

Demolished work/proposed to be demolished- YELLOW

Unauthorized/deviated work - GREEN

7. Title documents relating to the plot showing his right to erect or re-erect a building.

8. While giving notice on Form A, the applicant shall furnish seven copies of building plans on Ammonia sheet or white paper of A0 size.

9. Two copies of the sanctioned plan duly signed by the Head of the plan approval committee shall be returned to the applicant

10. Authenticated / original copies of all documents relied upon by the applicant shall, when required, be produced for inspection.

11. Return of Defective Plans: Where the plans are unintelligible/ ambiguous or are in contravention of these bye-laws, the Head of the Plan Approval Committee will return such plans to the applicant with reasons in writing until a rectified plan or required documents are re-submitted.

12. Reference to Building Experts: In case of a building other than an ordinary residential building, the Authority may refer the plan to a Building Expert for technical

scrutiny from architectural, town planning and structural point of view on payment of fee to be paid by the applicant as determined by the Authority from time to time. The Authority shall send the plan to building expert and return the same to the owner within one month of its receipt along with technical clearance/comments if any.

13. Notice of Completion and Occupation:

a. Every person who carries out and completes building works sanctioned under these bye-laws shall give notice to the Authority Executive Officer within thirty days of the completion of such works.

b. After receipt of the notice of completion, the Authority Executive Officer shall cause such work to be inspected and after such inspection he may approve or disapprove the building for occupancy or may make such further order as he may deem fit, within 90 days after receipt of application from the owner.

c. No person shall occupy any such building or use any part affected by the erection or re-erection of such building until the permission referred to in these bye-laws has been granted.

14. Submission of Revised Plans: When a person intends to make alterations /additions in the sanctioned building plan, he shall submit a revised plan showing all such alterations / additions for consideration by the Authority provided he shall not proceed with construction till the approval of the such revised plan.

15. Compliance of Permission: Every person who carries out building works shall comply with the direction and conditions specified, in the permission

16. Verification of Building at Different Construction Stages / Floor Levels: Every person who commences any building works shall give notice to the Authority in Form 5 at the important stages of construction i.e. the foundation, plinth and pouring of all roof levels.

17. Cancellation of Permission: If any time after permission to carry out building work has been accorded, the Authority is satisfied that such permission was granted due to any defective title of the applicant, material misrepresentation or fraudulent statement contained in the application therewith in respect of such building, such permission may be cancelled and any work done hereunder shall be deemed to have been done without permission. Any oversight in approved building plans does not entitle the owner to violate the bye-laws.

18. Inspection of Building: The Authority may, without giving previous notice, cause the premises to be inspected at any time before the sanction of a plan under these byelaws, at any time during the construction, within 30 days from the receipt of the notice.

19. Inspection by the Authority Staff: A person appointed on this behalf by the Executive Officer may inspect any building so as to determine whether any action is required to be taken in respect of such building or anything affixed thereof.

20. The Architect and Engineer engaged to prepare the submission drawings will be the same to submit the completion drawings. In case there is a change of Architect or Engineer, the following documents will be required:

i. A certificate will be submitted to the Authorities by the owner from the first Architect/Engineer to indicate the stage where he has completed the supervision.
ii. A certificate will be submitted to the Authorities by the owner that he has made full payment upto that stage to the Architect/Engineer and there is no

outstanding amount due, this certificate will be signed by the Architect/Engineer.

iii. A certificate will be submitted to the Authorities indicating the name of the Architect/Engineer that he has engaged to supervise the remaining portion of the construction.

CHAPTER 3

AMENITY BUILDINGS

3.1 B.H. U& Clinics

Minimum Plot Size
For clinic the minimum space shall be according to the nature of practice
For B.H.U the plot size shall be 1 Kanal

Set Back (Front, Rear, Sides)
Set back from all sides shall be 5'-0"

Foot Print, Plot to Floor Area Ratio and Site Coverage
Foot Print (Max) = 60 %
Floor Area Ratio = 1:2.8

3.2. HOSPITALS

- Minimum Plot Size shall be 4 Kanals
- Set Back (Front, Rear, Sides) = 20 ft. Each
- Foot Print, Plot to Floor Area Ration and Site Coverage
- Foot Print (Max) = 60 %
- Floor Area Ratio = 1:5
- Maximum height of building = 170 ft.

3.3 Colleges and Universities

Minimum Plot Size
Minimum Plot Size shall be 36 Kanals for colleges &Minimum Plot Size shall be 56 Kanals for Universities

Set Back For Colleges and Universities (Front, Rear, Sides)
Front should be 40'-0"
All other sides shall be 20'each

Foot Print, Plot to Floor Area Ration and Site Coverage
Foot Print (Max) shall be 40 %
Floor Area Ratio shall be 1:1.6

Height of each storey
Ground Floor: 9.5 Ft to 12 Ft
1st floor & 2nd floor (if applicable): 10.5 Ft (each) 9.5 Ft (each)
Clear Height of Basement: 9 ft
.

Plinth Level:
Plinth Level subject to contour of Plot as defined is 1.5 ft. to 4.5 ft.

Height of Lawn:
Height of Lawn should not be less than 9 inches from Road Level.

Ramp:

50% of the open area should be reserved for parks and recreational spaces inside hospitals and all other health care buildings

3.4. Schools:

Minimum Plot Size
For Primary Schools the minimum lot size shall be 2 Kanals
For Middle Schools the minimum lot size shall be 4 Kanals
For High Schools the minimum plot size shall be 8 Kanals
For Higher Secondary Schools the minimum plot size shall be 16 kanals

Set Back (Front, Rear, Sides)
The setback shall be 10' each side

Foot Print, Plot to Floor Area Ratio and Site Coverage
Foot Print (Max) = 40 %
Floor Area Ratio = 1:1.6

Height (Internal and External Building Height)
Height B+G+3 for Plot Sizes All types

Height of each floor:
Ground Floor: 9.5 Ft to 12 Ft
1st Floor & 2nd Floor (if applicable): 10.5 Ft (each) 9.5 Ft (each)
Clear Height of Basement: 9 ft.

Playground:
Minimum One playground of sufficient size should be provided in the premises of college / university.

Structure:
Structural Design and Vetting by a qualified structural engineer is compulsory for all types of health care buildings.

Connection to Public Sewer:
Where there is a public sewer all sludge water shall be connected thereof.

Cesspools, Septic Tanks and Soakage Pits:
Where no public sewer is in existence, all sludge water shall be connected to soakage pit; where no public sewer is existing; all wastewater shall be connected through septic tank to soakage pits. Soakage pits shall be so-constructed as to be impervious to liquid either from the out-side or inside; and sited as not to render liable to pollution any spring of water or any well, the water of which is used or likely to be used for drinking or
Septic tanks and drainage mains within boundaries of the plot are so sited as not to render it liable for pollution of any water line. There shall be a minimum distance of one meter between the two, and where this distance is to be reduced due to any unavoidable reason, then the water main be protected by encasing of concrete which Shall be completely impervious to liquid from outside any settlement tank or septic tank shall be of suitable depth and adequate size covered or fenced and if covered, adequately be ventilated and shall be constructed with means of access for the purpose of inspection (Including inspection of the inlet and outlet), emptying and cleaning.

Draining Roofs:
The roofs of every building abutting on the street or constructed over a street shall be drained by means of gutters and down pipes to the satisfaction of Authority Concerned.

W.Cs / Toilets:
Five W.Cs and five urinals per one hundred males, five W.Cs per one hundred females and one wash basin or equivalent washing trough space per twenty patients for ablution purposes shall be provided in a health unit.
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Physically Challenged Persons:
One out of every two Lavatories in Public buildings shall be dedicated for physically challenged persons with grab bars of minimum width of 6 feet.

Manholes and Inspection Chambers:

- At every change of alignment, gradient or diameter of a drain, there shall be a manhole or inspection chamber.
- Bends and junctions in the drains shall be grouped together in manholes as far as possible.
- The spacing of manholes in case of pipe having a diameter of six inches or eight inches shall be Fifty feet or one hundred and ten feet respectively and in case of diameter more than eight inches it shall be not more than one hundred and fifty feet.

Boundary Wall
Boundary Wall from Crown of the Road shall be 6 to 8 ft.

Height of each story
Floor height shall be: 9.5 Ft to 16 Ft
Clear Height of Basement shall be 9 ft.

Plinth Level:
Plinth Level subject to contour of Plot as defined shall be 1.5 ft. to 4.5 ft.

Height of Lawn:
Height of Lawn should be 9 inches from Road Level.

Ramp:
Ramps should have minimum slope of 1:12 for pedestrians and physically challenged persons with holding bars for all Health facilities.

Doors, Windows & Ventilators:
All doors, Windows and Ventilators provided for rooms in the proposed building shall not be less than the following.
All doors should open towards outwards of the buildings.
Minimum sizes: -
For Ventilators – 3 sqft
For Doors – 2’6” X 6’6”
For Windows – 6’-0”.

Elevators:
At least one elevator for a building of G+3 is compulsory and additional one elevator shall be required for every additional two floor. Provision of stretcher/cargo lifts shall also be provided in relation to the requirements of the building;

Parking:

- Sufficient Car parking space shall be provided within the plot area for Faculty Staff and Visitors according to the standards.
- One car space for every 500square ft. of floor area.
- 16% of Parking space shall be reserved for cycles and motorcycles

Incinerators and Germs control:

- An incinerator plant of appropriate size shall be provided in hospital buildings for burning of hazardous wastes.
- Incinerator plants should be installed at a distance from all the public areas in hospitals.
- Chemical grout should be used in tile fixing of hospital buildings.
- All skirting and dado should be flushed with plaster of the hospital to minimize dust, living spaces for germs

  .

Solid waste management:

- Minimum 1 garbage chute each should be provided on each floor for Organic, Inorganic and Hazardous waste separately.
- Minimum 3 trash bin should be provided in open lawns for 2,000 sqft areas for organic, inorganic and Hazardous waste.
- A collection point for all solid waste should be provided in every hospital building for its easy disposal

  .

Open Areas:
50% of the open area should be reserved for parks, recreational spaces and car parking inside hospitals and all other health care buildings.

CHAPTER 4

COMMERCIAL-CUM- RESIDENTIAL BUILDINGS

Compulsory Open Spaces & Allowable covered Areas for Residential and Residential cum commercial Plots

4.1. Set Back (Arcade, Rear, Side)

For Plot Size up to 80 (square yards) to 151 sq. yard or (2.6 Marlas to 5 Marlas)
Arcade no space
Rear 3’
Sides no Space

Plot Size from 152 to 250 (square yards) or. (5.1Marla - 8.3 Marla)
Arcade no space
Rear 5’
Sides no Space

Plot Size from 251 to 400 (square yards) or. (8.3 Marla to 13.2 Marla)
Arcade no space
Rear 7.5 Ft
Sides no Space

Plot Size from 401 to 600 (square yards) or. (13.2 Marla to 20 Marla)
Arcade 8 Ft
Rear: - 7.5 Ft
Sides: - 5 Ft

Plot Size from: 601 to 999 (square yards) i.e. (20 Marla to 33 Marla)
Arcade 8 Ft
Rear: - 8 Ft
Sides: - 5 Ft

Plot Size from: 1000 to 1999 (square yards) or (33 Marla to 66 Marla)
Arcade 8 Ft
Rear: - 10 Ft
Sides: - 7.5 Ft

4.2. Foot Print, Plot to Floor Area Ratio and site coverage

PLOT SIZE: Upto 80 (square yards) or Up to 2.6 Marla

FOOT PRINT:	100%
FAR	1:6

PLOT SIZE: 81 to 250 (square yards) - (2 Marla - 8.3 Marla)

FOOT PRINT:	95%
FAR	1:6

PLOT SIZE: 251 to 400 (square yards) (8.3 Marla to 13.2 Marla)

FOOT PRINT:	90%
FAR	1:6

PLOT SIZE: 401 to 600 (square yards) (13.2 Marla to 20 Marla)

FOOT PRINT:	GF =	85%
	Above GF =	75%
	FAR:	1:6

PLOT SIZE: 601 to 999 (square yards) (20 Marlas to 33 Marlas)

FOOT PRINT:	GF =	80%
	Above GF =	70%
	FAR:	1:6

PLOT SIZE: 1000 to 1999 (square yards) or (33 Marla to 66 Marla)

FOOT PRINT

GF =	70%
Above GF =	65%
FAR:	1:6

Comment: The building bye laws for fixing the min setback at any site of building may vary from area to area as for specific conditions of infrastructure traffic load utilities etc. or any other environmental and social condition to be evaluated and approved by competent authority for amendments of byelaws

4.3 Proportion of site which may be occupied by building

At Centers the total area of the plot shall be covered on ground floor including an arcade of 2.44 meters (8 ft.) and on the subsequent floor subject to conditions that the plot floor area ratio does not exceed 1:2 (one to two).

In case of plot reserved for corner shop or mohallah shop where in daily essential goods namely, green groceries, bread and bakery products, milk and milk products, tobacco sweets and soft drink, frozen food shall be sold wherein any other use with the prior permission of the Planning Authority is allowed to continue the total area of the plot shall be covered on ground floor including an arcade of 2.4 meters width (8 ft.)

.

Building Height

4.4. Height (Internal and External Building Height) and Number of Story

Max Height of Commercial Building:

Height of the commercial building, except where otherwise allowed for area to be specified from time to time, shall not exceed 82 ft. from center of the adjacent road level or 7 story including mezzanine floor whichever is less. The total height including stair tower/machine room for lift may be upto 90 feet from the road level

Plinth level
Commercial Buildings 3 ft. if basement is constructed, otherwise 2 ft.

Arcade
Arcade from Crown of the Road: 1.33ft

Parapet
Parapet Wall: 4 ft.
Height and no of story
Ground Floor: 9.5 Ft
1st floor & 2nd floor 9.5 Ft (each) if applicable

Height of Stair Tower
8'-0"
Height of Basement
9' without obstruction

Shop Ceiling Height
Height of ceiling of each floor shall not be less than 9 feet except mezzanine which shall not exceed 7 ft. from finished floor level
.
Height of Arcade and individual story:

- Width 8 ft.
- Maximum height of arcade floor from adjacent road level 10′-6″.
- Minimum height from floor level 10-6" ft.

Free of stops for entry to the building

Mezzanine
No mezzanine in a commercial building shall be permitted in any room or garages having clear height less than 16 ft. above the plinth level and the total mezzanine in any room shall not exceed one third (1/3) of the total floor area of room. Area of mezzanine in addition to 1/3 may be allowed by DHA with additional development charges to be fixed by Executive Authority from time to time. Maximum height of mezzanine floor will not be more than 7 ft.

4.5. Standards

4.5.1. Parking.

Parking Geometry, space standards

Components	M/Car	M/Cycle
Bay width	8 ft.	2.5 ft.
Bay length	16 ft.	6.0 ft.
Gradient of ramp	1:7.5	1:7.5
Straight turning Radius (outer)	24 ft.	
Helical ramp turning Radius	32 ft.	
Lot turning radius	17.5 ft.	
Minimum ramp: &driveway. Width	18 ft. .	16 ft.
Two-way traffic	11 ft.	
One-way traffic		

4.5.2. Minimum space for parking:

(a) One motor car space for every eight hundred sq. of floor area for retail shopping areas, business offices, hotels, restaurants, conference rooms, indoor recreational areas and retail outlets shall be provided
(b) One motor car space for every one thousand sq. of floor area for apartment or flat site building or residential-“cum”-commercial building shall be provided;
(c) Minimum one out of every fifty car parking stalls shall be dedicated for the special persons at the most convenient location. (Exemption from provision of parking space. In all places of worship and all buildings on plots of odd shapes and dimensions, where there is no physical possibility of designing car parking space within the premises, necessary exemption may be given by the Authority)

4.5.3. Parking space standard

General conditions: The following general conditions shall apply, namely: -
(i) Adequate car parking to be provided for all commercial buildings, residential buildings, residential-“cum”-commercial and high-rise buildings designed on plots above three hundred and ninety-nine square yards and having front more than sixty feet
(ii) The parking space, including ramps, shall be exempted from floor area ratio
(iii) Total parking space requirements of every building shall be determined as a sum of parking requirements for each type of use to which the building is subjected
(iv) Minimum clear height of parking structure without obstruction shall be seven feet six inches;
(v) Detailed plan clearly showing entry, exit, gradient of ramp, turning radius, circulations and movement of vehicles etc. shall be submitted
(vi) Parking may be provided on any floor with ramps or lifts as a means of access
(vii) Electrical or mechanical ventilators to be provided for parking in the basement;
(viii) Multiple basements for parking may be permitted;
(ix) sixteen percent of the total car parking space shall be utilized to provide space for motorcycle parking @ six motorcycle and eight bicycles for every one car;
(x) When units of measurement used in computing the number of parking spaces result in the requirements of a fractional space, the nearest whole number to next higher side of parking spaces shall be taken;

4.5.4. Ramp, Parking and Ventilation

Basement, Ramp, Parking

a. The lower ground floor/basement if used for car parking purposes can be constructed after leaving 4ft (1.22 m) space all around within the plot. This would apply in the case where only one basement is provided with a maximum excavation of 12 ft. (3.66 m). Ramp may be provided in the mandatory open spaces in the basements subject to the condition that it shall not obstruct these spaces on ground level.

b. For the construction of basement beyond 12 ft. (3.66 m) depth from road level, the entire plot area can be covered subject to the provision of RCC piling along all four sides of the plot.

c. The lower ground floor/basement if used for purposes other than car parking shall be constructed after leaving all the mandatory open spaces as required under these Regulations

d. No ramp shall start within 10 ft. clear space from the plot line for entry and exit purpose such ramp should have a minimum slope of 1:7.5with transition slopes minimum 8 ft. long and maximum 1:10 gradient at both ends see Fig 1

e. In the parking basement non-usable areas such as generator room/water tanks/pumping stations/engineering services/transformer may be permitted subject to the condition that the area does not exceed 10% of the particular floor area with proper enclosure.

f. The rooms for security/emergency staff may also be permitted in parking basement which will not create any hindrance in parking.

g. In case of provision of parking in basement, the parking space should be provided for both Motor Bikes and Motor Cars. Parking Basement only for Motor Bikes will not be approved.

4.6. Projections

4.6.1 Commercial Building

Projection from face of Building:

No bay window, porch or any other projection shall be constructed beyond the building line provided that nothing contained in clause 10 (1) shall prevent the projection of

a) A window sill at a distance of not more than 64 mm (2.5 inches) at a height of not less than 750mm (2ft 6 inches) above plinth and
b) A sun shade and / or roof slab extension not projecting more than (3ft) in a building within the compound

4.6.2. Office building

Projection of building into mandatory open spaces: -

Roof slab and /or a sun shade project of 1-meter length shall be permissible on all sides of the office building

4..7 Other Commercial standards

Basement

Basement shall be permitted/ allowed in all the cases provided that:

a) The engineering instructions are given full regard, and that the foundations of the basement do not intrude in the adjoining plot

b) Independent entrance as well as an emergency exit is provided

c) Proper sanitary arrangements are made

d) The drainage passing under the basement is gas tight and

e) The minimum height is not less than 3.1 meters. Where ever basement is permissible, it shall be subject to the fulfillment of the following conditions

a) A basement shall be served with an independent entrance and it shall have an en emergency exit

b) No difficulty should be felt for the proper sanitary arrangement of the basement and it can directly connect to sewer or if this may not be possible pumping arrangement shall be installed.

c) Drainage passing under the basement is gas tight.

d) Minimum area of basement shall be 9.3 sq. meter (100 sq. ft.)

e) The maximum area of each basement shall not exceed 33.20 sq. meters (400 sq. feet) except apartment building.

Shop

Minimum area of shops shall be 100 sq.ft.

No shops shall be provided in basement. Basement in commercial plots exceeding 650 sq. yds. Will be used for car parking only. Fixing of hoarding over any building is prohibited, unless special permission has been authorized by the concerned building authority. Minimum width of shop shall be 8 ft.

Door size, Window size, ventilator size

All doors, windows and ventilators provided for rooms in the proposed building shall not be less than the following minimum sizes: -

- Ventilators – 2 sqft
- Doors – 2′-6″x6′-6″
- Windows – 9Sqft

4.8. Specifications

Shops:

Minimum floor area of shop shall be 100 sq. ft. having minimum floor width of 8 ft.

Arcades

1. The minimum width of arcade in Main Civic and Commercial Centers and Division/District centers shall be10 ft. In case of neighborhood shops/Centre the minimum width of arcade shall not be less than 5 ft. This will also be applicable in all approved private commercial centers.

2. The level between arcade and shopping floor shall not exceed 1 ft. 6 in whereas the level of arcade from the center of road crest shall not exceed 6 inches

3. Arcade to be used as foot path for pedestrians shall be constructed in front of shops throughout and no building obstruction of any kind shall be allowed within arcade.

Ramp and toilet for physically challenged persons
In all commercial buildings, public buildings and apartments a ramp of minimum 6 ft. width and having maximum gradient of 1:12 should be provided.

In case of non-provisions of lifts, each floor should be accessible through this ramp. A toilet for physically challenged persons must also be provided.

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Structure:
Structural Design and Vetting by a qualified structural engineer is compulsory for all types of health care buildings.

Connection to Public Sewer:
Where there is a public sewer all sludge water shall be connected thereof
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Cesspools, Septic Tanks and Soakage Pits:
Where no public sewer is in existence, all sludge water shall be connected to soakage pit; where no public sewer is existing; all wastewater shall be connected through septic tank to soakage pits. Soakage pits shall be so-constructed as to be impervious to liquid either from the out-side or inside; and sited as not to render liable to pollution any spring of water or any well, the water of which is used or likely to be used for drinking or
Septic tanks and drainage mains within boundaries of the plot are so sited as not to render it liable for pollution of any water line. There shall be a minimum distance of one meter between the two, and where this distance is to be reduced due to any unavoidable reason, then the water main be protected by encasing of concrete which Shall be completely impervious to liquid from outside any settlement tank or septic tank shall be of suitable depth and adequate size covered or fenced and if covered, adequately be ventilated and shall be constructed with means of access for the purpose of inspection (Including inspection of the inlet and outlet), emptying and cleaning.

Draining Roofs:
The roofs of every building abutting on the street or constructed over a street shall be drained by means of gutters and down pipes to the satisfaction of Authority Concerned.

W.Cs / Toilets:
Five W.Cs and five urinals per one hundred males, five W.Cs per one hundred females and one wash basin or equivalent washing trough space per twenty patients for ablution purposes shall be provided in a health unit.

Physically Challenged Persons:
One out of every two Lavatories in hospital buildings shall be dedicated for physically challenged persons with grab bars of Minimum Width of 6 feet.

Manholes and Inspection Chambers:

- At every change of alignment, gradient or diameter of a drain, there shall be a manhole or inspection chamber.
- Bends and junctions in the drains shall be grouped together in manholes as far as possible.
- The spacing of manholes in case of pipe having a diameter of six inches or eight inches shall be Fifty feet or one hundred and ten feet respectively and in case of diameter more than eight inches it shall be not more than one hundred and fifty feet.

Boundary Wall:

Boundary Wall from Crown of the Road shall be 6 to 8 ft.

Power Backup System:

An emergency power backup system should be provided in every hospital building.

Fire and Life Safety Preventions Byelaws:

NOTE: - Fire and life safety preventions byelaws will be added for group B and group C from Fire Byelaws

Height (Internal and External Building Height)

Height B+G+5 for Plot Sizes All types

Height of each story

Ground Floor shall be 9.5 Ft to 12 Ft
1st floor & 2nd floor (if applicable): 10.5 Ft (each) 9.5 Ft (each)
Clear Height of Basement: 9 ft.

Ramp:

Ramps should have minimum slope of 1:10 for pedestrians and special persons with holding bars for all Educational Institutes.

Parking:

Sufficient Car parking space shall be provided within the plot area for Faculty Staff and Visitors according to the standards.

- One car space for every 1000 sq ft of floor area.
- 40% of Parking space shall be reserved for cycles and motorcycles

Doors, Windows & Ventilators:

All doors, Windows and Ventilators provided for rooms in the proposed building shall not be less than the following.
All doors should open towards out- side of the buildings.
Minimum sizes: -

- Ventilators – 2sqft
- Doors – 2’6” X 6’6”
- Windows – 6 ft.

Playground:

Playgrounds of sufficient size should be provided in the premises of College / University as per Higher Education Commission Criteria.

Solid waste management:
Minimum 3 trash bins should be provided on each floor of the college / university for Organic, Inorganic and Hazardous waste separately.
Minimum 3 trash bin should be provided in open lawns for 10000 Sqft areas for organic, inorganic and Hazardous waste.
One Big trash bin should be provided in every institute as a collection point and for its easy disposal.

4.18. Vehicle Work Shops

- Maximum allowable covered area is 25% of plot area.
- Height of building should not exceed 30 ft. including parapet walls
- Basement is not permitted.
- Premises will not be used for residential purposes.
- Toilet facilities shall be provided.

Structure:
Structural Design and Vetting by a qualified structural engineer is compulsory for all types of Institutional Buildings.

Connection to Public Sewer:
Where there is a public sewer all sludge water shall be connected thereof.

Cesspools, Septic Tanks and Soakage Pits:

- Where no public sewer is in existence, all sludge water shall be connected to septic tanks; where no public sewer is existing; all wastewater shall be connected through septic tank to soakage pits.
- Septic tanks shall be so-constructed as to be impervious to liquid either from the out-side or inside; and sited as not to render liable to pollution any spring of water or any well, the water of which is used or likely to be used for drinking or domestic purposes subject to minimum distance of six meters.
- Septic tanks and drainage mains within boundaries of the plot are so sited as not to render it liable for pollution of any water line.
- There shall be a minimum distance of one meter between the two, and where this distance is to be reduced due to any unavoidable reason, then the water main be protected by encasing of concrete which Shall be completely impervious to liquid from outside any settlement tank or septic tank shall be of suitable depth and adequate size covered or fenced and if covered, adequately be ventilated and shall be constructed with means of access for the purpose of inspection (Including inspection of the inlet and outlet), emptying and cleaning.

Draining Roofs:
The roofs of every building abutting on the street or constructed over a street shall be drained by means of gutters and down pipes to the satisfaction of Authority Concerned.

W.Cs / Toilets:
Five W.Cs and five urinals per one hundred boys, five W.Cs per one hundred girls and one wash basin or equivalent washing trough space per twenty pupils for ablution purposes shall be provided in a school.

Physically Challenged Persons:
One out of every two Lavatories in Public buildings shall be dedicated for physically challenged persons with grab bars of Min. Width of 6 feet.

Manholes and Inspection Chambers:

- At every change of alignment, gradient or diameter of a drain, there shall be a manhole or inspection chamber.
- Bends and junctions in the drains shall be grouped together in manholes as far as possible.
- The spacing of manholes in case of pipe having a diameter of six inches or eight inches shall be Fifty feet or one hundred and ten feet respectively and in case of dia more than eight inches it shall be not more than one hundred and fifty feet.

Boundary Wall
Boundary Wall from Crown of the Road: 6 to 8 ft.

Parking:
Sufficient Car parking space shall be provided within the plot area for Faculty Staff and Visitors according to the standards.

- One car space for every 2000 Sqft of floor area
- 40% of Parking space shall be reserved for cycles and motorcycles

Doors, Windows & Ventilators:

- All doors, Windows and Ventilators provided for rooms in the proposed building shall not be less than the following.
- All doors should open towards out- side of the buildings.

Minimum sizes: -

- Ventilators – 2 Sqft
- Doors – 2’6” X 6’6”
- Windows – 6 ft.

Playground:
Minimum One playground of sufficient size should be provided in the premises of school.

Solid waste management:
Minimum 3 trash bins should be provided on each floor of the school for organic, inorganic and Hazardous waste separately.

Solid waste management:
Minimum 3 trash bins should be provided on each floor of the school for organic, inorganic and Hazardous waste separately.

Structure:
Structural Design and Vetting by a qualified structural engineer is compulsory for all types of Institutional Buildings.

Connection to Public Sewer:
Where there is a public sewer all sludge water shall be connected thereof.

Cesspools, Septic Tanks and Soakage Pits:

- Where no public sewer is in existence, all sludge water shall be connected to septic tanks; where no public sewer is existing, all wastewater shall be connected through septic tank to soak pits
- Septic tanks shall be so-constructed as to be impervious to liquid either from the out-side or inside; and sited as not to render liable to pollution any spring of water or any well, the water of which is used or likely to be used for drinking or domestic purposes subject to minimum distance of six meters
- Septic tanks and drainage mains within boundaries of the plot be so sited as not to render it liable for pollution of any water line.
- There shall be a minimum distance of one meter between the two, and where this distance is to be reduced due to any unavoidable reason, then the water main be protected by encasing of concrete which shall be completely impervious to liquid from outside Any settlement tank or septic tank shall be of suitable depth and adequate size covered or fenced and if covered, adequately be ventilated and shall be constructed with means of access for the purpose of inspection (including inspection of the inlet and outlet), emptying and cleaning)

Draining Roofs:
The roofs of every building abutting on the street or constructed over a street shall be drained by means of gutters and down pipes to the satisfaction of Authority Concerned.

W.Cs / Toilets:

- Five W.Cs and five urinals per one hundred boys,
- Five W.Cs per one hundred girls.
- One wash basin or equivalent washing trough space per twenty pupils for ablution purposes shall be provided in a school.

Physically Challenged Persons:
One out of every two Lavatories in Public buildings shall be dedicated for physically challenged persons with grab bars of min width of 6 feet.

Manholes and Inspection Chambers:
At every change of alignment, gradient or diameter of a drain, there shall be a manhole or inspection chamber. Bends and junctions in the drains shall be grouped together in manholes as far as possible. The spacing of manholes in case of pipe having a diameter of six inches or eight inches shall be fifty feet or one hundred and ten feet respectively and in case of dia more than eight inches it shall be not more than one hundred and fifty feet.

Boundary Wall

Boundary wall from Crown of the Road: 6 to 8 Ft.

.4.10. Escape in case of Emergency

Means of escape in case of emergency:

1) All means of escape from a building including extra corridors shall permit unobstructed access to a street or to an open space or adjoining building or roof and from where access to the street is obtained.

2) All building shall have windows on the street elevation.

Stairs

Open stairs.

Open stairs in setback (spiral or straight) would be allowed provided:

(a) These fall in the rear setbacks having a width of 10'-0" and above, and in side set back towards road/open space in case of corner plots.

(b) The width of spiral stairs shall not be less than 5'-0" and not more than 6'-0" and in the Straight stairs, not more than 3'-3" and not less than 2'-9" (including railing).

(c) These stairs are provided for servant room located at first floor.

(d) In no case, open stairs in the setback shall be used as main stairs for approach to first floor.

(e) A suitable visual barrier of a height not more than 6’-0” shall be provided in front of servant rooms for the privacy of neighboring houses.

Pitch of stair cases

1. (10 inches)

2) Maximum Height:

There shall not be more than 15 risers between each landing. A landing shall not be less than 1.6 meters (3.5 ft.) in depth except in case of service stair case where the number of risers may be increased depending upon the situation and design.

3) Winders:

Winders may only be permitted in residential building other than apartment houses.

4) All stair cases in apartment houses shall be of R C C or other non-inflammable material.

Lifts: -

At least one lift for a building of G+3 is compulsory and additional one lift shall be required for every additional two floor. Provision of cargo lifts may also be advised by the Authority in relation to the requirements of the building;

Stair cases passages, corridors: -

1) Every building other than apartments, houses up to 3 storey shall have stair cases having a clear width of 1.06 meters (3 ft. 6 inch) and 4 ft. where it exceeds three story:

2) In apartment houses, stair cases shells have the following minimum width for all the story

up to 5 storey----------1.22 meters (4 ft.) clear

Above 5 storey----------1.37meters (4ft 6 inches)

3) Every block of apartment houses having more than 6 units shall be provided with an additional stair case.

4) In a block of apartment houses emergency stair cases shall be provided in addition to main stair case/stair cases

5) An emergency stair-case shall be sited at such a position that it should be accessible to all the units without any hindrance or obstruction.

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Emergency exit: -

1) An exit may be a door way or corridor, passageways to an internal stair case or external stair case or to a verandah or terraces which will have access to the adjoining street.

An exit may also include a horizontal exit leading to an adjoining of the same level but lift and escalators shall not consider as exists.

2) The emergency escape shall conform to the following requirements: -

a) Every building meant for human habitation shall be provided with exit sufficient to permit safe escape of occupants, in case of fire or other emergency

b) In every building exit shall comply with the minimum requirements of this part except the building not assessable for the general public use

c) All exits shall be free from obstructions

d) No building shall be altered so as to reduce the number and provisions of exits to less than that of the requirement as by the approved Architect/ Town Planner.

e) Where necessary, adequate and reliable illumination shall be provided for exits.

f) Exits shall be clearly visible and routes to reach exits clearly marked and sign posted to guide the inhabitants of the concerned

g) Firefighting equipment shall be suitably located and clearly marked

h) Alarm devices shall be installed to ensure prompt evacuation of inhabitants concerned.

i) Fire resisting doors or roller shutters of approved specification shall be provided at appropriate places along the escapes routes to stop the spreading of fire and smoke and particularly at the entrances and stairs where a final effect may be created including upward spread of fire.

It shall also be compulsory for residential buildings envisaging

4.11. Structure

Structures on roofs.

Only the following structures of permanent nature may be constructed on roofs provided these are designed and built as per architecture and engineering design and to the satisfaction of the Authority: -

(a) Chimneys, air conditioning and other ducts, vents and wind catchers.

(b) Water tanks suitably designed or not visible from the road.

(c) Radio and television installations.

(d) Parapet walls of 3 feet high. In case of accessible roof, the provision of railing/parapet wall shall be compulsory.

(e) Stair tower as given in the schedule 'B'.

(f) Lift rooms skylights, etc.

(g) Other structure which the Authority may, by general or specific order, permit.

4.12. Compulsory Open Spaces (COS)

Commercial

i) For plots abutting on public streets at rear, the rear compulsory open space (COS) shall be condoned.

(ii) In case of corner plot, the compulsory open space (COS) on side abutting the lane or road shall be condoned and an arcade shall be provided

(iii) Ramp leading to the parking area upward or downward is allowed only within the compulsory open space (COS);

(iv) Projected balconies maximum three feet wide within the compulsory open space (COS) shall only be allowed at sixteen feet height from the finished floor level. Balconies shall always remain open from three sides;

(v) Projected balconies maximum three feet wide within the compulsory open space (COS) shall only be allowed at sixteen feet height from the finished floor level. Balconies shall always remain; open from three sides

4.13. Drainage & Sanitation

Connection to public sewer

Where there is a public sewer all sludge water shall be connected thereof

.

Cesspools, septic tanks and soak pits

(1) Where no public sewer is in existence, all sludge water shall be connected to septic tanks;

(2) Where no public sewer is existing, all wastewater shall be connected through septic tank to soak pits.

(3) Septic tanks shall be so-

(a) Constructed as to be impervious to liquid either from the out-side or inside; and

(b) sited as not to render liable to pollution any spring of water or any well, the water of which is used or likely to be used for drinking or domestic purposes subject to minimum distance of six meters

(4) Septic tanks and drainage mains within boundaries of the plot are so sited as not to render it liable for pollution of any water line. There shall be a minimum distance of one meter between the two, and where this distance is to be reduced due to any unavoidable reason, then the water main be protected by encasing of concrete which shall be completely impervious to liquid from outside

(5) Any settlement tank or septic tank shall be of suitable depth and adequate size covered or fenced and if covered, adequately is ventilated and shall be constructed with means of access for the purpose of inspection (including inspection of the inlet and outlet), emptying and cleaning

Draining roofs and balconies.

The roofs of every building and the floor of balconies abutting on a street or constructed over a street shall be drained by means of gutters and down pipes to the satisfaction of the Authority.

Soil pipes, water pipes and ventilating pipes

(1) Every soil pipe, water pipe or ventilating pipe shall be of adequate size for its purpose but in no case shall the internal diameter of any soil pipe or waste pipe be less than the internal diameter of any pipe or the outlet of any application which discharges into it.

(2) The internal diameter of a soil pipe shall not be less than-

(a) 50mm, if it exclusively serves one or more urinals;

(b) 75mm, in any other case; and

(c) 32mm in the case of a waste pipe, if it serves a lavatory basin.

(3) Any soil pipe, waste pipe or ventilating pipe shall-

(a) Be composed of suitable materials of adequate strength and durability.

(b) have all joints formed in a manner appropriate to the materials of which the pipe is composed and in such a way that the joints shall remain airtight, not cause electrolytic corrosion due to the association of dissimilar materials, and not form any obstruction in the interior of the pipe.

(c) if it is necessary to have a bend, be so constructed that the bend does not form an acute angle but has the largest practicable radius of curvature and that there is no change in the cross section of the pipe throughout the bend.

(d) be adequately supported through its length without restraining thermal movement, by fitting which gives such support being securely attached to the building.

(e) Be so constructed as to be capable of withstanding as smoke or air test for minimum period of three minutes at a pressure equivalent to a head of not less than 38mm of water.

(f) Be so placed as to be reasonably accessible for maintenance and repair through its length; and

(g) Have such means as are necessary to permit internal cleaning.

(4) Any soil pipe from a soil appliance and any waste pipe from a waste appliance shall have fitted close to such appliance a suitable and readily accessible trap of adequate Diameter, having an adequate water seal and means of access for internal cleaning, provided that this clause shall not apply to-

(a) Any soil pipe serving only soil appliances or any waste pipe serving only a waste appliance if the appliance has an internal trap.

(b) any waste pipe serving a bath or lavatory basin is so fixed in a range that waste pipe discharged into a semi-circular and accessible open channel of glazed stone-ware or other equally suitable materials, formed or fixed in, on or above the floor immediately beneath such baths or lavatory basins and discharging over, or into a suitable trap.

(c) any waste pipe serving a lavatory, basin or shower trays or both are so fixed in a range that each such waste pipe discharges into a common waste pipe which does not exceed five meters in length, is fitted with a suitable trap, and has means of access suitable and adequate for the cleaning of the trap and of the whole length of the trap.

(5) No soil pipe or waste pipe shall be placed outside the external walls of a building so as to cause dampness in that building.

Overflow pipes

An overflow pipe connected to a waste appliance shall either discharge into a waste pipe in such a way as to be disconnected from the drainage system by the trap installed or otherwise so discharged as not to cause dampness in or to any part of any building.

Ventilating pipe.

Every ventilating pipe shall be carried upwards to such a height and so positioned as not to transmit foul air in such a manner as to become prejudiced to health or a nuisance and it shall be fitted at its topmost with a durable cowl or other cover which does not unduly restrict the flow of air

Rain water pipes

Every rain water pipe which is on a building and intended for collecting rainwater shall be-

(a) Of adequate size for its purpose;

(b) composed of suitable materials of adequate strength and durability;

(c) Adequately supported through its length without restraining thermal movement and fitting, which gives such support being attached to the building;

(d) So arranged as not to cause dampness in, or damage to, any part of a building;

(e) Jointed in a manner appropriate to the material or materials of which it is composed so as to remain watertight; and

(f) Fitted with an adequate outlet or outlets so placed as to drain the whole length of the pipe.

Inlet to drains. -

Any inlet to a drain, other than a junction between the drain and a soil pipe, a waste pipe or a ventilating pipe, shall be effectively trapped by means of a suitable trap having a seal not less than fifty mm in depth.

Trenches for drains and private sewers

(1) Where any drain or sewer is constructed adjacent to a load bearing part of a building, such precaution shall be taken as may be necessary to ensure that the trench in which the drain of private sewer is laid in no way impairs the stability of the building.

(2) Except where the nature of the ground makes it unnecessary, where any drain or private sewer is adjacent to a wall and the bottom of the trench is lower than the foundation of the wall, the trench shall be filled in with concrete to a level which is not lower than the bottom of the foundation of the wall by more than the distance from that foundation to the near side of the trench less than one hundred and fifty millimeters provided that where the trench is within one meter of the foundation of the wall. The trench shall be filled in with concrete to the level of the underside of the foundation.

Sanitary provisions

Shops and Stalls

Communal sanitary facilities shall be provided at the discretion of the Authority for shops and stalls having a floor area of less than 37m2. The shops and stalls having a floor area of more than 37m2 shall have a minimum of one W.C or latrine and one draw off tap at the premises.

Refuse chutes (waste waterfalls)

All buildings which are three storeyed and above shall be provided with compatible refuse chutes and shall conform to the following minimum requirements

(a) The number of refuse chutes for a building shall be in compatibility with the refuse load generated by a building;

(b) The chutes shall be vertical for the whole length and shall be constructed with a smooth finished impervious inner surface and shall-

(i) Have an internal diameter of not less than thirty-eight mm;

(ii) Be adequately ventilated at the top and shall be provided with suitable arrangement for flushing with water for the full length of the chute;

(iii) Discharge into a suitable movable receptacle of a compatible size and pattern;

(iv) Be 1.2 meter above the roof and shall be covered with a ventilating sky light;

(v) Be fitted with a self-closing hopper light fitting plank or hopper constructed of inflammable materials; and

(vi) Be enclosed with walls of masonry of not less than two hours' fire resistance.

(c) Refuse receptacles shall be housed in a chamber which shall-

(i) Be provided with concrete curbs for the refuse receptacles to stand on;

(ii) Be adequately fly and vermin proofed;

(iii) Be connected to and drained by a foul water drain; (v) be lined throughout with glazed tiles.

(iv) Open to the external air.

Chimneys and flues

Wherever deemed required, a compatible sized chimney shall be included in a building with construction of non-combustion materials of such a nature, quality and thickness as not to be unduly affected by heat condensation or the products of combustion.

Manholes and inspection chambers

At every change of alignment, gradient or diameter of a drain, there shall be a manhole or inspection chamber. Bends and junctions in the drains shall be grouped together in manholes as far as possible. The spacing of manholes in case of pipe having a diameter of six inches or eight inches shall be fifty feet or one hundred and ten feet respectively and in case of dia more than eight inches it shall be not more than one hundred and fifty feet.

Walls and floors of latrines, W.Cs and bathrooms

All walls of W.Cs and bathrooms shall be furnished in cement mortar or other impervious materials to a minimum height of 1.3m. All floors to W.Cs and bathrooms shall be paved in concrete with cement or other approved material rendering it impervious and laid in the case of bathrooms with proper falls to an approved outlet.

4.14. Dangerous Buildings

For the purposes of this chapter all such buildings, walls or structures which are declared by the Authority as dangerous shall lie in the following two categories, namely:-

(a) building or structure whose strength, stability, serviceability, robustness or durability has been impaired due to any reason such as improper structural design and detailing, faulty or poor construction, decay, dilapidation, obsolescence, natural disasters or leading to abandonment due to all these reasons to a level, where it cannot be restored to its original status shall be classified as dangerous building category-1 by the authorized structural engineer of the Authority or a structural engineer as appointed by the Authority for said purpose and shall liable to be demolished; and

(b) Any building or structure or part thereof whose strength, stability, robustness, serviceability or durability has been impaired due to all such reasons as cited in clause (a) to a level where it could by way of strengthening, appraisal and restoration be brought partially or wholly near to its original status shall be classified as dangerous building category-2 by the authorized structural engineer of the Authority, or as appointed by the Authority, for the said purpose and shall be governed by bye-law 46. of the byelaws.

4.14.1. Buildings unfit for human habitation and notice of prohibition:

If for any reason it shall appear to the building regulatory authority that any building or part thereof intended or used for human habitation or human occupation for any purpose whatsoever is unfit for such use, it shall signify its intention to prohibit the further use of such building or part of a building and call upon the owner or occupiers or tenants to state in writing their objections, if any, to such prohibition within fifteen days after the receipt of such notice. If no objection is raised by such owner or occupier or tenant within the prescribed period or if any objection which is raised appears to the Authority to be invalid or insufficient the Authority may prohibit by an order in writing the further use of such building or part thereof. The owner, occupier or tenant of the building shall be given an opportunity of appearing before the Authority in person or by an agent in support of the objection, if so desired.

4.14.2. Alteration, modification, uplifts and repairs of dangerous buildings of category-2

(1).At any time if the Authority considers that it can be rendered fit for human habitation by the structural alterations, repairs, modifications or uplifts, the Authority may by notice in writing call upon the owner to commence the specified works within such time as may be specified but not less than thirty days and to complete within the period as specified in the than ninety days from the date of receipt of such notice, such notice but not more structural alterations, modifications, uplifts or repairs as deemed necessary and if at the expiration of the aforesaid period such alterations, modification, uplifts or repairs have not been commenced or completed to the satisfaction of the Authority, it shall issue to the said owner a notice in writing ordering the demolition of the subject building within thirty days from the date of receipt of such notice.

(2) If the Authority considers it impracticable to render such building or part thereof fit for human habitation, the authority may send a notice in writing call upon the owner to demolish it in a period specified by the authority.

4.14.3. Demolition of dangerous building on expiration of notice period.

(1) If at the expiration of the period specified in the notice and order to demolish a building or part of a building issued under sub-bye-law(2) of bye-law-4.14.2 has not been complied with, the Authority may direct, by an order in writing, the demolition thereof through a contractor who has on his roll at least one Authority qualified engineers responsible for undertaking all necessary safety measures during the process of demolition as per procedure laid down by the Authority.
(2) All expenses incurred by the Authority under sub-bye law (1) shall be paid by the owner of the building.

4.14.4. Extension of period for repairable building

For sufficient causes, the Authority may extend the time prescribed.

4.14.5. Evacuation of dangerous buildings. -

(1) If in the opinion of the Authority, any building wall or structure or anything affixed thereto is in a hazardous or dangerous state, the Authority may, by notice in writing, require the owner or occupier thereof either to remove the same or to cause such
(2) Repairs to be made thereto forthwith as the Authority may deem fit to avert such danger, including the evacuation without notice from such building of all the occupiers thereof.
(3) Any expense incurred by the Authority under sub-bye-law (1) shall be paid by the owner of the building.

4.15. Temporary works in connection to buildings Safety and security measures

4.6.1 Site hoardings

No person shall start building works on a site abutting on a street without having first provided hoarding or barriers to the satisfaction of the Authority along the whole length of such site so as to prevent danger or injury to the public or to the persons employed in the work; provided however that this Regulation does not apply in the case of building works in connection with structures situated at least 15ft. (4.5m) away from a public street and being not more than 25ft. (7.5m) in height.

4.6.2 Use of public streets

No part of any street shall be used in connection with the construction, repair or demolition of any building except with the written permission of the Concerned Authority. Any person holding such permission shall put up and maintain to the satisfaction of the Concerned Authority, fences or barriers in order to separate the building work from such street. Where such separation is not possible he shall make arrangement for the security of public to the satisfaction of the Concerned Authority.

4.6.3 Obstruction to be lit-marked

a. Any person causing any building material or other things to be deposited, any excavation to be made, or any hoarding to be erected shall at his own expense cause sufficient and adequate red lights to be fixed upon or near the same and shall continue such lights every night from sunset to sunrise while such materials, hoardings, things or excavation remain. In addition to above, red flags of reflective material shall be provided during all times.

b. Any excavation is to be sufficiently fenced to a height of at-least 4ft. (1.21m) until it is filled up.

4.6.4 Utility services not to be obstructed

All material, hoarding, fences or other obstructions on any street shall be kept clear of any fire hydrants if any, and, other utility service installations, or alternative arrangements shall be made and precautions shall be taken according to the laid down procedure of the utility agencies and to the satisfaction of the Concerned Authority to divert or keep clear of obstruction of any roadside or other drain during the period of temporary obstruction.

4.6.5 Removal of obstruction after completion of works

All obstructions shall be removed within seven (7) days of the completion of the work and the street and all drains and public utility installations shall be left in clean, tidy and in serviceable conditions.

4.6.6 Dangerous obstruction

If any material, hoarding, excavation or any other thing near or on any street, shall be, in the opinion of the Concerned Authority, dangerous to the passers-by along such street, the Concerned Authority shall cause the same to be removed, protected or enclosed so as to prevent danger wherefrom and shall be entitled to recover the expenses thereof from the owner of such materials or from the person who made such hoarding, excavation or other thing to become dangerous.

4.6.7 Stability of the adjacent building

No excavation or dewatering or earthwork or demolition of a building which is likely to effect the stability of adjacent building shall be started or continued unless adequate steps are taken before and during the work to prevent the collapse/damage of any adjacent building or the fall of any part of it and in case of any mishaps the owner shall be responsible for life and property of the effected.

4.6.8 Filling of excavated site

A site once excavated shall not be kept open and idle for a period beyond the validity period of building plan, failing which the Authority shall not revalidate the building plans and shall inform the Concerned Authority for further appropriate remedial measures and in case of any mishaps the owner shall be responsible for life and property of the effected.

4.6.9 Adequate safety measures

a. Adequate safety measures shall, where necessary, be provided and used to protect any persons from falling on earth rock or other material of or adjacent to any excavation or earth work.

b. Material shall not be placed or stocked near the edge of any excavation so as to endanger persons working below.

c. No load shall be placed or moved near the edge of any excavation, where it is likely to cause a collapse of the side of the excavation and/or endanger any person.

d. Where vehicles or machines are used close to any excavation there shall be measures to prevent the vehicles or machines from over- running and falling into the excavation or causing collapse of any side of the excavation.

e. In all buildings of greater than 20ft.(6m) height, temporary rails/ scaffolding/barriers shall be installed during construction at the edge of slabs and around all openings such as lift, stairwell, etc

4.6.10 Supervision of demolition work

The demolition of a building and the operations incidental thereto shall only be carried out under the direct supervision of a Professional.

4.6.11 Safe loading

No roof, floor or other part of the building shall be so overloaded during demolition and construction with debris or materials as to render it unsafe.

4.6.12 Work on slopping roofs

a. Where work is to be done on the sloping surface of a roof, suitable precautions shall be taken to prevent persons employed from falling off.
b. Suitable and sufficient ladders or boards, which shall be securely supported, shall be provided and used to avoid concentration of loads leading to unsafe conditions.
c. Where persons are employed in a position below the edge of a sloping roof, and where they are in position of being endangered by work done on the roof, suitable precautions shall be taken to prevent tools or materials falling from such roofs so as to endanger such persons or passers-by.

4.6.13 Precautions for raising and lowering loads

For raising or lowering loads or for suspending them by either hand or power operation the following precautions shall be observed: -

a. No damaged wire/rope shall be used.
b. No chain or wire rope shall be used which has been joined by temporary means in any part which is under direct tension.
c. All debris and waste material during construction shall be disposed of through well designed chutes from each level of under construction building of height over G+2 floors or more.
d. The vertical hoist platform used shall be enclosed/protected by proper barrier. Every opening of lift, shaft or other such vertical voids or openings in slab etc. where a person is likely to fall shall be protected by safety barrier and properly lit. Any area e.g. basement, where natural light is not available or which is dark shall be so illuminated as to eliminate any risk of life or hazard to users.

4.16. Building Structure Design and Construction Requirements

Loads and design. - Structure analysis, design, detailing and loading shall be in accordance with the requirements of the current uniform building code (UBC), the American code or British relevant code as deemed fit by the Regulatory authority.

4.16.1. Seismic design

Seismic specifications shall be in accordance with the relevant seismic building code 2007 of Pakistan.

4.16.1.1. Sub-soil investigation

In view of the structural design in Seismic hazard zone, type of Sub-Soil for foundation should be thoroughly ascertained by geo-technical investigation under the direct supervision of qualified and experienced geo-technical engineers The Soil Report should correlate the sub-soil type with UBC- 97 (or current) Sub-Soil list.

4.16.1.2. Wind load

Wind load should be based on the highest velocity and gust factors data from local Meteorological Department.

4.16.1.3. Erection on reclaimed site

a. No building foundation shall be erected upon a site reclaimed by Town sweepings or other refuse, without proper Geo-technical survey and Structural design.
b. No building plans shall be approved on open nallahs, water courses, public sewers and the like.

4.16.1.4. Protection of existing services

During the excavation in connection with a building works or services, adequate precautions shall be taken to secure and protect the existing services. The concerned authorities should be informed and the protection, repair or replacement shall be at the cost of the owner/allottee

4.16.1.5. Foundation near drains

Where a building is to be erected adjacent to existing buildings, or near a drain/nallah, or an excavation at a distance less than depth of the said drain/nallah or excavation, or such as to affect the stability of drains/nallah, the owner, through a Structural Engineer, shall satisfy the Authority that the foundations of the building have been carried down to a level safe guarding its stability.

4.16.1.6. Building Structure Design

The building structure design will be carried out by a Structural Engineer duly licensed by the Pakistan Engineering Council and have a valid license for the year. The structural engineer will ensure that the design meets the seismic codes defined in the Pakistan building Codes.

4.16.1.7. Specifications

Specifications of Material Quality Control and workmanship will be of high quality and in accordance with the requirements of ACI Building Codes, Uniform Building Code (UBC) and ASTM Standards.

4.16.1.8. Testing of materials

Regular testing will be carried out of materials such as Aggregates, Cement, Concrete and Reinforcing Steel and all Architectural materials the Quality Control and Quality Assurance Criteria laid down in standards of FIDIC, ASTM, OR ACI/UBC and Project Specifications. The Quality Assurance specified by the Architect/Engineer may also be followed, provided they are superior to those mentioned above.

4.16.1.9. Supervision

Construction supervision and quality assurance will be carried out by full time/top supervision by the designer/supervising engineers/architects /inspectors etc. as required in these Regulations. Contractor/ Builder's/Developers full time supervisory staff for the category of buildings in these Regulations shall carry out supervision and quality control.

4.17 Lighting and ventilation

4.17.1. Size of external openings

a. Every room, other than rooms used predominantly for the storage of goods, shall be provided with natural light and natural ventilation by means of one or more openings in external walls. These openings shall have a combined area of not less than 10% for habitable rooms and 7.5% for other rooms of the floor space of such opening, and the whole of such openings shall be capable of allowing free and uninterrupted passage of air.

b. Area for openings in case of warehouse, godown, storage places etc. shall not be less than 5% of the floor space unless the space is mechanically ventilated.

4.17.2. Size of internal openings

Unless the light and ventilation requirements are met by an air well or ventilation duct, all internal habitable rooms must have openings in internal air wells in addition to door openings not less than 7.5% of the floor area of such room. Access for maintenance of shaft shall be provided at level for where the shaft commences.

4.17.3. Internal air wells

4.17.3.1. Habitable rooms may receive daylight and natural ventilation from internal air wells which shall conform to the following minimum sizes: -

a. For buildings up to 2 storey, 50Sq.ft. (4. 6Sq.m) with minimum width of well 5ft. (1.5m).
b. For buildings with 3 to 5 storey, 100Sq.ft. (9. 3Sq.m) with minimum width of well 8ft. (2.44m).
c. For buildings higher than 5 storey, 100Sq.ft. (9. 3Sq.m) plus 10Sq.ft. (0. 93Sq.m) for each additional floor over 5 storey and minimum width of well 10ft. (3.0m).

4.17.3.2. Where only kitchens, W.C.'s and bathrooms receive daylight and ventilation from air-wells, their sizes shall conform with the following as minimum: -

a. For buildings up to 2 storey, 25Sq.ft. (2. 3Sq.m) with minimum width of well 3ft.(0.9m).
b. For buildings with 3 to 5 storey, 50Sq.ft.(4. 6Sq.m) with minimum width of well 5ft.(1.5m).
c. For buildings higher than 5 storey, 50Sq.ft.(4. 64Sq.m) plus 5Sq.ft. (0. 46Sq.m) for each additional floor with minimum width of well 5ft.(1.5m).

4.17.3.3. Access for maintenance of each such shaft shall be provided at lowest level of the shaft.

4.17.4. Permanent openings in kitchen

Every kitchen shall have openings for permanent ventilation into the external air space not less than 15% of its floor area.

4.17.5. Water closet, bathroom and ablution places

Every water closet, urinal stall, and bath room and ablution area shall be provided with natural lighting and ventilation by means of one or more openings in external walls having a combined area of not less than 2Sq.ft.(0.2sq.m) per water closet, urinal or bathroom except where adequate and permanent mechanical ventilation is provided and which discharges into an open space.

4.17.6. Garages

Every garage shall be provided with opening of not less than 5% of the floor area for ventilation and lighting incorporated in a wall or in the door.

4.17.7. Staircases

All staircases which are enclosed shall be provided with adequate lighting and ventilation from openings not less than 7.5% of the staircase area.

4.17.8. Mechanical ventilation and central air-conditioning waiver & minimum requirement.

a. Where undertaking for central air-conditioning and permanent mechanical ventilation is provided, the relevant clauses of these Regulations dealing with natural ventilation, lighting and heights of rooms may be waived.
b. Where permanent mechanical ventilation in respect of lavatories, water closets, bath rooms or corridors has been provided for and maintained in accordance with the following clauses, conditions relating to natural ventilation and natural lighting under these Regulations shall not apply to such lavatories, water-closets, bathrooms or corridors.
c. Basement or underground car parks and other enclosures below ground level shall be provided with mechanical ventilation.
d. Cinemas or other projection rooms where photographic film is being used, processed or stored; which are situated in the internal portion of the building; and in respect of which no such external walls (or those overlooking verandahs, pavements or walkways) are present, shall be provided with mechanical ventilation or air conditioning.
e. In case of mechanical ventilation and central air conditioning for all types of buildings and spaces HVAC relevant code of practice as may be approved by the Authority shall be followed.

4.19. Installation of antenna Tower

Certification regarding protection against lightening and proper earthing as applicable besides following documents to be submitted by the applicant to the Authority along with request for installation of antenna tower: -

(1) Foundation design for tower to ensure safety of structure/tower.

(2) Undertaking of architect/structural engineer that design is safe and he/she will supervise the installation of tower.

(3) Detail of equipment to be installed.

(4) A drawing of front view of tower showing height of tower (Maximum permissible height is above roof top).

(5) NOC from all occupants (subleases/tenants) and builders shall be attached.

(6) A proposed agreement, between cellular company installing the tower and owner.

Undertaking for following should also be submitted:

(1) No construction work except tower is allowed on roof top, provided it is approved by a qualified structural engineer duly certified by PEC..

(2) Generator, if fixed for backup support, should be placed in shop on ground floor or basement, with proper canopy for sound proofing and shocks for minimizing vibration.

(3) Maintenance staff should be issued with proper cards to ensure security of building.

(4) Building light shall be fixed on top of the tower.

Permission will be valid for one year, which may be renewed every year with prescribed fee.

CHAPTER 5

Industrial and Industrial Zones in Established Build up Schemes

5.1. Planning and Zoning

i. Availability of sufficient land for establishing industrial estate.
ii. Industrial estate shall be located away from the city/residential area.
iii. Ease and accessibility to industrial estate from the main artery roads.
iv. Industrial zoning to be carried out as per compatibility/nature of Industries with one another.
v. Provision of appropriate and independent space for labor colonies away from pollution areas.
vi. Provision of parks and green spaces in the industrial estate and labor colonies at a safe distance.
vii. Provision of Civic amenities in the industrial estate and labor colonies.
viii. Creating buffer zones and green belts between the industrial estate and other settlements.
ix. It is mandatory to establish the Industrial estate on barren and non-cultivatable land.
x. Involvement of Technical professionals/firms and other concerned stake holders in the planning, Zoning and Designing of Industrial Estate.
xi. Mandatory sewerage treatment plant and safe disposal of the effluents free from all sorts of hazardous materials.

5.2. Building Bye Laws & Standards

5.2.1. Building Set backs

Plot Size	**No of Storey**	**Front (Ft)**	**Side (Ft)**	**Rear (Ft)**
1 Kanal		15	05	05
2 Kanals		20	10	10
3 to 4 Kanals	Single Double Multi	25 30 35	10 15 15	15 20 25
1 to 3 Acres	Single Double Multi	60 65 65	20 20 20	20 30 30
4 Acres and above	Single Double Multi	80 80 80	25 25 25	30 30 30

5.2.2. Building Foot Print/ Plot to Floor Area

Plot Size	Max. Covered Area (%)
1 Kanal	60
2 Kanals	60
3 to 4 Kanals	60
1 to 3 Acres	60
4 Acres and above	60

5.2.3. Height of The building

Minimum height for each story shall be 12 ft.

5.3. Plinth Level

Top of the plinth of the building shall not be less than 12 inches from the road level from the road level.

5.4 Parapet

Parapet where applicable may be up to 3 ft. height from the roof level
.

5.5 Basement.

i. Minimum clear height to be maintained at 11 ft.
ii. Provision of adequate natural light and ventilation
iii. Provision of Emergency exits at multiple points
iv. Installation of firefighting apparatus

5.6 Stairs

i. Minimum stairs width to be maintained at 4 ft.
ii. Maximum riser to be maintained at 7.0 inches
iii. Minimum tread width to be maintained at 11 inches
iv. Stairs surface to be of non-skid finish
v. Provision of continuous handrail along the stairs.
vi. Convenient location of access of the stairs within the building.
vii. Provision of adequate natural light and ventilation in the stairs.

5.7. Environmental Aspects

5.7.1. Prevention of Air Pollution

I. Plantation of trees and vegetation to be ensured in the industrial areas as per emissions/ carbon footprints.
II. Creation of green belts & buffer zones within the industrial estates
III. Control of stack emissions by incorporating end- of- pipe technology.
IV. EPA rules to be followed regarding environmental emission.

5.8. On-Site Industrial Waste Water Treatment Plant

i. Industrial waste water treatment must be provided in order to prevent water pollution, as per the EPA rules.

5.9. Solid Waste Disposal and Management

ii. Solid waste management facility to be provided, as per EPA rules.

5.10. Noise Pollution and Control

I. Adequate zoning and bifurcation from quite zones.
II. Plantation of trees and vegetation to minimize noise pollution.
III. Adaptation of preventive measures to maintain noise level as per standard guidelines of World Health Organization and the EPA.

5.11. Health and Safety

i. Provision of First- Aid facility within each industry under the supervision of qualified health personnel
ii. Training of labor and employees on Health& Safety.
iii. Provision of necessary Health & Safety equipment to labor and workers.
iv. Installation of warning signage where necessary.
v. Provision of emergency exists / escapes routes at appropriate points.
vi. Adequate system for disposal of hazardous waste, as per EPA rules.
vii. Firefighting systems as per the fire bye-laws attached.

5.12. Parking

i. Provision of adequate parking facility within the premises of the industrial unit.
ii. Parking for multi-axel trailers, cargo containers and cranes.
iii. Provision for weigh-bridges,

5.13. Roads and Access

I. Road networks within and around the industrial zone to be of international standards.
II. Provision of adequate green belts along main access and service roads.
III. Installation of street energy efficient street lights along the roads.

5.14. Ease of Access for Physically Challenged Persons

i. Provision of ramps for physically challenged persons.
ii. Provision of lavatories for physically challenged persons.

5.15. Light and Ventilation

5.15. Provision for fire fighting stations with facilities as per requirements of the estate. For light and ventilation in every building there shall be opening in the walls or roofs wherever applicable. The amount of these openings shall not be less than $1/12^{th}$ of the floor area of the building or 5 sq. ft. (0.5 sq. m) for each person required to work in such room whichever is maximum.
5.15.2. In all type of buildings cross ventilation shall be provided except in the case of buildings to be fully air conditioned.
5.15.3. Every room or place where employees will work shall be adequately ventilated either naturally or artificially, whichever the case me; so that no air stagnancy occurs.
5.15.4. Whenever there is a possibility of such air stagnancy as mentioned in section 5.3, an exhaust fan shall be provided.
5.15.5. All places, where any person shall work or attend time to time shall have sufficient light facilities so that persons working there will not have eye strains.
5.15.6. Window, fan-lights, or sky-lights wherever adopted for lighting shall be so located as not to give direct light to the eyes of workers.
5.15.7. All bath rooms, lavatories, and water closets shall have ventilation, in or close to the ceiling opening direct to the outer air. Area of bath room and water closet should not be less 20 sq ft. and 16 sq ft respectively.

5.16. External Aesthetics & Architectural Features

i. Involvement of engineering consultants to Plan, Design, and Supervise the industrial construction as per bye- laws.
ii. Acquiring completion certificate from the consulting firm regarding completion as per approved design.
iii. The consultants to submit to the concerned approving authority for approval of As- Built drawings of the industry showing amendments / changes in the design (if any) keeping in view the building bye- laws.

CHAPTER 6

Public Building in Approved Housing Scheme

6.1. Set back/ Arcade/ Rear/ Sides

i Plot less than 10 marlas

- Building line = 7 feet
- Rear space = 5 feet
- Both Side = 0 feet

ii Plot Less than One Kanal

- Building Line = 10 feet
- Rear Space = 5 feet
- Side Space = 5 feet

iii. 1 kanal and upto 2 kanals

- Building line = 20 feet
- Side one = 7 feet
- Side two = 7 feet
- Rear = 10 feet

iv. Above 2 kanals Plot

- Building line = 30 feet
- Remaining Three Sides space = 15 feet

6.2. Plot to floor area Ratio:

i. Plot Less than One Kanal

- Max. FAR = 1:3
- Max. Ground coverage = 65%

ii. 1 kanal and upto 2 kanals

- Max. FAR = 1:3
- Max. Ground coverage = 60%

iii. Above 2 kanals Plot

- Max. FAR = 1:3
- Max. Ground coverage = 55% (Presently 50% PDA)

6.3. Other Buildings:

6.3.1. Bus/ Mini Bus Stands

- Building Line = 20 feet
- Remaining Three Sides = 10 feet

6.3.2. CNG/ Petrol Filling Stations

OGRA rules and regulations for CNG/Petrol filling stations should be followed.

6.3.3. Theater/ Concert Hall/ Marriage Hall/ Clubs/ Banquet Hall:

- Minimum Plot size = 4 kanals
- Building line = 40 feet
- Remaining Three Sides = 10 feet
- Minimum parking for cars to be 60% of occupancy

6.4. Central Business Districts (C.B.D)

6.4.1. Plot to Floor Ratio (FAR) and site Coverage

- Section IV (Commercial) clause-20 available in amended 1989 Building Regulation of the Province. Covering Sector, Sub Sector and Central Commercial Activities (CIVIC Centers).

6.4.2. Fire Fighting

- Emergency Exits.
- Fire Alarm System
- Fire Extinguisher
- Fire Sprinkler
- Fire Route (Access and Exits of Fire Tenders) see chapter 4 (section 4.9)

Note: Furthermore, see Chapter 14 Fire Bye Laws andByelaws regarding Fire Hazard should be adopted.

6.4.3. Elevators in Public Buildings

- Public Building of Ground + 2 or more storeymust have Elevators.

6.4.4. Approach Ramps for Physically Challenged Persons

- Ramps for Physically Challenged Persons compulsory.
- Bath rooms for Physically Challenged Persons compulsory
- Push bar Doors for Special Persons

6.4.5 Roads

- The minimum width for any road proposed shall not be less than 24 foot, excluding central median and walkways/footpaths for pedestrians.
- The roads will be clearly marked for lanes.
- The height of the road will be at least 18 inches below the plot level.
- Only speed tables will be allowed to be installed near health facilities or on minor roads intersections with major roads.

CHAPTER 7

RESIDENTIAL

7.1. Residential Plot Upto 2 Marlas Plot

Set back (Front, Back, Side)
100% covered with the provision of 10% void (s)/open duct(s) in the house (Mandatory) (to enhance the ventilation and atmosphere) Front, Rear, and Sides - No Space

Basement provision
Max. 100% of the ground coverage for basement

Foot print
100% minus Void Area (10%)

Plot to Floor Area
1:2 but not exceeding ground + 1 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 100 sqft

No ramp or stairs on the road or green belt.

7.2. Residential Plot Above 2 Marlas – less than 5 Marlas

Set back (Front, Back, Side)
No compulsion for the open area provision for Front, Rear, and Sides. Provision of Void/open duct(s) not less than 10% of the plot area (Mandatory).

Basement provision
Max. 100% of the ground coverage allowed for basement

Foot print

100% minus Void Area (10%)

Plot to Floor Area
1:2 but not exceeding ground + 2 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 120 sqft

No ramp or stairs on the road or green belt.

7.3. Residential Plot Above 5 Marlas– Upto less than 8 Marlas

Set back (Front, Back, Side)
Recommendations

Front = 7ft, Back = 5ft mandatory open space. Void/open duct(s) not less than 10% of the total area (Mandatory).

Basement provision
Maximum 100% of the ground coverage area

Foot print

75% minus Void Area (10%)

Plot to Floor Area
1:1.8 but not exceeding ground + 1 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 120 sqft

No ramp or stairs on the road or green belt.

7.4. Residential Plot Above 8 Marlas– Upto less than 10 Marlas

Set back (Front, Back, Side)
Front = 10ft, Back = 10ft, One Side =5ft, mandatory open space.
.
Basement provision
Maximum 100% of the ground coverage area

Foot print
Recommendations
80% of the plot area

Plot to Floor Area
1:1.25 but not exceeding ground plus 1 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 140 sqft

No ramp or stairs on the road or green belt.

7.5. Residential Plot Above 10 Marlas - Upto less than 1 Kanal

Set back (Front, Back, Side)
Front = 10ft, Back = 10ft, One Side =5ft, mandatory open space.

Basement provision
Maximum 100% of the ground coverage area

Foot print
70% of the plot size

Plot to Floor Area
1:1.15 but not exceeding ground + 1 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 180sqft

No ramp or stairs on the road or green belt.

7.6. Residential Plot Above 1 Kanal - upto Less than 2 Kanals

Set back (Front, Back, Side)
Front = 15ft, Back = 10ft, on both Side = 5ft, mandatory open space.
.
Basement provision
Maximum 100% of the ground coverage area

Foot print
70% of the plot area

Plot to Floor Area
1:1.25 but not exceeding ground + 1 floors (G+FF). This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 220 sqft

No ramp or stairs on the road or green belt.

7.7. Residential Plot 2 Kanals – Above

Set back (Front, Back, Side)
Front 20ft, Back = 15ft, On Both Sides = 10ft, Mandatory open space.

Basement provision
Maximum 100% of the ground coverage area

Foot print
Recommendations
60% of the plot area

Plot to Floor Area
1:1.25 but not exceeding ground + 1 floors (G+FF).This is exclusive of the provision of construction on Mumty

Mumty Provision
Upto 240 sqft

No ramp or stairs on the road or green belt.

CHAPTER 8

APARTMENT BUILDINGS (APARTMENTS & FLATS)

8.1. Four Storey Buildings

Set Backs

Front

- 40ft in case of row of flats with front open from front line.
- 60 ft. in case of row of flats facing each other.

Side

- 20 ft. in between end of blocks of apartment/flats either facing each other or placed as single row from front line**.**

Rear

- 20 ft. at rear as service road for garbage collection and as privacy buffer for apartment/flats placed back to back

.

. **Basic Provision**

- Parking: be provided along the road within the plot, either in open or under sheds or in the basement of the building. Minimum of one car per flat.
- Minimum of one stair case for 8 numbers of Apartments with a minimum width of 4 feet.
- An overhead water Tank of minimum 2500 gallons to be provided for a group of 8 flats. In addition, underground water tank for minimum of 2500 gallons of water be provided.
- Garbage disposal chute accessible to 8 number flats and a receptor shall be provided at Ground or basement level.
- In case of unavailability of sewerage provision of a septic tank and a soakage pit shall be provided.
- Minimum of two numbers of firefighting extinguishers shall be provided at each floor landing area.
- Lighting conductor for a group of 8 apartments needs to be provided.

8.2. Four floors and above/ Flats

Set Backs

Front

- 40ft In case of row of flats with front open from front line.
- 60 ft In case of row of flats facing each other 60 ft..

Side

- 20 ft in between end of blocks of apartment/ flats either facing each other or placed as single row from front line

.**Rear**

- 20 ft.at rear as service road for garbage collection, fire fighting and as privacy buffer for apartment / flats placed back to back.

Basic Provision

- Lift provision is mandatory,
- Parking: be provided along the road within the plot, either in open or under sheds or in the basement of the building. Minimum of one car per flat.
- Minimum of one stair case for 8 numbers of Apartments with a minimum width of 4 feet.
- An overhead water Tank of minimum 2500 gallons to be provided for a group of 8 flats. In addition, underground water tank for minimum of 2500 gallons of water be provided.
- Garbage disposal chute accessible to 8 number flats and receptors shall be provided at Ground floor.
- In case of unavailability of sewerage provision of a septic tank and a soakage pit shall be provided.
- Minimum of two numbers of firefighting extinguishers shall be provided at each floor landing area.
- Lighting conductor for a group of 8 apartments needs to be provided.

CHAPTER 9

PARKING REQUIREMENT

9.1. Scope

Parking requirements for motor vehicles specified in these bye-laws shall apply when so ever: -

a. A new building is constructed or a change of use of existing building is established.

b. An existing building is altered and there is an increase in the floor area of the building, then additional parking requirement shall be totally applicable to the proposed addition only within the property limits as required under these byelaws.

9.2. General Conditions

a. Adequate car parking to be provided.

b. The parking space, including ramps, shall be exempted from FAR.

c. Total parking space requirement of every building shall be determined as a sum of parking requirement for each type of use to which the building is subjected. The minimum being one car park for every shop, residential unit or office space.

d. Minimum clear height of parking structure without obstruction shall be 7.5 feet.

e. Detailed plan clearly showing entry, exit, gradient of ramp, turning radius, storage spaces, circulation and movement of vehicles etc, shall be submitted.

f. Parking can be provided on any floor with the ramp as a mean of access.

g. Mechanical ventilation to be provided for parking in the basement or closed areas.

h. Multiple basements for parking is allowed.

j. 16% of the total car parking space will be utilized to provide space for Motorcycle parking @ 6 Motorcycles and 8 bicycles for every one car. When units of measurement used in computing the number of parking spaces result in the requirement of a fractional space, the nearest whole number to next higher side of parking spaces shall be taken.

9.3. Car Lifts

a. Where car lifts are provided there shall be a minimum of two car lifts with facilities of standby generators wherever so required.

b. Minimum one car lift wherever so required with standby generator shall be provided for every 40 cars, if parking level is at more than 40ft (12m) in height from road level.

c. One car lift with standby generator shall be provided for every 50 cars. If parking level is up to 40 ft in height.

9.4. Standards for Parking Spaces

DESCRIPTION	FOR CAR	FOR MOTORCYCLES
Bay width	8 ft	2.5 ft
Bay length	16 ft	6.0 ft
Gradient of ramp	1:7.5	1:8.5
Straight turning radius (outer)	24 ft	-
Helical ramp turning radius	32 ft	-
Lot turning radius	17.5 ft	-
Minimum ramp & driveway width:		
Two-way traffic	18 ft	
One-way traffic	10 ft	
Minimum space for parking one car	8 ft. x 16 ft	

CHAPTER 10

TEMPORARY WORKS IN CONNECTION WITH BUILDING OPERATIONS

(SAFETY AND SECURITY MEASURES)

10.1. Site Hoardings

No person shall start building works on a site abutting on a street without having first provided hoarding or barriers to the satisfaction of the Authority along the whole length of such site so as to prevent danger or injury to the public or the persons employed in the work.

10.2. Use of Public Streets

No part of any street shall be used in connection with the construction; repair or demolition of any building except with the written permission of the Authority. Any person holding such permission shall put up and street. Where such separation is not possible he shall make arrangement for the security of public to the satisfaction of the Authority. The materials shall not hinder with any public services, including but not limited to storm water drains, water supply lines, fire hydrants, electric poles/lines or piped gas lines etc.

10.3. Obstructions to be illuminated

Any person duly authorized by the Authority to commence construction and in the process causes any building material or other things to be deposited, any excavation to be made or any hoarding to be erected shall at his own expense provide sufficient and adequate warning lights to be fixed upon or near the same where such materials, hoardings, things or excavation remain. In addition to above, red flags of reflective material shall also be provided.

10.4. Utility Services not to be obstructed

All materials, hoarding, fences or other obstructions on any street shall be kept clearof any fire hydrants of any and other utility services installation; or alternative arrangements shall be made and precautions shall be taken according to the laid down procedure of the utility agencies and to the satisfaction of the Authority to divert to keep clear of obstruction of any roadside or other drain during the period of temporary obstruction.

10.5. Removal of Obstruction after Completion of Works

All obstructions shall be removed within seven days of the completion of the work and the area including the street, all drains and public utility installation shall be left in clean, tidy and in serviceable conditions.

10.6. Dangerous Obstruction

If any material, hoarding, excavation or any other thing near or on any street shall be in the opinion of the Authority dangerous to the passers-by along such street the Authority shall cause the same to be removed, protected or enclosed as to prevent danger there from and shall be entitled to recover the expenses thereof from the owner of such materials or from the person who made such hoarding, excavation or other thing to become dangerous.

10.7. Stability of Adjacent Building

No excavation or dewatering or earthwork or demolition of a building which is likely to affect the stability of adjacent building shall be started or continued unless adequate steps are taken before, during and after the work to prevent the collapse/damage of any adjacent building.

10.8. Filling of Excavated Site

A site once excavated shall not be kept open and idle for a period beyond the validity period of construction failing which the Authority shall not revalidate the building plans and in case of any mishaps the owner shall be responsible for life and property of the affectee.

10.9. Adequate Safety Measures

a. Adequate safety measures shall where necessary be provided and used to protect any persons from falling on earth, rock or other material of or adjacent to any excavation or earth work.

b. Material shall not be placed or stocked near the edge of any excavation so as to endanger persons working below.

c. No load shall be placed or moved near the edge or any excavation where it is likely to cause a collapse of the side of the excavation and/or endanger any person.

d. Where vehicles or machineries are used in close proximity to any excavation there shall be measures to prevent the vehicles or machineries from over-running and falling into the excavation or causing collapse of any side of the excavation.

e. In all buildings of greater than 20 ft (6m) height temporary rails/scaffolding/barriers shall be installed during construction at the edge of slabs and around all openings such as lift, stairwell etc.

10.10. Supervision of Demolition Work

The demolition of a building and the operations incidental thereto shall only be carried out under the direct supervision of a Professional.

10.11. Safe Loading

No roof, floor or other part of the building shall be so overloaded during construction or demolition with materials or debris so as to render it unsafe.

10.12. Scaffolds

a. Suitable and sufficient scaffolds shall be provided for all work that cannot safely be done from the ground or from part of the building or from a ladder or other available means support and sufficient safe means of access shall be provided to every place at which any person has to work at any time.

b. every scaffold and means of access and every part thereof shall be adequately fabricated with suitable and sound material and of required strength to ensure stability. All scaffolds, working platforms gangways, runs and stairs shall be maintained to ensure safety and security.

c. All vertical members of scaffolds on ground level facing road side should be adequately wrapped with material upto a height of at least 7ft (2.13m) and for any horizontal member if used, upto a height of 7ft (2.13m) from ground, should be wrapped all along its length with such material.

d. The contractor and owner of the building will be liable for any injury caused by the failure of such scaffolding.

10.13. Road Side Protection

a. To ensure adequate safety of the pedestrian and other road users, all building should have adequate arrangement by way of providing protective covering of suitable material.

b. Adequate provision of safe passage for pedestrian shall be provided, in case the scaffolding covers part of the road/footpath.

10.14. Working Platform

a. Every working platform from which a person is liable to fall which is more than 7ft. (2.13m) height shall be at least 2ft. (0.6m) wide provided the platform is used as a working platform only and not for the deposit of any material.

b. A clear passage-way at least 1.5ft.(0.45m) wide shall be left between one side of any working platform and any fixed obstruction or deposited materials.

10.15. Guard Rails.

Every side of a working platform, gangway and stair shall be provided with a suitable guard-rail of adequate strength, to a height of at least 3’-3’(1m) above the platform, gangway or steps.

10.16. Ladders

a. Every ladder shall be of good construction, sound material and adequate strength for the purpose for which it is used.

b. Every ladder shall be securely fixed when in use and shall not have any missing or defective rungs.

10.17. Work on Sloping Roofs

a. Where work is to be done on the sloping surface of a roof, suitable precaution shall be taken to prevent persons employed from falling off.

b. Where persons are employed in a position below the edge of sloping roof and where they are in position of being endangered by work done on the roof, suitable precaution shall be taken to prevent tools or materials falling from such roofs so as to endanger such persons or passer-by.

10.18. Precautions for Raising and Lowering Loads.

For raising or lowering loads or for suspending them either hand or power operation the following precautions shall be observed: -

a. No damaged wire rope shall be used.

b. No chain shall be used which has been shortened or jointed to another chain except by means of bolts and nuts of ample strength.

c. No chain or wire rope shall be used which a knot has tied in any part which is under direct tension.

d. Provided with an efficient device to prevent the displacement of the sling or load from the hook; or of such shape as to reduce as far as to reduce as far as possible the risk of such displacement.

e. All debris and waste material during construction shall be disposed off through well designed chutes from each level of under construction building.

f. The vertical hoist platform used shall be enclosed/protected by proper barrier. Every opening of lift, shaft or other such vertical voids or openings in slab etc. where a person is likely to fall shall be protected by safety barrier and properly lit. Any area e.g. basement, where natural light is not available or which is dark shall be so illuminated as to eliminate any risk of life or hazard to users.

CHAPTER 11

BUILDING STRUCTURE DESIGN AND CONSTRUCTION REQUIREMENTS

11.1. Loads and Design.

Structure analysis, design, detailing and loading shall be in accordance with the requirements of current Uniform Building Code (UBC) and the Pakistan Building code 2007.

11.2. Sub Soil Investigation.

In view of the structural design in Seismic hazard zone, type of Sub-Soil for foundation should be thoroughly ascertained by geo-technical investigation under the direct supervision of qualified and experienced geo-technical engineers. The Soil report should correlate the sub-soil type with UBC-97 (or current) Sub-Soil list.

11.3. Wind Load.

Wind load should be based on the velocity and gust factors data from local Meteorological Department.

11.4. Erection on Reclaimed site.

a. No building foundation shall be erected upon a site reclaimed by Town sweepings or other refuse, except on recommendation of Geo-technical and structural Engineer.

b. No building plans shall be approved on open nullahs, water courses, public sewers and the like.

11.5. Protection of Existing Services.

During the making of an excavation in connection with a building works or services, adequate precautions shall be taken to secure the exiting utility services.

11.6. Foundation Near drains.

Where a building is to erected adjacent to existing building, or near a drain/nullah, or an excavation at a distance less than depth of the said drain/nullah or such as to effect the stability of drains/nullah, the owner through a Structural Engineer, shall satisfy the Authority that the foundation of the building have been carried down to a level safeguarding its stability

11.7. Specifications.

Specifications of Material Quality Control and workmanship will be of high quality and in accordance with the requirements of ACI Building Codes, Uniform Building Code (UBC) and ASTM Standards.

11.8. Testing of Materials.

Regular testing will be carried out of materials such as Aggregates. Cement, Concrete and Reinforcing Steel and all Architectural materials the Quality Control and Quality Assurance Criteria laid down in the project Specification or the Quality Assurance Program of the Architect/Engineer.

11.9. Supervision.

Construction supervision and quality assurance will be carried out by full time/top supervision by the designer/supervision engineers/architects/inspectors etc. as required in these Regulations. Contractor/Builder's/Developers full time supervisory staff for the category of building in these Regulations shall carry out supervision and quality control.

CHAPTER 12

STANDARDS FOR PETROL PUMP & CNG STATION

12.1. Standards For Petrol Pump & CNG Station

a. Plot size for establishing petrol pump or petrol pump cum CNG station shall be min. 1000 Sq. Yards.
b. Plot size for establishing CNG station shall be Minimum 750 Sq. Yards.
c. Right-of-way of road on which petrol pump or CNG Station can be established shall be min. 80 ft.
d. Distance between two adjacent petrol pumps or CNG stations shall be min.0.5 KM along the road.
e. Frontage of petrol pump / CNG Stations shall be min 80 feet.
f. COS on sides & rear of the petrol pump/CNG stations shall be min. 10 feet or according to standards of explosive Department.
g. Distance between two dispensers shall be min. 24 feet.
h. Distance between dispenser and road edge shall be min. 18 feet.
i. Minimum area of offices, bathrooms and tuck shop etc. (single storey only) shall be 5% of plot area.
j. Both Ladies and gents toilets are compulsory.
k. Rules/regulations of OGRA shall be followed.

12.2. Exemption from FAR

a. 2 ½ % of permissible FAR/proposed covered area shall be provided for recreational facility/prayer area which will not be regularized, if converted into any other purpose.
b. Parking space including ramps and driveways.

CHAPTER 13

DRAINAGE AND SANITATION

13.1. Drainage

1. All drainage and sanitary installations shall be carried out in accordance with Authority rules made there under for drainage, plumbing and sanitary fitting.

2. All drainage connection shall not directly fall in to natural springs, rivers, canals and irrigation channels.

3. Where there is a public sewer, all sullage, sewerage water shall be connected thereto.

4. Where no public sewer in existence, all sullage water shall be connected to Septic Tank and then to a Soak Pit.

5. Septic Tanks and Soak Pits shall: -

a. be so connected as to be impervious to liquid either from the outside area or inside.

b. be so sited as not to render pollution to any spring, stream or water-course or any well, the water from which is used for drinking or domestic purpose.

6. Septic tanks shall be provided in all the residential and commercial buildings. All the sullage water of the buildings shall be connected to the septic tank and then to the public sewer. The size of septic tanks for residential plots will be as follows: -

	D	L	W
up to 1-Kanal	4.25	8	4
1-Kanal to 2-Kanal	4.25	9	4.5
Above 2-Kanal	4.25	10	5

Size of septic tanks for other Commercial & Public Buildings will be as per requirements of the Authority. However the public sewer does not exist the owner will provide soakage well in his own premises.

In case of the commercialization of a residential building, the developer will either pay the cost of revised usage of utilities of construct the same with his own resources.

7. The roof of every building and floor of balcony abutting a street orconstructed over a street shall be drained by means of down tank pipes.

13.2. Sanitation

1. Every dwelling or an independent residential unit shall have at least one water closet and one bath

2. For houses and apartments with more than 3 bed rooms, the provision ofwater closets and baths will be appropriately increased

3. Refuse chutes shall be provided in multistory buildings.

4. All buildings shall be provided with sanitary facilities appropriate to their use and occupancy

CHAPTER 14

FIRE PREVENTION

14.1 Classification of Building Based on Occupancy.

14.1.1 General classification

All buildings, whether existing or hereafter erected shall be classified according to the use or the character of occupancy in one of the following groups:

Group	A	Residential
Group	B	Educational
Group	C	Institutional
Group	D	Assembly
Group	E	Business
Group	F	Mercantile
Group	G	Industrial
Group	H	Storage
Group	J	Hazardous

Minor occupancy incidental to operations in another type of occupancy shall be considered as part of the main occupancy and shall be classified under the relevant group for the main occupancy.

Examples of buildings in each group are given in 14.1.2 to 14.1.10.

14.1.2 Group A (Residential Buildings):

These shall include any building in which sleeping accommodation is provided fo normal residential purposes with or without cooking or dining or both facilities, except any building classified under Group C. Building and structures under Group A shall be further sub-divided as following:

Sub-division	A-1	Lodging or rooming houses
Sub-division	A-2	one or two-family private dwellings
Sub-division	A-3	Dormitories
Sub-division	A-4	Apartment houses (flats)
Sub-division	A-5	Hotels

Sub-division A-6 Hotels (starred)

a) Sub-division A-1

Lodging or rooming houses.

These shall include any building or group of building under the same management, in which separate sleeping accommodation for a total of not more than 40 persons (beds) on transient or permanent basis, with or without dining facilities but without cooking facilities for individuals is provided. This includes inns, clubs, motels and guesthouses.

A lodging or rooming house shall be classified as a dwelling in sub-division A-2 If no room in any of its private dwelling units is rented to more then three persons.

b) Sub-division

One or two-family private dwelling:

These shall include any private dwelling which is occupied by members of one or two families and has a total sleeping accommodation for not more than 20 persons. If rooms in a private dwelling are rented to outsiders, these shall be for accommodation not more than three persons per rooms.

If sleeping accommodation for more than 20 persons is provided in any one residential building, it shall be classified as a building in sub-division A-1,A-3 or A-4 as the case may be.

c) Sub-division A-3 Dormitories

These shall include any building in which group sleeping accommodation is provided, with or without dining facilities for persons who are not members of the same family, in one room or a series of closely associated rooms under joint occupancy and single management, for example, school and college dormitories, students, and other hostels and military barracks.

d) Sub-division A-4

Apartment houses (flats)

These shall include any building or structure which living quarters are provided for three or more families, living independently of each other and with independent cooking facilities, for example, apartment houses and mansions.

e) Sub-division A-5

Hotels

Theses shall include any building or group of building under single management, in which sleeping accommodation is provided, with or without dining facilities for hotels classified up to 4 Star Category.

f) Sub-division A-6

Hotels (starred)

Theses shall include the hotels duly approved by the concerned authorities as Five Star and above Hotels.

14.1.3 Group B (Educational Buildings):

These shall include any building used for school, colleges other training institutions for day-care purposes involving assembly for instruction, education or recreation for not less than 20 students.

Building and structures under Group-B shall be further Sub-division as follows:

Sub-division B-1 Schools up to senior secondary level

Sub-division B-2 all other/training institutions

a) Sub-division B-1 Schools up to senior secondary level:

This Sub-division shall include any building or a group of buildings under single management, which is used for students no less than 20 in number.

b) Sub-division B-2 All others/training institutions:

This Sub-division shall include any building or a group of building under single management, which is used for students not less than 100 in number.

In the case of temporary building/structures which are utilized for educational purposes, the provisions of 3.2.5.3 shall apply.

If residential accommodation is provided in the schools/ institutions, that portion of occupancy shall be classified as a building in Sub-division A-3

14.1.4 Group C (Institutional Buildings):

These shall include any building or part thereof which is used for purposes, such as medical or other treatment or care of persons suffering from physical or mental illness, disease or infirmity; care of infants, convalescents or aged persons and for penal or correctional detention in which the liberty of the inmates is restricted. Institutional buildings ordinarily provide sleeping accommodation for the occupants. Buildings and structures under Group C shall be further Sub-division as follows;

Sub-division C-1 Hospitals and sanatoria

Sub-division C-2 Custodial Institutions

Sub-division C-3 Penal and mental institutions

a) Sub-division C-1 Hospitals and sanatoria

This sub-division shall include any building or a group of buildings under single management, which is used for housing persons suffering from physical imitations because of health or age, for example, hospitals, infirmaries, sanatoria and nursing homes.

b) Sub-division C-2 Custodial institutions:

This sub-division shall include any building or a group of buildings under single management, which is used for the custody and care of persons, such as children, convalescents and the aged, for example, homes for the age and infirm, convalescent homes and orphanages.

c) Sub-division C-3 penal and mental institutions:

This sub-division shall include any buildings or group of building under single management, which is used for housing persons under restraint, or who are detained for penal or corrective purposes, in which the liberty of the inmates is restricted, for example, jails, prison, mental hospitals, mental sanatoria and reformatories.

14.1.5 Group D (Assembly Buildings):

These shall include any building or part of a building, where any building or part of a building, where number of persons not less than 50 congregate or gather for amusement, recreation, social, religious, patriotic, civil, travel and similar purposes, for example, theatres, motion picture houses, assembly halls, auditoria, exhibition halls, museums, skating rinks, gymnasiums restaurants, places of worship, club rooms, passenger stations and terminals of air, surface and marine public transportation service, recreation piers, etc.

Building under group D shall be further sub-divided as following.

a) Sub-division D-1

Buildings having a theatrical or motion picture or any other stage and fixed seats for over 1000 persons

b) Sub-division D-2

Building having a theatrical or motion picture or any other stage and fixed seats up to 1000 persons

c) Sub Division D-3

This subdivision shall include any building, its lobbies, rooms and other spaces connected thereto, primarily intended for assembly of people, but which has no theatrical stage or permanent theatrical and/ or cinematographic accessories and has accommodation for 300 persons or more, for example, halls for incidental picture shows, dramatic, theatrical or educational presentation, lectures or other similar purposes having no theatrical stage except a raised platform and used without permanent seating arrangement: art galleries exhibition halls, community halls, marriage halls, places of worship, museums, lecture halls, passenger terminals and heritage and Archeological Monuments.

d) Sub-division D-4

This subdivision shall include any building primarily intended for use as described in sub-division D-3, but with accommodation for less than 300 persons with no permanent seating arrangements.

e) Sub-division D-5

This sub- division shall include any building or structure permanent or temporary meant for assembly of people not covered by sub- divisions D-1 to D-4, for example, grandstands, stadia, amusement park structures, reviewing stands and circus tents.

f) Sub-division D-6

This sub- division shall include any building for assembly of people provided with multiple services/ facilities like shopping, cinema theatres and restaurants, for example, multiplexes.

g) Sub-division D-7

This subdivision shall include any building or structure permanent or temporary meant for assembly of people not covered by D-1 to D-6, for example, underground or elevated railways or buses.

14.1.6 Group E (Business Buildings):

These shall include any building or part of a building, which is used for transaction of business (other than that covered by Group F and part of buildings covered by 3.1.1.1): for keeping of accounts and records and similar purposes professional establishments, services facilities, etc. City halls, town halls, courthouses and libraries shall be classified in this group so far as the principal fu*n*ction of these is transaction of public business and keeping of books and records, business buildings shall be further sub-divided as follows:

Sub- division E-1

Offices, banks, professional establishments, like offices of architects, engineers, doctors, lawyers and police stations.

Sub-division E-2

Laboratories, research establishments, libraries and test houses.

Sub-division E-3

Computers installations

Sub-division E-4

Telephone exchanges

Sub-division E-5

Broadcasting stations and T.V. stations.

14.1.7 Group F (Mercantile Buildings)

These shall include any building or part of building, which is used as shops, stores, market, for display and sale of merchandise, either wholesale or retail. Mercantile buildings shall be further sub-divided as follows:

Sub- division F-1

Shops, stores, departmental stores markers with area upto 500 sq m

Sub- division F-2

Shops, stores, departmental stores markers with area more than 500 sq m

Sub- division F-3

Underground shopping centers, storage and service facilities incidental to the sale of merchandise and located in the same building shall be included under this group.

14.1.8 Group G (Industrial Buildings):

These shall include any building or part of a building or structure, in which products or materials of all kinds and properties are fabricated, assembled, manufactured or processed, for example, assembly plants, industrial laboratories, dry cleaning plants, power plants, generating units, pumping stations, fumigation chambers, laundries, buildings or structures in gas plants, refineries, dairies and saw- mills, etc.

Buildings under Groups G shall be further sub- divided as follows:

Sub- division G-1: Buildings used for low hazard industries

Sub- division G-2: Buildings used for moderate hazard industries

Sub- division G-3: Buildings used for high hazard industries

a) Sub- division G-1:

This sub- division shall include any building in which the contents are of such comparative low combustibility and the industrial processes or operations conducted therein are of such a nature that there are hardly any possibilities for any self-propagating fire to occur and the only consequent danger to life and property may arise from panic, fumes or smoke, or fire from some external source.

b) Sub- division G-2:

This sub-division shall include any building in which the contents or industrial processes or operations conducted therein are liable to give rise to a fire which will burn with moderate rapidity or result in other hazardous situation and may give off a considerable volume of smoke, but from which neither toxic fumes nor explosions are to be feared in the event of fire.

c) Sub- division G-3:

This sub-division shall include any building in which the contents or industrial processes or operations conducted therein are liable to give rise to a fire which will burn with extreme rapidity or result in other hazardous situation or from which poisonous fumes or explosions are to be feared in the event of a fire.

14.1.9 Group H (Storage Buildings):

These shall include any building or part of a building used primarily for the storage or sheltering (including servicing, processing or repairs incidental to storage) of goods, ware or merchandise (except those that involve highly combustible or explosive products or material) vehicles or animals, for example, warehouses, cold storage, freight depots, transit sheds, storehouses, truck and marine terminals, garages, hangers, grain elevators, barns and stables storage properties are characterized by the presence of relatively small number or persons in proportions to the area. Any new use which increases the number of occupants to a figure comparable with other classes of occupancy shall change the classification of the building to that of the new use, for example, hangers used for assembly purposes, warehouses used for office purposes, garage buildings used for manufacturing.

14.1.10. Group I (Hazardous Buildings):

These shall include any building or part of a building which is used for the storage, handling, manufacture or processing of highly combustible or explosive materials or products which are liable to burn with extreme rapidity and or which may produce poisonous fumes or explosions for storage ,handling, manufacturing or toxic or noxious alkalis ,acids or other liquids or chemicals producing flame ,fumes and explosive , poisonous , irritant or corrosive , gases; and for the storage, handling or processing of any material producing explosive mixtures of dust which result in the division of matter into fine particles subject to spontaneous ignition. Examples of building in this class are those buildings, which are used for;

a) Storage, under pressure of more than o.1N/mm sq. and in quantities exceeding 70 m cube, of acetylene, hydrogen, illuminating and natural gases, ammonia, chlorine, phosgene,Sulphurdioxide, carbondioxide methyl oxide and all gases subject to explosion, fumes or toxic hazards, cryogenic gases etc.

b) Storage and handling of hazardous and highly inflammable liquids, liquefiable gases like LPG, rocket propellants, etc.;

c) Storage and handling of hazardous and highly inflammable or explosive material (other than liquid) and;

d) Manufacturing of artificial flowers, synthetic leathers, ammunition, explosive and fireworks.

14.2 Fire Zones:

14.2.1. Demarcation

The city or area under the jurisdiction of the Authority shall for the purpose of the documents be demarcated into distinct zones, based on fire hazard inherent in the buildings and structures according to occupancy (see 3.1), which shall be called as “Fire Zones”

14.2.2 Number and Designation of Fire Zones

14.2.2.1 The number of fire zones in a city or area under the jurisdiction or authority depends upon the existing layout types of building construction (see 3.3), classification of existing buildings based on occupancy (see 3.1) and expected future development of the city of area.

14.2.2.2 The fire zones shall be made use of in land use development plan and shall be designated as follows:

Fire Zone No. 1
This shall comprise areas having residential (Group A), educational (Group B) institutional (Group C), and assembly (Group D), small business (Sub –division E-1) and retail mercantile (Group F) buildings, or areas which are under development for such occupancies,

Fire Zone No.2
This shall comprise business (Sub –divisions’ E-2 to E-5) and industrial buildings (Sub-division G-1 and G-2), except high hazard industrial buildings (Sub-division G-3) or areas, which`` are under development for such occupancies.

Fire Zone No. 3
This shall comprise areas having high hazards industrial buildings (Sub-division G-3), storage buildings (Group H) and building for hazardous used (Group J) or areas which are under development for such occupancies.

14.2.3 Change in the Fire Zones Boundaries:

When the boundaries of any fire zone are changed, or when it is intended to include other areas or type of occupancies in any fire zone, it shall be done by following the same procedure as for promulgating new rules or ordinance or both.

14.2.4 Overlapping Fire Zones:

14.2.4.1 When any building is so situated that it extended to more than one fire zone, it shall be deemed to be in the fire zone in which the major portion of the building or structure is situated.

14.2.4.2 When any building is so situated that it extends equally to more than one fire zone, it shall be deemed to be in the fire zone having more hazardous occupancy buildings.

14.2.5 Temporary Buildings or Structures.

14.2.5.1 Temporary buildings and structures shall be permitted only in the Fire Zones No.1 and 2 as the case may be, according to the purpose for which these are to be used, by special permit from the Authority for a limited period and subject to such conditions as may be imposed in the permit.

14.2.5.2 Such buildings and temporary structures shall be completely removed on the expiry of the period specified in the permit.

14.2.5.3 Adequate fire precautionary measures in the construction of temporary structures shall be taken care off as directed by the Local Authority.

14.2.6 Restriction on the Type of Construction for New Buildings:

14.2.6.1 Building erected in the Fire Zone No.1 shall conform to construction of Type1, 2, 3 or 4.

14.2.6.2 Building erected in the Fire Zone No .2 shall conform to construction of type 1, 2 or 3

14.2.6.3 Building erected in Fire Zone No.3 shall conform to construction of Type1, 2

14.2.7 Restriction on Existing Building:

The existing building in any fire zone shall not be required to comply with the requirement of the document unless these are altered, or in the opinion of the Authority such building constitute a hazard to the safety of the adjacent property or the occupants of the building itself or is unsafe building. In the event of alteration, it shall be necessary to obtain permission of the Authority for such alteration consistent with fire safety requirements of the new buildings. Such alterations shall not in any way bring down

level of fire and life safety below that which existed earlier. Any addition or alteration or construction of cubicles or partitioning for floor area exceeding 500 m sq. for all high rise buildings shall be with approval of local fire authority.

4.3 Types of Construction:

14.3.1 General.

The design of any building and the type of material used in its construction are important factors in making the building resistant to a complete burn–on and in preventing the rapid spread of fire, smoke or fumes, which may otherwise contribute to the loss of lives and property.
The fire resistant of a building or its structural and non-structural elements is expressed in hours against a specified fire load, which is expressed in kcal/m sq. and against a certain intensity of fire. The fire- resistance test for structural element shall be done in accordance with applicable standards. For the purpose of the Documents, the types of construction according to fire resistance shall be classified into four categories, namely, Type 1 Construction, Type 2 Construction, Type 3 Construction, and Type 4 Construction. The fire resistance ratings for various types of construction for structural and non- structural members shall be as given in table 14.1
For buildings 15 m in height or above non-combustible materials should be used for construction and the internal walls of staircase enclosures should be of brick work or reinforced concrete or any other material of construction with minimum of 2 h rating. The walls for the chimney shall be of Type 1 and Type 2 construction depending on whether the gas temperature is above 200 degrees centigrade or less.

14.3.2 Fire Rating

It is required that an element/component shall have the requisite fire resistance rating when tested in accordance with the accepted standard. Table 14.2 to 14.8 provide available data regarding fire resistance ratings of various building components such as walls, columns, beams and floors. Fire damage assessment, post fire structurally safety assessment of various structural elements of the building and adequacy of the structural repairs can be done by the fire resistance ratings mentioned in Table 14.2.to 14.18

14.3.3 Steel construction

Load bearing steel beams and columns of buildings having total covered area of 500 sq m and above shall be protected against failure/collapse of structure in case of fire. This could be achieved by use of appropriate methodology using suitable fire resistance rated materials along with suppression system (see Table 14 and Table 15 and also accepted standards)

14.4. General Requirements of all Individual Occupancies

14.4.1 General

All buildings shall satisfy certain requirements, which contribute, individually and collectively, to the safety of life from fire, smoke, fumes and panic arising from these or similar causes. There are however, certain general principles and common requirements, which are applicable to all or most of the occupancies.

14.4.2 Exceptions and Deviations

Exceptions and deviations to the general provisions of requirements of individual occupancies are given as applicable to each type of occupancy in 14.6.1. to 14.6.2. In case of practical difficulty or to avoid unnecessary hardship, without sacrificing reasonable safety, the Authority may grant exemptions from the Document.

14.4.3. Occupancy of Buildings under Construction

14.4.3.1. A building or portion of the building may be occupied during construction, repairs, alterations or additions only if all means of exit and fire protection measures are in place and continuously maintained for the occupied part of the building.

14.4.3.2. A high rise building during construction shall be provided with the following fire protection measures, which shall be maintained in good working conditions at all the times:

a) Dry riser of minimum 100 mm diameter pipe with hydrant outlets on the floors constructed with a fire service inlet to boost the water in the dry riser and maintenance should be as per the acceptable standards.
b) Drums filled with water of 2000 liters' capacity with two fire buckets on each floor and
c) A water storage tank of minimum 20000 liters' capacity, which may be used for other construction purposes also.

Table 14.1
Fire Resistance Rating of Structural and Non-Structural Elements (Hours)
(Clause 3.3.1)

S. No (1)	Structural Elements (2)		Type of Construction			
			Type 1 (3)	Type 2 (4)	Type 3 (5)	Type 4 (6)
i)	Exterior Walls:					
	a) Fire separating less than 3.7m	a) Bearing	4	2	2	1
		b) None- Bearing	2	1 ½	1	1
	b) Fire separation of 3.7m or more but less than 9m	a) Bearing	4	2	2	1
		b) None- Bearing	1 ½	1	1	1
	c) Fire separation of 9m or more	a) Bearing	4	2	2	1
		b) None- Bearing	1	1	1	1
ii)	Fire Resistance walls		4	2	2	2
iii)	Fire Separation assemblies (like fire check doors)		4	2	2	2
iv)	Fire enclosures of exit ways, hallways and stairways		2	2	2	2
v)	Shaft other than exit ways, elevators and hoist ways		2	2	2	2
vi)	Exit way access corridors		1	1	1	1
vii)	Vertical separation of tenant spaces		1	1	1	1
viii)	Dwelling unit separation		1	1	1	1
	Non- Load bearing partitions		-At least half an hour-			
ix)	Interior Bearing walls, bearing, partitions, columns, girders, trusses (other than roof trusses) and framing	a) Supporting more than one floor	4	2	2	2
		b) Supporting one floor only	3	1 ½	1	1
		c) Supporting a roof only	3	1 ½	1	1
x)	Structural members support walls		3	1 ½	1	1
xi)	Floor construction including walls		3	1 ½	1	1
xii)	Roof Construction	5m or less in height to lowest member	2	1 ½	1	1
		More than 5m but less than 6.7m in height to lowest member	1	1	1	1
		3.7m or more in height to lowest member	0	0	0	0

Table 14.2

Masonry Walls: Solid (Required Resisting Fire from One Side at a Time)

(Clause 14.3.2)

S. No (1)	Nature of Construction and Material (2)	Minimum Thickness(mm), Excluding any finish for a Fire Resistance (Hours) of									
		Load Bearing					Non- Load Bearing				
		1 (3)	1½ (4)	2 (5)	3 (6)	4 (7)	1 (8)	1½ (9)	2 (10)	3 (11)	4 (12)
i)	Reinforced[1] Cement concrete	120 (25)[2]	140 (25)[2]	160 (25)[2]	200 (25)[2]	240 (25)[2]					
ii)	Unreinforced Cement concrete	150	175	-----	-----	-----					
iii)	No- Fines concrete with:										
	a) 13mm cement/sand or Gypsum/sand	-----	-----	-----	-----	-----	150	150	150	150	150
	b) 13mm lightweight aggregate gypsum plaster	-----	-----	-----	-----	-----	150	150	150	150	150
iv)	Bricks of clay:										
	a) Without finish	90	100	100	170	170	75	90	100	170	170
	b) With 13mm lightweight aggregate gypsum plaster	90	90	90	100	100	75	90	90	90	100
v)	Bricks of sand lime:										
	a) Without finish	90	100	100	190	190	75	90	100	170	170
	b) With 13mm lightweight aggregate gypsum plaster	90	90	90	100	100	75	90	90	90	100
vi)	Blocks of concrete:										
	a) Without finish	90	100	100	-----	-----	75	90	100	140	150
	b) With 13mm lightweight aggregate gypsum plaster	90	90	90	100	100	75	75	75	90	100
	c) With 13mm cement/sand or gypsum/sand						75	90	90	100	140
vii)	Blocks of lightweight concrete:										
	a) Without finish	90	100	100	140	150	75	75	75	125	140
	b) With 13mm lightweight aggregate gypsum plaster	90	90	90	100	100	50	63	75	75	75
	c) With 13mm cement/sand or gypsum/sand	-----	-----	-----	-----	-----	75	75	75	90	100
viii)	Blocks of aerated concrete:										
	a) Without finish	90	100	100	140	180	5	63	63	75	100
	b) With 13mm lightweight aggregate gypsum plaster	90	90	100	100	150					

[1] Walls containing at least 1 percent of vertical reinforcement.
[2] Minimum thickness of actual cover to reinforcement.

Table 14.3
Masonry Walls: Hollow (Required to Resist Fire from One Side at a Time)
(Clause 14.3.2)

S. No	Nature of Construction and Materials	Minimum Thickness(mm), Excluding any finish for a Fire Resistance (Hours) of									
		Load Bearing					Non- Load Bearing				
		1	1½	2	3	4	1½	1	1½	2	3	4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
i)	Bricks of Clay:											
	a) Without finish	170	170	170	200	200	75	75	90	100	170	170
	b) With 13mm lightweight aggregate gypsum plaster	100	100	170	170	170	75	75	90	90	90	100
ii)	Blocks of Concrete:											
	a) Without finish						90	125	125	140	140	150
	b) With 13mm cement/sand or gypsum/sand	190	200	200	-----	-----	90	125	125	140	140	140
	c) With 13mmm lightweight aggregate gypsum plaster						75	90	90	100	125	125
iii)	Blocks of lightweight concrete:											
	a) Without finish	100	100	100	-----	-----	75	90	90	100	140	150
	b) With 13mm cement/sand or gypsum/sand	-----	-----	-----	-----	-----	75	75	75	100	140	140
	c) With 13mm lightweight aggregate gypsum plaster	-----	-----	-----	-----	-----	63	63	63	75	90	100

Table 14.4
Framed Construction, Land Bearing (Required to Resist Fire from one side at a Time)
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials/Timber Exceeding 600mm, Faced on Each Side with (2)	Minimum thickness(mm) of Protection for a Fire Resistance of 1 h (3)
i)	Plasterboard layers with joints staggered, joints in outer layer tapped and filled----Total thickness for each face	25
ii)	One layer of 12.7mm plasterboard with a finish of lightweight aggregate gypsum plaster	13
iii)	Metal lath and plaster, thickness of plaster:	
	a) Sanded gypsum plaster (metal lathing grade)	22
	b) Lightweight aggregate gypsum plaster	13

Table 14.5
Framed Construction, Non-Load Bearing (Required to Resist Fire from one Side at a Time)
(Clause 14.3.2)

Nature Construction and Material/Steel or Timber framed at Centers not exceeding 600mm, Facing on Both sides of (1)		Stud Construction (2)	Minimum Thickness(mm) of Protection for a Fire Resistance			
			½ h (3)	1 h (4)	1 ½ h (5)	2 h (6)
A)	Dry lining with materials fixed direct to studs (Without plaster finish)					
1.	One layer of plasterboard with taped and filled joints.	Timber or steel	12.7			
2.	Two layers of plasterboard with joints staggered, joints in outer layer taped and filled----Total thickness for each face.	Timber or steel	9	25		
3.	One Layer of asbestos insulating board with transverse joints backed by filters of asbestos insulating board not less than 9mm thick, or by timber.	Timber or steel	9	12		
4.	One layer of wood wool slabs.	Timber	25			
5.	One layer of clipboard or of plywood	Timber or steel	18			
B)	Lining with materials fixed direct to studs, with plaster finish:					
	Plaster board of thickness:	Timber or steel				
a)	With not less than 5mm gypsum plaster finish		9.5			
b)	With not less than 13mm gypsum plaster finish			12.7		
C)	Wet finish:					
	Metal lath and plaster, thickness of plaster:	Timber or steel	13			
a)	Sanded gypsum plaster			13	19	25
b)	Lightweight aggregate gypsum plaster	Timber Steel		13		

Table 14.6
Framed External Walls Load bearing (Required to Resist Fire from one side at a Time)
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials (2)	Minimum Thickness(mm) of Protection for Fire Resistance of 1h (3)
	Timber studs at centers not exceeding 600mm with internal linings of	
i)	Plasterboard layers with joints in outer layer taped and filled, total thickness of plasterboard	25

Table 14.7
Framed External Walls Non- Load Bearing Required to Resist Fire only from Inside the Building
(A)
(Clause 14.3.2)

Names of construction and Materials (1)		Minimum Thickness(mm) of Protection for a Fire Resistance					
		1½ h (2)	1 h (3)	½ h (4)	2 h (5)	3 h (6)	4 h (7)
	Steel Framed with an external cladding of non-combustible sheets (Excluding sheets steel) With a steel supporting framework and internal lining of:						
1.	Metal lath and plaster, thickness of plaster						
a)	Sanded gypsum plaster (Metal lathing grade)	13	13				
b)	Lightweight aggregate gypsum plaster	10	13	15	15	15	19
2.	Two layer of plasterboard with joints in outer layer Tapped and filled---- Total thickness	21	32				
3.	Plasterboard of thickness:						
a)	With not less than 5mm gypsum plaster finish	12.7					
b)	With not less than 13mm gypsum plaster finish						
c)	With not less than 10mm lightweight aggregate gypsum plaster	9.5					
4.	One layer of asbestos insulating board with transverse joints backed by fillers of asbestos insulating board not less than 9mm thick or by timber	9	9	12	12	12	12
5.	One layer of wood/wool slabs without finish		50				
6.	One layer of compressed straw building slabs:						
a)	Without finish	50					
b)	With not less than 5mm gypsum plaster finish		50				
7.	Aerated concrete blocks	50	50	63	63	75	100
8.	Bricks of clay:						
a)	Without finish	75	75	90	90	100	100
b)	With not less than 13mm lightweight aggregate gypsum plaster			75	75	90	90

Table 14.8
Framed external Walls Non- Load Bearing Required to Resist Fire only from Inside the Building
(B)
(Clause 14.3.2)

Nature of Construction and Materials (1)		Minimum thickness(mm) of Protection to Provide Sufficient Insulating to Achieve a Modified Fire Resistance of up to 4 h (2)
	Steel framed with an external cladding of sheet steel fully lapped, steel bolted and fixed to steel sheeting rails, with Timber or steel supporting framework and internal lining of	
1.	Metal lath and plaster, thickness of plaster	
a)	Sanded gypsum plaster (metal lathing grade)	13
b)	Lightweight aggregate gypsum plaster	10
2.	One layer of plasterboard with joints taped and filled	12.7
3.	Plasterboard of thickness with not less than 5mm gypsum plaster finish	9.5
4.	One layer of asbestos insulating board with transverse joints backed by fillers of asbestos insulating board not less than 9mm thick, or by timber	9
5.	One layer of wood/wool slabs	25
6.	One layer of compressed straw building slabs	50
7.	One layer of chipboard or of plywood	18
8.	Aerated concrete blocks	50
9.	Bricks of clay	75
10.	Any internal decorative lining with a cavity fill independently supported and retained in positions of mineral fiber insulating material (excluding glass) at a density of 48 kg/m3	50

Table 14.9
Framed Walls Non- Load Bearing Required to Resist fire only from Inside the Building
(C)
(Clause 14.3.2)

S. No	Nature of Construction and Material (1)	Minimum Thickness(mm) of Protection for Fire Resistance of 1½ h (2)
	Timber frame with external cladding of weather boarding or external plywood, 9.5mm with an internal lining of:	
1.	Plasterboard not less than 9.5mm thick finished with:	
	a) Gypsum plaster	13
	b) Lightweight aggregate gypsum plaster	10
2.	Plasterboard not less than 12.7mm thick finished with:	
	a) Gypsum plaster	10
	b) Lightweight aggregate gypsum plaster	10
3.	One layer of asbestos insulating board with transverse	9
	joints backed by fillers of asbestos insulating board not less than 9mm thick or by timber	12

Table 14.10
Reinforced Concrete Columns
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials (2)		Minimum Dimension(mm) Excluding any finish for Fire Resistance of					
			½ h (3)	1 h (4)	1½ h (5)	2 h (6)	3 h (7)	4 h (8)
1.	Fully Exposed	Width	150	200	250	300	400	450
		Cover	40	40	40	40	40	40
2.	50 Percent Exposed	Width	125	160	200	200	300	350
		Cover	40	40	40	40	40	40
3.	One Face Exposed	Thickness	100	120	140	160	200	240
		Cover	40	40	40	40	40	40

Table 14.11
Concrete Beams
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials (2)		Minimum Dimension(mm) Excluding any finish for Fire Resistance of					
			1½ h (3)	1 h (4)	1½ h (5)	2 h (6)	3 h (7)	4 h (8)
1.	Reinforced Concrete (Simply Supported)	Width	200	200	200	200	240	280
		Cover	20	20	20	40	60[1)]	70[1)]
2.	Reinforced Concrete (Continuous)	Width	200	200	200	200	240	280
		Cover	20	20	20	30	40	50
3.	Pre-stressed Concrete (Simply Supported)	Width	100	120	150	200	240	280
		Cover	25	40	55	70	80	90
4.	Pre-stressed Concrete (Continuous)	Width	80	100	120	150	200	240
		Cover	20	30	40	55	70	80

[1)] Required attention to the additional measures necessary to reduce the risk of spalling.

Table 14.12
Concrete Floors
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials (2)		Minimum Dimension(mm) Excluding any finish for Fire Resistance of					
			1½ h (3)	1 h (4)	1½ h (5)	2 h (6)	3 h (7)	4 h (8)
1.	Reinforced Concrete (Simply Supported)	Thickness	75	95	110	125	150	170
		Cover	20	20	25	35	45[1)]	55[1)]
2.	Reinforced Concrete (Continuous)	Thickness	75	95	110	125	150	170
		Cover	20	20	20	25	35	45[1)]

[1)] Required attention to the additional measures necessary to reduce the risk of palling.

Table 14.13
Concrete Floors: Ribbed Open Soffit
(Clause 14.3.2)

S. No (1)	Nature of Construction and Materials (2)		Minimum Dimension(mm) Excluding any finish for Fire Resistance of					
			1½ h (3)	1 h (4)	1½ h (5)	2 h (6)	3 h (7)	4 h (8)
i)	Reinforced Concrete (Simply Supported)	Thickness of floor	75	95	110	125	150	170
		Rib Width	125	125	125	125	150	175
		Cover	20	20	35	45	55	65
ii)	Reinforced Concrete (Continuous)	Thickness of floor	75	95	110	125	150	170
		Rib Width	125	125	125	125	150	175
		Cover	20	20	20	35	45	55

Table 14.14
Encased Steel Columns, 203mm x 203mm (Protection Applied on Four Sides)
(Clause 14.3.2)

S. No	Nature of Construction and Materials	Minimum Dimension(mm) Excluding any finish for Fire Resistance of				
		1 h	1½ h	2 h	3 h	4 h
	(1)	(2)	(3)	(4)	(5)	(6)
A)	Hollow protection (without an air cavity over the flanges)					
1.	[1)]Metal Lathing with trowel led lightweight aggregate gypsum plaster	13	15	20	32	
2.	Plasterboard with 1.6mm wire binding at 100mm pitch, finished with lightweight aggregate gypsum plaster not less than the thickness specified:					
	a) 9.5mm plaster board	10	15			
	b) 19mm plaster board			10	13	20
3.	Asbestos insulating boards, thickness of the board:					
	a) Single thickness of board with 6mm cover fillers at transverse joints		19	25		
	b) Two layers of total thickness				38	50
4.	Solid bricks of clay, composition or sand lime, reinforced in every horizontal joint, unplastered	50	50	50	75	100
5.	Aerated concrete blocks	60	60	60		
6.	Solid blocks of light weight hollow protection (with an air cavity over the flanges)	50	50	50	60	75
B)	Asbestos insulating board screwed to 25mm asbestos battens	12	19			
C)	Solid Protections					
1.	Concrete not less than 1:2:4 mix (unplastered)					
	a) Concrete not assumed to be load bearing, reinforced[2)]	25	25	25	50	75
	b) Concrete assumed to be load bearing.	50	50	50	75	75
2.	Lightweight concrete, not leaner than 1:2:4 Mix (unplastered): concrete not assumed to be load bearing, reinforced[2)]	25	25	25	40	60

[1)] So fixed or designed, as to allow full penetration of mechanical bond.
[2)] Reinforced shall consist of steel binding wire not less than 2.3mm in thickness or a steel mesh weighting not less than 0.5Kg/$m^{2.}$ In concrete protection, the spacing of that reinforcement shall not exceed 200mm in any direction.

Table 14.15
Encased Steel Beams, 406mm x 176mm
(Protection Applied on Three Sides)
(Clause 14.3.2)

[1)] So fixed or designed, as to allow full penetration for mechanical bond.
[2)] Where wire binding cannot be used, expert advice should be sought regarding alternative methods of sought regarding alternative methods of support to enable the lower edges of the plasterboard to be fixed together and to lower flange, and for the top edge of the plasterboard to be held in position.

S. No	Nature of Construction and Materials	Minimum Dimension(mm) Excluding any finish for Fire Resistance of					
		1 h	1½ h	2 h	3 h	4 h	5 h
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A)	Hollow protection (without an air cavity over the flanges)						
1.	[1)]Metal Lathing with trowel led lightweight aggregate gypsum plaster	13	13	15	20	25	
2.	Plasterboard with 1.6mm wire binding[2)] at 100mm pitch, finished with lightweight aggregate gypsum plaster not less than the thickness specified:						
	a) 9.5mm plaster board	10	10	15			
	b) 19mm plaster board	10	10		13	20	
3.	Asbestos insulating boards, thickness of the board:						
	a) Single thickness of board with 6mm cover fillers at transverse joints			19	25		
	b) Two layers of total thickness					38	50
B)	Hollow protection (without an air cavity below the lower flanges)						
1.	Asbestos insulating board screwed to 25mm asbestos battens	9	12				
C)	Solid Protections						
1.	Concrete not less than 1:2:4 mix (unplastered)						
	a) Concrete not assumed to be load bearing, reinforced[3)]	25	25	25	25	50	75
	b) Concrete assumed to be load bearing.	50	50	50	50	75	75
2.	Lightweight concrete[4)], not less than 1:2:4 mix (unplastered):	25	25	25	25	40	60

[3)] Reinforcement shall consist of steel binding wire not less than 2.3mm in thickness or a steel mesh weighing not less than 0.5Kg/m^2. In concrete protection, the spacing of that reinforcement shall not exceed 200mm in any direction.
[4)] Concrete not assumed to be load bearing, reinforced.

Table 14.16
Timber Floors—Tongued and Grooved Boarding, or Sheets of Tongued and Grooved Plywood or Wood Chipboard of not less than 21mm Finished Thickness
(Clause 14.3.2)

S. No	Nature of Construction and Materials (1)	Minimum Thickness(mm) of Protection for a Fire Resistance of		
		½ h (2)	1 h (3)	2 h (4)
	37mm (minimum) timber joints with a ceiling of:			
1.	Timber lathing and plaster, plaster of thickness	15		
2.	Metal lathing and plaster, thickness of plaster:			
	a) Sanded gypsum plaster (metal lathing grade)	15		
	b) Lightweight aggregate gypsum plaster	13	13	25
3.	One layer of plaster board with taped and filled joints	12.7		
4.	Two layers of plaster board with joints staggered, joints in outer layer tapped and filled total thickness	19	31	
5.	One layer of plasterboard not less than 9.5mm thick, finished with:			
	a) Gypsum Plaster	5		
	b) Sanded gypsum plaster	13		
	c) Lightweight aggregate gypsum plaster	13		
6.	One layer of plasterboard not less than 12.7mm thick, finished with:			
	a) Gypsum Plaster	5		
	b) Lightweight aggregate gypsum plaster	10		
7.	One layer of asbestos insulating board with any transverse joints backed by fillets of asbestos insulating board not less than 9mm thick or by timber	9	12	

Table 14.17
Timber Floors—Tongued and Grooved Boarding, or Sheets Of Tongued and Grooved Plywood or Wood Chipboard of not less Than 15mm Finished Thickness
(Clause 14.3.2)

S. No	Nature of Construction and Materials (1)	Minimum Thickness(mm) of Protection for a Fire Resistance of		
		½ h (2)	1 h (3)	2 h (4)
	37mm (minimum) timber joints with a ceiling of:			
1.	Timber lathing and plaster, plaster of thickness	15		
2.	Metal lathing and plaster, thickness of plaster for:			
	a) Sanded gypsum plaster (metal lathing grade)	15		
	b) Lightweight aggregate gypsum plaster	13	13	25
3.	One layer of plaster board with taped and filled joints	12.7		
4.	Two layers of plaster board with joints staggered, joints in outer layer tapped and filled total thickness	22	31	
5.	One layer of plasterboard not less than 9.5mm thick, finished with:			
	a) Gypsum Plaster	5		
	b) Sanded gypsum plaster	15		
	c) Lightweight aggregate gypsum plaster	13		
6.	One layer of plasterboard not less than 12.7mm thick, finished with:			
	a) Gypsum Plaster	5		
	b) Lightweight aggregate gypsum plaster	10		
7.	One layer of asbestos insulating board with any transverse joints backed by fillets of asbestos insulating board not less than 9mm thick or by timber	9	12[1)]	

[1)] Finished on p with 25mm minimum thick glass fiber or mineral wool laid between joints.

Table 14.18
Timber Floors—Any Structurally Suitable Flooring of Timber Or Lignocelluloses Boards
(Clause 3.3.2)

S. No	Nature of Construction and Materials (1)	Minimum Thickness(mm) of Protection for a Fire Resistance of	
		½ h (2)	1 h (3)
	37mm (minimum) timber joints with a ceiling of:		
1.	Timber lathing and plaster, plaster of thickness	15	
2.	Metal lathing and plaster, thickness of plaster for:		
	a) Sanded gypsum plaster (metal lathing grade)	15	
	b) Lightweight aggregate gypsum plaster	13	19
3.	One layer of plaster board with taped and filled and backed by Timber:	12.7	
4.	Two layers of plaster board with joints staggered, joints in outer layer tapped and filled total thickness	25	
5.	Two layers of plasterboard not less than 9.5mm thick, joints between board staggered and outer layer finished with gypsum plaster	5	
6.	One layer of plasterboard not less than 9.5mm thick, finished with:		
	a) Sanded gypsum Plaster	13	
	b) Lightweight aggregate gypsum plaster	15	
7.	One layer of plasterboard not less than 12.7mm thick, finished with:		
	a) Sanded gypsum Plaster	15	
	b) Lightweight aggregate gypsum plaster	13	
8.	One layer of asbestos insulating board with any transverse joints backed by fillets of asbestos insulating board not less than 9mm thick or by timber	12	

14.4.4. Maximum Height:

Every Building shall be restricted in its height above the ground level and the number of storey, depending upon its occupancy and the type of construction. The height shall be measured as specified in relevant regulations. The maximum permission height for any combination of occupancy and types of construction should necessarily be related to the width of street fronting the building, or floor area ratios and the local firefighting facilities available.

14.4.5. Floor Area Ratio (FAR)

The comparative floor area ratios for different occupancies and types of construction are given in Table 14.19

14.4.5.1. Each portion of a building. Which is separated by one or more continuous fire resisting walls, having a fire resistance of not less than 2h, extending from the foundation to 1 m above the roof at all points, may be considered to be a separate building for the calculation of maximum permissible height and floor area, provided openings, if any, in the separating wall are also protected by fire assemblies of not less than 2 h.

14.4.6 Open Spaces

14.4.6.1 For high-rise buildings, the following additional provisions of means of access to the building shall be ensured:

a) The width of the main street on which the building abuts shall not be less than 12m and one end of this street shall join another street not less than 12m in width;

b) The road shall not terminate in a dead end; except in the case of residential building, up to a height of 30m or provision of a cul-de-sac.

c) Adequate passageway and clearances requires for fire fighting vehicles to enter the premises shall be provided at the main entrance; the width of such entrance shall be not less than 4.5m. If an arch or covered gate is constructed, it shall have clear headroom of no less than 5m.

14.4.7 Mixed Occupancy

When any building is used for more than one type of occupancy, then in so far as fire safety is concerned, it shall not be treated individually.

14.4.8 Opening in Separating Walls and Floors

At the time of designing openings in separating walls and floors, particular attention shall be paid to all such factors as will limit fire spread through these openings and maintain fire rating of the structural member.

14.4.8.1 For Types 1 to 3 construction, a doorway or opening in a separating wall on any floor shall be limited to 5. 6sq.m in area with the maximum height/width of 2.75m. Every wall opening shall be protected with fire-resisting doors having the fire rating of not less than 20h in accordance with accepted standard. All openings in the floor shall be protected by vertical enclosures extending above and below such openings, the walls of such openings, the walls of such enclosures having a fire resistance of not less than 2h and all openings therein beings protected with a fire-resisting assembly as specified in 14.4.9.

Table 14.19
Comparative Floor Areas Ratios for Occupancies Facing One Public Street at least 9m wide
(Clause 14.4.5)

Occupancy Classifications (1)	Types of Construction			
	Type 1 (2)	Type 2 (3)	Type 3 (4)	Type 4 (5)
Residential	UL	2.0	1.4	1.0
Educational	UL	2.0	1.4	1.0
Intuitional	UL	1.5	1.0	0.8
Assembly	UL	1.0	0.7	0.5
Business	UL	2.9	2.3	1.6
Mercantile	8.0	1.8	1.4	1.0
Industrial	7.5	1.9	1.6	1.3
Storage (see note 5)	6.0	1.5	1.3	1.0
Hazardous (see note 5)	2.8	1.1	0.9	NP

14.4.8.2 For Type 4 construction, openings in the separating walls or floors shall be fitted with 2h fire-resisting assemblies.

14.4.8.3 Openings in walls or floors which are necessary to be provided to allow passages of all building services like cables, electrical wirings, telephone cables, plumbing pipes, etc., shall be protected by enclosure in the form of ducts/shafts having a fire resistance not less than 2 h. The inspection door for electrical shafts/ ducts shall be not less than 1h. Medium and low voltage wiring running in shafts/ducts shall either be armored type or run through metal conduits. Further, the space between the conduits pipes and the walls/ slabs shall be filled in by a filler material having fire resistance rating of not less than 1h.

14.4.8.4 Vertical Opening: Every vertical opening between the floors of a building shall be suitably enclosed or protected, as necessary, to provide the following:

a) Reasonable safety to the occupants while using the means of egress by preventing spread of fire, smoke, or fumes through vertical openings from floor to floor to allow occupants to complete their use of the means of egress. Further it shall be ensured to provide a clear height of 2100 mm in the passage/ escape path of the occupants.

b) Limitation of damage to the building and its contacts

14.4.9. Fire stop or Enclosure of Openings

Where openings are permitted, they shall not exceed three-fourths the area of the wall in the case of an external wall and they shall be protected with fire resisting assemblies or enclosures having a fire resisting assemblies or enclosures having a fire resistance equal t that of the wall or floor in which these are situated. Such assemblies and enclosures shall also be capable of preventing the spread of smoke or fumes through the openings so as to facilitate the safe evacuation of building in case of fire.

14.4.10. Electrical Installations

For requirements regarding electrical installations from the point of view of fire safety accepted standards should be consulted.

14.4.11. Air-conditioning and Ventilations

Air-conditioning and ventilation requirements of different rooms or areas in any occupancy shall be as per standards.

14.4.11.1. Air-conditioning and ventilating systems shall be so installed and maintained as to minimize the danger of spread of fire, smoke or fumes from one floor to other or from outside to any occupied building or structure.

14.4.11.2. Air conditioning and ventilating systems circulating air to more than one floor or fire are shall be provided with dampers designed to close automatically in case of fire and thereby preventing spread of fire or smoke and shall be in accordance with the accepted standard. Such a system shall also be provided with automatic controls to stop fans in case of fire, unless arranged to remove smoke from a fire, in which case these shall be designed to remain in operation

14.4.11.3. Air-conditioning system serving large places of assembly (over1000 persons), large departmental stores or hotels with over 100 rooms in a single block shall be provided with effective means for preventing circulation of smoke through the system in the case of a fire in air filters or from other sources drawn into the system, and shall have smoke sensitive devices for actuation in accordance with the accepted standards.

14.4.11.4. From fire safety point of view separate air handling units for the various floors shall be provided so as to avoid the hazards arising from spread of fire and smoke through the air-conditioning ducts. The requirements of air-conditioning ducts shall be in accordance with accepted standards.

14.4.12. Smoke Venting

14.4.12.1. Smoke Venting facilities for safe use of existing windowless buildings, underground structures, large area factories, hotels and assembly Buildings, underground structures, large area factories hotels and assembly buildings (including cinema halls) shall be automatic in action with manual controls in addition.

14.4.12.2. Natural draft smoke venting shall utilize roof vents or vents in walls at or near the ceiling level: such vents shall be normally open, or if closed shall be designed for automatic opening in case of fire, by release of smoke sensitive devices.

14.4.12.3. Where smoke venting facilities are installed for purposes of exit safety, these shall be adequate to prevent dangerous accumulation of smoke during the period of time necessary to evacuate the area served, using available exit facilities with a margin of safety to allow for unforeseen contingencies. It is recommended that smoke exhaust equipment should have minimum capacity of 12 air changes per hour. Where mechanical venting is employed, it shall be fire safe.

14.4.12.4. The discharge apertures of all natural draft smoke vents shall be so arranged as to be readily accessible for opening by fire service personnel.

14.4.12.5. Power operated smoke exhausting systems shall be substituted for natural draft vents only be specific permission of the Authority.

14.4.13. Heating

Installation of chimney and heating apparatus shall be in accordance with accepted standards.

14.4.14. Additional Precautions

In addition to the factors covered by 14.4.2 to 14.4.12 there are certain aspects, applicable to particular occupancies only, which may affect the spread of fumes and thus the safe evacuation of the building in case of fire. Some such aspects are:

a. Interior finish and decoration
b. Seating, aisles, railings, turnstiles and revolving doors in places of assembly.
c. Service equipment and storage facilities in buildings other than storage buildings
d. Hazards on stage, in waiting spaces, projection, booths, etc., in theatres and cinemas.

14.4.15. Surface Interior Finishes

14.4.15.1. The use of combustible surface finishes on walls (including façade of the building) and ceilings affects the safety of the occupants of a building. Such finishes tend to spread the fire and even though the structural elements may be, adequately fire resistant, serious danger to life may result. It is, therefore, essential to have adequate precautions to minimize spread of flame on wall, façade of building and ceiling various surfaces and decoration shall be such that it shall not generate toxic smoke/fumes.

14.4.15.2. The susceptibility to fire of various types of wall surfaces is determined in terms of the rate of spread of flame; surfacing material shall be considered as divided into four classes as follows.

Class 1 surfaces of very low flame spread.

Class 2 Surfaces of low flame spread.

Class 3 Surfaces of medium flame spread.

Class 4 Surfaces of rapid flame spread

Class 1	Class 2	Class 3
May be used in any situation	May be used in any situation, except on walls. Façade of the buildings. Staircase and corridors	May be used only in living rooms and bedrooms (but not in rooms on the roof) and only as lining to solid walls and partitions; not on staircase or corridors or façade of the building.

14.4.15.3. The uses for which surface materials falling into various classes shall be adopted in building construction are given below:

Note: Paneling (lining) shall be permitted in a limited area. It shall not be permitted in a vestibule.

14.4.15.4. Materials of Class 4 which include due fire retardant treatment as ceiling lining, provided the ceiling is at least, 2.4 m from the top surface of the floor below, and the wall surfaces conform to requirements of class (see note under 14.4.15.3.) Class 4 materials shall not be used in kitchens, corridors and staircases. Some materials contain bitumen and, in addition to risk from spread of fire, emit dense smoke on burning; such materials shall be excluded from use under these conditions and shall also not be used for construction of ceiling where the plenum is used for return air in air conditioned buildings.

14.4.15.5. When frames, walls partitions or floors are lined with combustible materials, the surfaces on both sides of the materials shall conform to the appropriate class, because there is considerable danger from fire starting and rapidly spreading within the concealed cavity unknown to the occupants whose escape may be hampered there by. For detailed information on materials and details of construction with their fire resistance rating, reference may be made to acceptable standards

14.4.16. Glazing

14.4.16.1. Building of Types 1 to 4 construction shall employ one of the two types of glazing described in 14.4.16.2 and 14.4.16.3 except that Type 4 construction may have the alternative of hardwood sashes or frames or both.

14.4.16.2. Wired glass shall comply with the following requirements:

a. Wired glass

The wired glass shall be of minimum half hour fire resistance rating.

b. Sashes and frames

The sashes or frames or both shall be entirely of iron or other suitable metal such as stainless steel, securely bolted or keyed into the wall, except in the case of panels in internal doors.

c. Setting of glass

The panels of glass shall be set in rebates or grooves not less than 6.00 mm in width or depth, with due allowance for expansion, and shall be secured by hard metal fastenings to the sashes or frames independently of any cement or putty used for weather-proofing purposes.

14.4.16.3. Electro- copper glazing shall comply with the following requirements:

a. Electro copper glazing:

The electro copper glazing shall be of minimum half hour fire resistance rating.

b. Sashes and frames:

The sashes or frames or both shall be entirely of iron or other hard metal, securely bolted or keyed into the wall except when in panels in internal doors.

c. Fixing of sectional lights:

The sectional lights shall be set in rebate or groves not less than 6.5 mm in width or depth, with due allowance for expansion and shall be secured by hard metal fastenings to the sashes or frames independently of any lead, cement or putty used for weather proofing purposes.

14.4.16.4. Maximum permissible area shall be 5 sq m for protection by wired glass or electro copper glazing.

14.4.16.5. Casement

Hard metal casements, not exceeding 0.8 sq. m fitted with wired glass or electro copper glazing in accordance with 14.4.16.2.and 14.4.16.3. secured to the frames by hard metal hinges not more than 600 mm apart and by fastening at top. Center and bottom shall be permissible.

14.4.17 Skylights

14.4.17.1 Wired glass for skylights or monitor lights shall comply with the following requirement:

a. Wired glass for skylights or monitor lights shall be of minimum half hour fire resistance rating.
b. Frames and glazing: - The frame shall be continuous and divided by bars spaced at not more than 700 mm centers. The frame and bars shall be of iron or other hard metal, and supported on a curb either of metal or of wood covered with sheet metal. The toughened glass shall be secured by hard metal fastenings to the frame and bars independently or any lead, cement or putty used for weatherproofing purposes.

14.4.18. Louvers

Louvers wherever provided shall be of minimum half hour fire resistance rating.

14.4.19. Glass of façade for high rise buildings, etc. shall be of minimum 1 h fire resistance rating.

Chapter 15

LIFE SAFETY

15.1 General

Every building shall be so constructed equipped maintained and operated as to avoid undue danger to the life and safety of the occupants from fire smoke fumes or panic during the time period necessary for escape.

15.2 General Exit Requirements

15.2.1 An exit may be a doorway corridor passageway to an internal staircase, or to a Verandah or terrace which have access to the street or to the roof of a building or a refuge area. An exit may also include a horizontal exit leading to an adjoining building at the same level.

15.2.2 Lifts and escalators shall not be considered as exits

15.2.3 Every exit, exit access or exit discharge shall be continuously maintained free of all obstructions or impediments to full use in the case of fire or other emergency.

15.2.4 Every building meant for human occupancy shall be provided with exits sufficient to permit safe scape of occupants in case of fire or other emergency.

15.2.5 In every building or structure, exits shall comply with the minimum requirements of this part except those not accessible for general public use.

15.2.6 No building shall be so altered as to reduce the number width or protection of exits to less than that required.

15.2.7 Exits shall be clearly visible and the route to reach the exits shall be clearly marked and signs posted to guide the occupants of the floor concerned. Sign shall be illuminated and wired to an independent electrical circuit on an alternative source of supply shall be in accordance with acceptable standards. The color of the exit signs shall be green.

Note: This provision shall not apply to A-2 and A-4 occupancies less than 15m in height.

15.2.8 The floor of areas covered for the means of exit shall be illuminated to values not less than 1ft candle 10 lux at floor level. In auditoriums theaters concert halls and such other places of assembly the illumination of the floor exit/access may be reduces during period of performances to values not less than 1/5ft candle2 lux.

15.2.9 fire doors with 2 h fire resistance shall be providing at appropriate places along the escape route and particularly at the entrance to lift lobby and stair well where a funnel or flue effect may be created inducing an upward spread of fire to prevent spread of fire and smoke.

15.2.10 all exits provide continuous means of egress to the exterior of a building or to an exterior open spaces leading to a street.

15.3 Occupant land

For determining the exits required the number of persons within any floor area or the occupants load shall be based on the actual number of occupants but in no case less than that specified in table 20.

15.3.1 Mezzanine

The occupant's load of a mezzanine floor discharging to a floor below shall be added to that floor occupancy and the capacity of the exits shall be designed for the total occupancy load thus established.

15.4 Capacities of Exits

15.4.1 The unit of exit width used to measure the capacity of any exit, shall be 500mm. A clear width of 250mm shall be counted as an additional half unit. Clear widths less than 250mm shall not be counted for exit width.

Note: The total occupants from a particular floor must evacuate within 21/2 minutes for type 1 construction and 1 minute for types 3 calculated accordingly keeping in view the travel distance as per Table 15.1.

15.4.2 Occupants per unit exits width shall be in accordance with Table 15.1

15.4.3 Horizontal Exit Allowance

When horizontal exit is provided in buildings of mercantile, storage, Industrial, business and assembly occupancies, the capacity per story per unit width of exit of stairways in table 21 may be increased by 50 percent and in buildings of institutional occupancy it may be increased by 100 percent.

15.5 Arrangements of Exits

15.5.1 Exists should be so located that the travel distance on the floor shall not exceed the distance given in Table 15.1.

15.5.2 The travel distance to an exit from the dead end of a corridor shall not exceed half the distance specified in the Table 15.1, except in assembly and institutional occupancies in which case it shall not exceed 6m.

15.5.3 Whenever more than one exit is required for any room space or floor of a building, exits shall be placed as remote from each other as possible and shall be arranged to provide direct access in separate directions from any point in the area served.

Sr.No	Group of Occupancy	Maximum Travel Distance	Construction Types 3 & 4 (m)
1	Residential (A)	30.0	22.5
2	Educational (B)	30.0	22.5
3	Institutional (C)	30.0	22.5
4	Assembly (D)	30.0	30.0
5	Business (E)	30.0	30.0
6	Mercantile (G)	30.0	30.0
7	Industrial (H)	45.0	
8	Storage (J)	30.0	
9	Hazardous (H)	22.0	
Construction of Type 3 and 4 is not permitted Notes: 1. For fully sprinkled building, the travel distance may be increased by 50 percent of the values specified. 2. Ramps shall be protected with automatic sprinkler system and shall be counted as one of means of escape.			

Table 15.1 Travel Distance for Occupancy and Type of construction (Clauses 15.5.1, 15.5.2.and 15.4.1)

15.6 Number of Exits

15.6.1 General

The general requirements of number of exits shall supplement the requirement of different occupancies in 6.1 to 6.9.

15.6.2 all buildings, which are 15m height or above, and all buildings used as educational, assembly, institutional, industrial, storage, and hazardous occupancies and mixed occupancies with any of the aforesaid occupancies, having area more than 500 M² on each floor shall have a minimum of two staircases. They shall not be of enclosed type; at least one of them shall be on external walls of building and shall open directly to the exterior, interior open space or to an open space of safety. Further the provision or otherwise of alternative staircases shall be subject to the requirements of travel distance being complied with.

15.7 Doorways

15.7.1 Each exit doorway shall open into an enclosed stairway or a horizontal exit of a corridor or passageway providing continuous and protected means of egress.

15.7.2 No exit doorway shall be less than 1000mm in width except assembly buildings where door width shall not be less than 2000mm. doorways shall not be less than 2000mm in height.

15.7.3 Exit doorways shall open outwards, that is, away from the room, but shall not obstruct the travel along any exit. No door, when opened, shall reduce the required width of stairway or landing to less than 900mm, overhead or sliding doors shall not be installed.

Note: In case of the building where there is central corridor, the doors of rooms shall open inwards and outwards (swing type) to permit smooth flow of traffic in the corridor.

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

15.7.5 Exit doorways shall not be locked from the outside, which they serve without a use of a key.

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

15.8 Corridors and passageways

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

15.8.2 Where stairways discharge through corridors and passageways, the height shall not be less than 2.4m.

15.8.3 All means of exit including staircases lifts lobbies and corridors shall be adequately ventilated.

15.9 Internal Staircases

15.9.1 Internal stairs shall be constructed as a self- contained unit with an external wall of the Building constituting at least one of its sides.

15.9.2 A stair case shall not be arranged round a lift shaft.

15.9.3 Hollow combustible construction shall not be permitted.

15.9.4 No gas piping or electrical panels shall be allowed in the stairway. Ducting in stairway may be permitted if it is of 1 h fire resistance rating.

15.9.5 No withstanding the detailed provision for exits in accordance with 15.3, 15.4 and 15.5 the following minimum width shall be provided for staircases:

a) Residential Buildings (dwellings) 1.0 m

b) Residential hotel buildings 1.5m

c) Assembly buildings like auditorium, theaters and cinemas 2.0m

d) Educational buildings 1.5m upto 3.0m in height

e) Institutional buildings in hospitals 2.0m

f) All other buildings 1.5m

15.9.6 The minimum width of tread without nosing shall be 250mm for internal staircase of residential buildings. This shall be 300mm for assembly, hotels, educational, institutional, business and other buildings. The treads shall be constructed and maintained in a manner to prevent slipping.

15.9.7 The maximum height of riser shall be 190mm for residential buildings and 150mm for other buildings and the number shall be limited to 15 per flight.

15.9.8 Handrails shall be provided at a height of 1000mm to be measured from the base of the middle of the treads to the top of the handrails. Balusters/ railing shall be provided such that the width of the staircase does not reduce.

15.9.9 The number of people in between floor landings in staircase shall not be less than the population on each floor for the purpose of design of staircase. The design of staircase shall also take in account the following:

a) The minimum headroom in a passage under the landing of a staircase shall be 2.2m.

b) For the building 15m in height or more, access to main staircase shall be through a fire/smoke check door of a minimum 2h fire resistance rating.

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

d) External exit door of staircase enclosure at ground level shall open directly to the open spaces or through a large lobby.

e) The main and external staircases shall be continuous from the ground floor to terrace level.

f) No electrical shafts ducts or gas pipes etc. shall pass through or open in the staircase.

g) No combustible material shall be used.

h) Beams columns and other buildings features shall not reduce the head room.

i) The exit sign with arrow indicating the way to the escape route shall be provided at a suitable height from the floor level on the wall and shall be illuminated by electric light connected to corridor.

j) Individual floors shall prominently be indicated on the wall facing the staircase

k) In case of single staircase it shall terminate at ground level and the access to the basement shall be by separate staircase.

15.10 Pressurization of staircase (Protected Escape Routes).

15.10.1 Though in normal design building, compartment plays a vital part in limiting the spread of fire, smoke will readily spread to adjacent spaces through the various leakage openings in the compartment enclosure. Hence the exclusion of smoke and toxic gases from the protected routes is of great importance.

15.10.2 Pressurization is a method adopted for protected escape routes against ingress of smoke, especially in high-rise buildings. In pressurization, air is injected into the staircases lobbies or corridors, to raise their pressure slightly above the pressure in adjacent parts of the building.

As a result, ingress of smoke or toxic gases into the escape routes will be prevented. The pressurization of staircases shall be adopted for high-rise buildings and building having mixed occupancy! multiplexes having covered area more than 500 m2.

15.10.3 The pressure difference for staircases shall be as under:

If possible, the same levels shall be used for lobbies and corridors, but levels slightly lower may be used for these spaces if desired. The difference ill pressurization levels between staircase and lobbies (or corridors) shall not be greater than 5 Pa, (see Table 15.2).

Building Height	**Pressure Difference**	
	Reduced operation (Stage 1 of a 2 Stage station	Emergency Operation (Stage 2 of a 2- Stage or Single Stage System)
	Pascal	Pascal
Less than 15 m	8	50
15 m or above	15	50

Table 15.2

15.10.4 Pressurization system may be of two types:

a) Single-stage, designed for operation only in the event of an emergency, and

b) Two-stage, where normally a level of pressurization is maintained in the protected escape routes and an increased level of pressurization can be brought into operation in an emergency.

15.10.5 The normal air conditioning system and the pressurization system shall be treated as an integral one, especially for a two-stage system. When the emergency pressurization is brought into action, the following. Changes in the normal air-conditioning system shall be effected:

a) Any re-circulation of air shall' be stopped and all exhaust air vented to atmosphere;

b) Any air supply to the spaces/areas other than escape routes shall be stopped;

c) The exhaust system may be continued provided:

d) The positions of the extraction grills permit a general airflow away from the protected escape route entry;

e) The construction of the ductwork and fans is such that, it will not be rendered inoperable by hot gases and smoke; and

f) There is no danger of spread of smoke to other floors by the path of the extraction system, which can be ensured by keeping the extraction fans running.

15.10.6 The pressurization system can be interconnected with the automatic/manual fire alarm system for actuation.

15.10.7 It will be desirable to have all the staircases in a building pressurized, if pressurization system is to be resorted to. The use of pressurized and naturally ventilated staircases in the same building may introduce difficulties and hence shall be avoided. Under no circumstances shall a pressurized staircase be connected by a corridor or lobby to an un-pressurized staircase. Wherever pressurized staircase is to be connected, to' un-pressurized area, the two areas shall be segregated.

15.11 External Stairs

An external staircase is desirable to be provided for high-rise buildings. External stairs, when provided shall comply the following:

15.11.1 External stairs shall always be kept in sound operational conditions.

15.1.1.2 All external stairs shall be directly connected to the ground.

15.11.3 Entrance to the external stairs shall be separate and remote from the internal staircase.

15.11.4 Care shall be taken to ensure that no wall opening or window opens on to or close to an external stair.

15.11.5 The route to the external stairs shall be free of obstructions at all times,

15.11.6 The external stairs shall be constructed of non-combustible materials, and any doorway leading to it shall have the required fire resistance.

15.11.7 No external staircase, used as a fire escape, shall be inclined at an angle greater than 55° from the horizontal.

15.11.8 External stairs shall have straight flight not less than 1250 mm wide with 250mm treads and risers not more than 90 mm. The number of risers shall be limited to 15 per flight.

15.11.9 Handrails shall be of a height not less than 1000 mm. and n0t exceeding 1200mm. There shall be provisions of balusters with maximum gap of 150 mm.

15.11.10 The use of spiral staircase shall be permitted.

15.11.11 Unprotected steel frame staircase will not be accepted as means of escape. However steel staircase in an enclosed fire rated compartment of 2h will be accepted as means of escape.

15.12 Horizontal Exits

15.12.1 The width of horizontal exit shall be same as for the exit doorways.
15.12.2 A horizontal exit shall be equipped with at least one fire/smoke door of minimum 1 h fire resistance, of self-closing type furthermore; it is required to have direct connectivity to the fire escape staircase for evacuation.
15.12.3 For buildings more than 24 m in height, refuge area of 15 m2 or an area equivalent to 0.3 m2 per person to accommodate the occupants of two consecutive floors, whichever is higher, shall be provided as under:
The refuge area shall be provided on the periphery of the floor or preferably all a cantilever projection and open to air at least all one side protected with suitable railings.

a) For floors above 24 m and up to to 39 m -One refuge area on the floor immediately above 24 m

b) For floors above 39 m - One refuge area on the floor immediately above 39 m and so on after every 15 refuge area provided in excess of the requirements shall be counted towards FAR.

NOTE - Residential fiats in multi-storied building with balcony need not be provided with refuge area, however fiats 'without balcony shall provide refuge area is given above.
15.12.4 Where there is a difference in level between connected areas for horizontal exits, ramps, not more than I in 10m slope shall be provided; steps shall not be used.
15.12.5 Doors in horizontal exits shall be openable at all times from both sides.

15.13 Fire Tower:

Fire towers are the preferred type of escape route for storeyed buildings and these shall be considered as the safest route for escape. Their number. Location and size shall depend on the building concerned, and its associated escape routes.
15.13.1 In high-rise buildings with over 8 storey or 24 m in height, at least one required means of egress shall preferably be a fire tower.
15.13.2 The fire towers shall be constructed of walls with a 2h fire resistance rating without openings other than the exit doorways, with platforms, landings and balconies having the same fire-resistance rating.

15.14 Ramps

15.14.1 Ramps shall comply with all the applicable requirements for stairways regarding enclosure, capacity and limiting dimensions except where specified.
15.14.2 The slope of a ramp shall not exceed 1 in 10. In certain cases steeper slopes may be permitted but ill no case greater than I in 8,
15.14.3 For all slopes exceeding I in 10 and wherever the use is such as to involve danger of slipping, the ramp shall be surfaced with approved non-skid material.

15.15 Fire Lifts

15.15.1 Where applicable, fire lifts shall be provided with a minimum capacity for 8 passengers and fully automated with emergency switch on ground level. In general, buildings 15 M in height or above shall be provided with fire lifts.
15.15.2 In case of fire, only fireman shall operate the fire lift. In normal course, it may be used by other persons.

15.15.3 Each fire lift shall be equipped with suitable inter-communication equipment for communicating with the control room on the ground floor of the building.
15.15.4 The number and location of fire lifts in a building shall be decided after taking into consideration various factors like building population, floor area, compartmentation, etc.

15.16 Emergency and Escape Lighting

15.16.1 Emergency lighting shall be powered from a source independent of that supplying the normal lighting. Escape lighting shall be capable of:

a) Indicating clearly and unambiguously the escape routes,

b) Providing adequate, illumination along such routes to allow safe movement of persons towards and through the exits,

c) Ensuring that fire alarm call points and fire-fighting equipment provided along the escape routes can be readily located.

15.16.2 The horizontal luminance at floor level on the centerline of an escape route shall be not less than 10 lux. Additionally, for escape routes up to 2m wide, 50 percent of the route width shall be lit to a minimum of 5 lux.
15.16.3 The emergency lighting shall be provided to be put on within I see of the failure of the normal lighting supply.
15.16.4 Escape lighting luminaries should be sited to cover the following locations:

a) Near each intersection of corridors,

b) at each exit door;

c) Near each change or direction in the escape route,

d) Near each staircase so that each flight of stairs receives direct light,

c) Near any other change of floor level,

f) Outside each final exit and close to it,

g) Near each fire alarm call point.

h) Near fire- fighting equipment, and

J) To illuminate exit and safely signs as required by the enforcing authority.

NOTE - For' the purposes of this clause “near' is normally considered to be within 2M measured horizontally.
15.16.5 Emergency lighting systems shall be designed to ensure that a fault or failure in any one luminaire does not further "reduce the effectiveness of the entire system”.
15.16.6 The luminaries shall be mounted as low as possible, but at least 2m above the floor level.
15.16.7 Signs are required at all exits, emergency exits and escape routes, which should comply with the graphic requirements.
15.16.8 Emergency lighting luminaires and their fittings shall be of non-flammable type.
15.16.9 It is essential that the wiring and installation of the emergency lighting systems arc of high quality so as to ensure their uninterrupted serviceability at all times.
15.16.10 The emergency fighting system shall be capable of continuous operation for a minimum duration of 1 hour and 30min for all premises.
15.16.11 The emergency lighting system shelf be well maintained by periodical inspections and tests so as to ensure their serviceability at all times.

15.17 Illumination:

Illumination of Means of Exit Staircase and corridor lights shall conform to the following:

a) The staircase and corridor lighting shall be on separate circuits and shall be independently connected so that it could be operated by one switch installation on the ground floor easily accessible to lire lighting staff at any time irrespective of the position of the individual control of the light points, if any. It should be of miniature circuit breaker type of switch so as to avoid replacement of fuse in case of crisis;

b) Staircase and corridor Lighting shall also be connected to alternative supply. The alternative source of supply may be provided by battery continuously trickle charged from the electric mains; and

c) Suitable arrangements shall be made by installing double throw switches to ensure that the lighting installed in the staircase and the corridor does not get connected to two sources of supply simultaneously. Double throw switch shall be installed in the service room for terminating the stand-by supply.

15.18Fire Detection and Warning

In buildings of such size, arrangement 01' occupancy where a fire may not itself provide adequate warning to occupants, automatic fire' detection and alarm facilities shall be provided, where necessary, to warn occupants early of the existence of fire, so that they may escape, and to facilitate the orderly conduct of fire exit drills.

15.18.1 The fire detection system shall be in accordance with accepted standards.

15.18.2 The requirements or fire detection and alarm systems are. covered for each occupancy in Table 23 and under 6.1 to 6.9; attention is also drawn to such requirements in case of high rise buildings (15m at more in height).

FORM 1

APPLICATION FOR SANCTION OF PLANS

The Executive Officer, _____ Development Authority.

1. I/We hereby apply for permission to erect/re-erect make additions to and / or alterations in the building on Plot No. _____ situated at _____, in accordance with the Building Plans submitted herewith for sanction.

2. Necessary particulars are given below and certified to be true:

    a. Plot held from _____

    b. Copy of title deed.

    c. Intended use of proposed building works; and

    d. Description of the proposed building works

    e. Site plan indicating the location of the plot.

3. Particulars / Enclosures:

    a. Seven copies of proposed plans (in case of plot held from the Authority, seven copies of the site plan issued by the Authority shall also be attached and the building application shall be forwarded through the Authority).

    c. Copy of power of attorney in case the owner is not submitting the plans himself.

4. I/We undertake that I/we shall be personally responsible for any violation of these bylaws and conditions, if any, accompanying the sanction of the plan / plans.

Signature: _____
Owner/Lease/Allot tee Attorney
Address: _____
_____
Dated: _____

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FORM 2

ARCHITECT/ENGINEER'S CERTIFICATE

(To be accompanied with Form 1)

This is to certify that the building plans submitted by _____ for Plot No _____ have been prepared by me/us and that I/we undertake to supervise the proposed construction as per specifications submitted herewith in triplicate. I/we further undertake that if I/we discontinue supervision of the work, I/we shall give immediate intimation thereof, as required under the above Bye-Law.

Name, Signature and stamp of Architect /: _____
Registration No. of PCATP: _____
Name, Signature and stamp of Civil Engineer/Structural Engineer
Registration No. of PEC: _____
Dated: _____

SPECIFICATIONS ATTACHED:

1. Nature of the soil below foundation.
2. Specification of foundation.
3. Specification of plinth.
4. Specification of superstructure.
5. Specification of floor.
6. Specification of roof.
7. Method of drainage and sewerage.
8. Kind of slab

FORM 3

NOTICE OF DISCONTINUANCE

The Executive Officer,

_____ Development Authority.

I hereby give notice of my discontinuance from the building works with effect from_____ as the Registered Architect/Civil Engineer/Structural Engineer in respect of Plot No_____ situated at _____. It is certified that I have been paid in full and the following building work on the said plot has been carried out under my supervision and according to the Building Bye-Laws.

Name & Signature of Architect /: _____

Registration No. of PCATP: _____

Civil Engineer / Structural Engineer

Registration No. of PEC : _____

Dated : _____

Description of the Work carried out till this stage:

1.

2.

3.

4.

5.

Copy to: -

_____ Owner

_____

_____Development Authority

FORM 4

CERTIFICATION OF STRUCTURAL SOUNDNESS OF BUILDINGS

I/we certify that:

1. I/we have been appointed as consulting structural Engineer by Mr./Mrs./M/s _____ for the structural design of the building on Plot No _____ situated on _____ in _____ on which:

    a. Is likely to be constructed from _____
    b. Is under construction since _____
    c. Has been virtually completed on _____
    d. Stage of construction _____
    e. No. of story's designed _____

2. The structure designed has been based on following codes/Bye-Laws rationally coupled with Engineering knowledge and judgment where necessary:

_____

_____

3. a. The sub-surface investigation was carried out by M/s _____ on _____.

b. A design bearing capacity of the soil _____ Tons / Sft was adopted based on _____

4. Our / my contractual responsibilities were/are limited to:

    a. Structure analysis and design.
    b. Preparation of working structure drawings.
    c. Preparation of bar bending schedule.
    d. Checking bar bending schedule prepared by the contractors/ constructors/ Builders.

5. The following documents are attached:

    a. Set of working structural drawings.
    b. Set of bar bending schedule.
    c. Set of design calculations.
    d. Set of specifications relevant to structural work.

Name of Structural Engineer: _____

Signature _____

WCB License No: _____

PEC Registration No: _____

FORM 5

VERIFICATION OF BUILDING AT PLINTH LEVEL STAGE

The Executive Officer,

_____ Development Authority

1. I / we hereby inform that I/we have commenced the building works on Plot No_____ located at _____ and also to bring into your notice that the following important stage of construction of building has been completed i.e. the layout and plinth levels:

Name & Signature of Architect /: _____

_____

_____

2. You are, therefore, requested to depute a representative to verify the building line at the above mentioned layout and plinth level so as to enable me/us to carry out the building work.

Owner's Signature &Address : _____

_____

_____

FORM 6

NOTICE OF COMPLETION

The Executive Officer,

_____ Development Authority

Date_____

I / we hereby give notice of completion of building/addition or alteration in the building onPlot No._____ located at _____ and of drainage and water arrangement therein and apply for occupation for the said building.

The said work has been carried out in accordance with sanctioned Building Plans received vide letter No._____ Dated _____.

Owner's Signature,

Address & Tel. No._____

_____

Dated: _____

ARCHITECT'S CERTIFICATE

I hereby certify that the building/additions or alteration of the building on Plot No._____ located at _____ have been completed/partly completed under my supervision and to my satisfaction. I have been paid in full for my services for the design, supervision and monitoring of the building. The building has been constructed a per the plans sanctioned vide letter No ._____dated_____

Registered Architect/Engineer _____

Signature _____

PEC/PCATP Registration No _____

FORM 7

REGULARIZATION OF WORKS CARRIED OUT WITHOUT PERMISSION

To

The Executive Officer,

_____ Development Authority,

Dear Sir,

Whereas I have constructed _____ on plot/Khasra/Survey

No: _____ at shown on the plans attached herewith without your prior permission.

Whereas I have made deviations from the building plans approved under your No._____ dated _____ in the course of Construction of the building/alterations and additions to the building on Plot No/Khasra No._____ as shown on the plan attached herewith.

It is, therefore, requested that the unauthorized and offensive nature of the said Structure may be compounded and the said plans may be approved. I am willing to pay the composition fee that may be levied.

Yours faithfully,

Name: _____

Address: _____