ક્રમાંક: પરચ-૧૦૨૦૧૩-૩૯૮-વ
શહેરી વિકાસ અને શહેરી ગૃહ નિર્માણ વિભાગ
બ્લોક નં. ૧૪, ૯ મો માળ,
સરદાર ભવન, સચિવાલય, ગાંધીનગર.
તા. ૩-૨-૨૦૧૬

પ્રતિ,

- મહામહિમ રાજ્યપાલશ્રીના અંગત સચિવશ્રી, રાજભવન, ગાંધીનગર
- માન. મુખ્ય મંત્રીશ્રીના અંગત સચિવશ્રી, સ્વર્ણિમ સંકુલ-૧, સચિવાલય, ગાંધીનગર.
- સર્વે મંત્રીશ્રી/રા.ક.મંત્રીશ્રીના અંગત સચિવશ્રી, સચિવાલય, ગાંધીનગર.
- અગ્ર સચિવશ્રી (શ.વિ.) અંગત સચિવશ્રી, શહેરી વિકાસ અને શહેરી ગૃહ નિર્માણ વિભાગ, સચિવાલય, ગાંધીનગર.
- મ્યુનિસિપલ કમિશ્નરશ્રી, સર્વે મહાનગરપાલિકાઓ
- સચિવાલયના તમામ વિભાગો, સચિવાલય, ગાંધીનગર.
- શહેરી વિકાસ અને શહેરી ગૃહ નિર્માણ વિભાગ હેઠળ તમામ ખાતાના વડા
- સર્વે કલેક્ટરશ્રી
- નિયામકશ્રી, રાજ્ય અગ્નિશમન સેવા, ગાંધીનગર.
- મુખ્ય કારોબારી અધિકારીશ્રી, સર્વે શહેરી/વિસ્તાર વિકાસ સત્તામંડળો
- સર્વે શાખાઓ, શહેરી વિકાસ અને શહેરી ગૃહ નિર્માણ વિભાગ

વિષય: ગુજરાત ફાયર પ્રિવેન્શન એન્ડ લાઇફ સેફ્ટી રેગ્યુલેશન, ૨૦૧૬ પ્રસિદ્ધ કરવા બાબત.

શ્રીમાન,

ઉપર્યુક્ત વિષય પરત્વે આ વિભાગના તા. ૩-૨-૨૦૧૬ ના જાહેરનામા ક્રમાંક: જીએચ/વી/૨૩ ઓફ ૨૦૧૬/પરચ-૧૦૨૦૧૩-૩૯૮-વ થી ગુજરાત ફાયર પ્રિવેન્શન એન્ડ લાઇફ સેફ્ટી રેગ્યુલેશન, ૨૦૧૬ નું જાહેરનામુ કરેલ છે. જેની એક નકલ આ સાથે જાણ અર્થે સાદર રજુ છે.

આપની વિશ્વાસુ,

(રિતા સી. જાડેજા)
સેકશન અધિકારી
શહેરી વિકાસ અને શહેરી ગૃહ નિર્માણ વિભાગ

નકલ રવાના પ્રતિ

- મેનેજરશ્રી, સરકારી સેન્ટ્રલ પ્રેસ, સેક્ટર-૩૦, ગાંધીનગર તરફ સદર નિયમોની નકલ સંલગ્ન છે. સદર નિયમોને Extraordinary (PART IV-B) ગેઝેટમાં પ્રસિદ્ધ કરી તેની ૫૦૦ નકલો આ વિભાગને મોકલવા વિનંતી છે.
- મદદનીશ ડ્રાફ્ટ્સમેન (ભાષાંતર એકમ), વૈધાનિક અને સંસદીય બાબતોનો વિભાગ, સચિવાલય, ગાંધીનગર તરફ સદર નિયમોની નકલ સંલગ્ન છે. સદર નિયમોના જાહેરનામાનું ગુજરાતી ભાષાંતર કરી તેને Extraordinary (PART IV-B) માં પ્રસિદ્ધ કરાવી આ વિભાગને 300 નકલો મોકલવામાં આવે તેવી વ્યવસ્થા કરવા વિનંતી છે.

NOTIFICATION

Urban Development and Urban Housing Department

Sachivalaya, Gandhinagar.

Dated the 3rd February 2016

Gujarat Fire Prevention and Life Safety Measures Act, 2013.

No. GH/V/23 of 2016/PRC/102013/398/V: In exercise of the powers conferred by the sub-section (2) of the section 18 of The Gujarat Fire Prevention and Life Safety Measures Act, 2013, Government of Gujarat hereby makes the following regulations, namely:-

CHAPTER I

PRELIMINARY

1. **Short title, Extent and Commencement.**

1.1. These regulations may be called "Fire Prevention and Life Safety Regulations 2016

1.2. These regulations shall be applicable within the jurisdiction of the appropriate authority constituted under Gujarat Town Planning & Urban Development Act 1976.

1.3. It shall come into force on such date as decided by order of the State Government.

2. **Definition**

2.1. In these Regulations, unless there is something repugnant in the subject or context:

(1) "act" mean the Gujarat fire prevention and life safety measures act 2013"

(2) applicant" means an occupier or owner intending to make an application for development under section 26 of the Act;

(3) "appropriate authority" mean authority as defined under Act.

(4) "automatic fire detection & alarm system" means fire alarm system comprising components for automatically detecting a fire, initiating an alarm of fire and initiating other actions as appropriate. The system may include manual fire alarm call points.

(5) "automatic sprinkler system" means an arrangement of pipes and sprinklers, automatically operated by heat and discharging water on fire, simultaneously an audible alarm.

(6) "automatic sprinkler system" means an arrangement of pipes and sprinklers, automatically operated by heat and discharging water on fire, simultaneously an audible alarm.

(7) "buildings" means all types of structures constructed by various agencies.

(8) "booster tire pump" means a mechanical /electrical device which boosts up the water pressure at the top level of a multi-storied/high rise building and which is capable of a pressure of 3.2 kg/cm2 at the nearest point.

(9) "competent authority" means any person or persons or Authority or Authorities authorized by the Urban Development Authority or the Area Development authority as the case may be, to perform such functions as may be specified.

(10) "Combustible material" means that material which when burnt adds heat to a fire when tested for combustibility in a accordance with the IS : 3808-1966 Method of Test for Combustibility of Building Material, National Building Code.

(11) "corridor" means a common passage or circulation space including a common entrance hall.

(12) "down comer" means an arrangement of fire fighting with in a building by means of down comer pipe connected to terrace tank through terrace pump, gate valve and non-return valve and having mains not less than 100 mm internal diameter with landing valve on each floor handling. It is also fitted with inlet connections at ground level for charging with water by pumping service appliances and air release valve at roof level.

(13) "dry riser" an arrangement of the firefighting within the building by means of vertical rising mains not less than 100 mm internal diameter with landing valves on each floor landing which is normally dry but is capable of being charged with water usually by pumping from fire service appliances.

(14) "erector of pandal" means a person or an association of persons, whether corporate or otherwise, who erects or makes a pandal or any structure for occupation of people on a regular or temporary basis;

(15) "emergency lighting/lighting system" means a complete but discrete emergency lighting installation from the stand by power source to the emergency lighting lamp(s) for the equipment and appurtenant used for fire services. e.g. self-contained emergency luminaries.

(16) "escalator" means a power driven inclined continuous stairway used for raising or lowering passengers.

(17) "enclosed Staircase" means a staircase separated by fire resistant walls and doors from the rest of the building.

(18) "escape lighting" mean s that part of emergency lighting which is provided to ensure that the escape route is illuminated at all material times, for example, at all times when persons are on the premises, or at times the main lighting is not available, either for the whole building or for the escape routes.

(19) "escape route" mean any corridor, staircase or other circulation space, or any combination of the same, by means of which a safe place in the open air at ground level can eventually be reached.

(20) "exit" means a passage, channel or mean s of egress from any building, story or floor area to a street or other open space of safety; horizontal exit, outside exit and vertical exist having meanings at (i), (ii) and (iii) respectively as under:

(i) "horizontal exit" means an exit which is a protected opening through or around at fire wall or bridge connecting two or more buildings.

(ii) "outside exit" mean s an exit from a building to a public way, to an open area leading to a public way or to an enclosed fire resistant passage leading to a public way.

(iii) "vertical exit" means an exit used for ascending or descending between two or morelevels, including stairways, smoke-proof towers, ramps, escalators and fire escapes.

(21) "external wall" means an outer wall of a building not being a party wall even though adjoining a wall of another building and also means a wall abutting on an interior open space of any building.

(22) "fire authority" means the chief fire officer or any other person authorized by the competent authority.

(23) "fire and/or emergency alarm system" mean s an arrangement of call points or detectors, sounders and other equipment for the transmission and indication of alarm signals working automatically or manually in the event of fire.

(24) "fire lift" means a special lift designed for the use of fire service personnel in the event of fire or other emergency.

(25) "fire proof door" means a door or shutter fitted to a wall opening, and constructed and erected with the requirement to check the transmission of heat and fire for a specified period.

(26) "fire pump" means a machine, driven by external power for transmitting energy to fluids by coupling the pump to a suitable engine or motor, which may have varying outputs/capacity but shall be capable of having a pressure of 3.2 kg/cm2 at the topmost level of multi- story or high rise building.

(27) "fire pump-booster fire pump" means a mechanical/electrical device which boots up the water pressure at the top level of a multi-storied/high-rise building and which is capable of a pressure of 3.2 kg/sqcm at the nearest point.

(28) "fire resistance" means the time during which a fire resistant material i.e. material having a certain degree of fire resistance, fulfilsits function of contributing to the fire safety of a building when subjected to prescribed

conditions of heat and load or restraint. The fire resistance test of structures shall be done in accordance with TS: 3809-1966 Fire Resistance Test of Structure.

(29) "fire resistance rating of the building" means the time that a material or construction will withstand the standard fire exposure as determined by fire test done in accordance with the standard methods of fire tests of material/structures.

(30) "fire separation" means the distance in meter measured from any other building on the site or from another site, or from the opposite side of a street or other public space to the building.

(31) "fire service inlet" means a connection provided at the base of a building for pumping up water through-in-built fire-fighting arrangements by fire service pumps in accordance with the recommendation of the Chief Fire Officer.

(32) "fire staircase" means an enclosed staircase which can only be approached from the various floors through landings or lobbies separated from both the floor area and the staircase by fire resisting doors.

(33) "fire stop" means a fire resistance material or construction having a fire resistance rating of not less than the separating elements and installed in concealed spaces or between structural elements of a building to prevent the spread of public propagation of fire and smoke through walls, horizontal or vertical piping through cable ducts, celling and the like gas as per laid down criteria and having fire resistance capacity of at least 2 hours.

(34) "fuel station" means a place of retails business engaged in supplying and dispensing of fuel products to consumers essential for the normal operation of automobiles.

(35) "GDCR" means the general development control regulations made under clause (m) of sub-section (2) of section 12 of the Gujarat Act;

(36) "hazardous material" means:-

(i) radioactive substances;

(ii) material which is highly combustible or explosive and/or which may produce poisonous fumes or explosive emanations or storage, handling ,

(iii) processing or manufacturing of which may involve highly corrosive, toxic obnoxious alkalis or acids or other liquids;

(iv) other liquids or chemicals producing flame, fumes, explosive, poisonous, irritant or corrosive gases, or which may produce explosive mixtures of dust or fine particles capable of spontaneous ignition.

(37) "height of building" means the vertical distance measured from the average plot level and up to the top of the finished level of the top most floor slab or

in case of flat roofs up to the midpoint of the height of the slopping roof excluding the genuine stair cabin, water tank, and lift room. The height of the slopping roof shall be taken as an average height of the relevant floor.

(38) "lift /elevators" means a mechanically guided car, platform or transport for persons and materials between two or more levels in a vertical or substantially vertical direction.

(39) "lift well" means unobstructed space within an enclosure provided for the vertical movement of the lift car(s) and any counter weight(s), including the lift pit and the space for top clearance, and maintenance.

(40) "means of egress" A continuous and unobstructed way of travel from any point in a building or structure to a place of comparative safety.

(41) "occupant load" means the number of persons for which the means of egress of a building or portion thereof is designed

(42) "non-combustible" means not liable to burn or add heat to a fire when tested for combustibility in accordance with the IS-3808-1966 Method of Test for Combustibility of Building Materials.

(43) 11pandal" means a temporary structure with roof or walls made of straw, hay, ulu grass, golpatta, hogla, darma, mat, canvas, cloth or other like material which is not adopted for permanent or continuous occupancy;

(44) "permanent open air space" means air space permanently open -

(45) "premises" means any land or any building or part of a building and includes the garden ground and outhouse, if any, appertaining building or part of a building; and any land or any building or part of a building appurtenant thereto which is used for storing explosives explosive substance and dangerously inflammable substance;

(46) "pressurization " means the establishment of a pressure difference across a barrier to project a stairway, lobby, escape route or room of a building from smoke penetration

(47) "refuge area" means an area where persons unable to use stairways can remain temporarily and await instructions or assistance during emergency evacuation situation

(48) "roof exits" means of escape on to the roof of a building where the roof has access to it from the floor, the exit shall have adequate cut-off within the building from staircase below

(49) "smoke-stop door" means a door for preventing or checking the spread of smoke from one area to another.

(50) "stair cover" means a structure with a covering roof over a staircase and its landing built to enclose only the stairs for the purpose of providing protection from the weather, and not to be used for human habitation.

(51) "travel distance" means the distance to be traveled from the remotest point on a floor of a building to a place of safety be it a protected

escape route, external escape route or final exit i.e. vertical exit, horizontal exit or an outside exit measured along the line of travel.

(52) "ventilation" means supply of outside air into or the removal of inside air from an enclosed space.

(53) "venting fire" means the process of including heat and smoke to level a building as quickly as possible by such paths that lateral spread of fire and heat is checked, firefighting operations are facilitated and minimum fire damage is caused.

(54) "wet riser" an arrangement for firefighting within the building by means of vertical rising mains not less than 100 mm nominal diameter with landing valve on each floor /landing for firefighting purposes, and permanently charged with water from a pressurized supply.

CHAPTER II- PROVISIONS FOR TEMPORARY STRUCTURES AND PANDALS

3. Procedure for fire prevention and life safety in temporary structures & pandals

3.1. Every owner or occupier of such temporary premises or erectors of pandals, to take such fire prevention and fire safety measures as may be required under these regulations shall be deemed to be self-regulators for taking fire prevention and fire safety measures.

3.2. The erector shall display at a prominent place in the premises, a declaration in the prescribed form and under his own signature to the effect that he has taken all the prescribed fire prevention and fire safety measures therein.

3.3. The fire authority can enter and inspect any temporary structure about the correctness of the declaration, point out the shortcomings, if any, with directions to remove them within a specified time.

3.4. If the directions of the inspecting officer are not complied with within the time so given, the, inspecting officer may seal the panda! or dismantle such structure and such costs incurred shall be recovered from such defaulter. Even after such directions, the owner or the occupier continues to disobey the directions, the fire authority, may a fine up to Rs.50,000 or for continuing the offence, further fine up to Rs.500/day.

3.5. Any false declaration shall be deemed to have committed an criminal offence punishable under this Indian penal code.

3.6. In case where the use of panda! or the temporary structure is meant to attract public gathering, then the erector of the panda! or the owner or the occupier of temporary structure shall submit:-

(1) a layout plan indicating access to pandal,

(2) the area of stalls and other uses.

(3) the plans showing the construction at the sites.

4. Requirements for temporary structures & pandals

4.1. General Requirements:

(1) If a pandal is constructed then it shall be of fire resistant material and be open from two sides or provide two emergency exits marked "EMERGENCY EXIT".

(2) Minimum height of the ceiling of the pandal should not be less than 3.00 meters.

(3) No structure shall be erected under any live electrical line. It shall be minimum 15 mts away from the railway lines, electrical sub stations, furnaces and other hazardous places.

(4) 3.0 mts margins shall be kept on all sides. Minimum width of the exits on all sides of the pandals shall be 1.5 mts.

(5) All the space used in and outside the public gathering place shall be properly rolled and made into a flat surface and entry I exit shall have a leveled surface without obstruction.

(6) Kitchens, if any shall be constructed 15 meters away from the pandal and be built by using tin sheets.

(7) No combustible material like wood shavings, straw, highly inflammable and explosive chemicals and similar materials should be permitted to be stored in the vicinity or inside the pandal.

(8) No fireworks display with open flames of any kind should be permitted close to the temporary structure/ pandal.

(9) All the spaces used in and outside the public gathering place shall be properly rolled and made into a flat surface and entry/exit shall have a level surface without obstruction.

4.2. Open Space: 3.0 meters margin should be kept on all sides-minimum. Width of exits on all sides of the panda! shall be minimum 1.5 m

4.3. First-aid firefighting arrangements:

(1) A 200 liter water barrel along with water buckets I sand buckets shall be placed at each 50 mts distance or more if required.

(2) Dry chemical powder, water C02 and C02 extinguishers shall be placed at locations required in required numbers.

4.4. Requirements for Power Supply:

Distance from Electrical wires and hazardous installations -No structure should be erected underneath any live electrical line. It should be Min. 15 meters away from railway lines, electric substations, furnaces or other hazardous places (if required the distance may be increased as directed by the CFO).

4.5. Electrical Wiring:

(1) Electrical wires should pass through PVC conduits and not contact any flammable material. No loose wiring shall be allowed and all end shall be properly taped and insulated.

(2) Big lights (halogen I halides) shall be at least 60cms,away from the rides or any metal structure temporarily constructed.

(3) Heavy cable connections shall be connected by ceramic connectors and then insulated along with the fuses. Power control switches, MCB or ELCB shall be installed for each specific use.

(4) A certificate with photograph from a registered electrical engineer shall have to be produced to ensure proper load distribution and wiring in case of panda having size more than 500sq.mt .

(5) All light fittings and lamps installed shall not contact cloth or any other flammable material.

(6) Standby generators of appropriate capacities shall be kept ready at the site in case of pandal having size more than 500sq.mt

4.6. Availability of trained firefighting staff:-

(1) Every security guard and other members shall have a torch and shall ready all the time during dark hours of operation.

(2) The competent authority can enter and inspect the temporary structure about the correctness about the declaration, point out the short comings, if any, with directions to remove them within a specified time.

CHAPTER III- PROVISIONS FOR BUILDINGS

5. Procedure to get permission

5.1. For fire safety, notwithstanding anything contained in any regulations, any applicant, seeking permission in building where a fire safety officer is required to be appointed, shall along with the required documents, make an application, in the Form A, to the fire authority. The application shall be countersigned by the applicant, the architect, the structural engineer and a fire expert.

5.2. On receipt of the application made by the applicant sub clause (I) above, the fire authority shall, within a period of 30 days months, scrutinize the same and after making such inquiry as it may deem fit, is of the opinion that the development proposed fulfills the requirements for fire prevention and life safety, as required under these regulations, shall issue "no-objection certificate" in the prescribed form.

6. Fire Expert:

6.1. Registration:

(1) On an application from any fire expert, the competent authority may for its jurisdiction register fire expert for a period of one year. The registration

shall be valid for the period of five years or part thereof and shall be renewable or part thereof.

(2) The registration fee if any shall be payable as prescribed by the Competent Authority from time to time.

(3) The Competent Authority may black-list the fire expert in case of serious defaults or repeated defaults.

(4) A registration shall be liable to be revoked temporarily or permanently by the Competent Authority if the registered person is found guilty of negligence or default in discharge of his responsibilities and duties or of any breach of any of these Regulations.

(5) Provided that he shall be given a show cause notice and afforded reasonable opportunity of being heard by the Competent Authority for the purpose of these Regulations.

6.2. Qualification and Experience:

Shall be equivalent to that required for the direct appointment on the post of Deputy Fire Officer Ahmedabad Municipal Corporation.

6.3. Scope Work & Competence:

(1) With respect to the requirements required to be provided under these regulations:

(a) Verify the building design, the layout plan and the submission and working drawings,

(b) Supervision while execution of construction work to ensure that the facilities with respect to these regulations are provided as per specifications & drawings, and

(c) Submit certificate of supervision, progress report & certificate of completion

6.4. Duties & Responsibilities:

(1) General duties and responsibilities of the Fire Expert shall be mutatis mutandis to GDCR.

(2) He/she shall be responsible for making adequate arrangements to ensure not only that the work is executed as per these regulations but also is confirmation with the stipulations of the National Building Code and the B.S.I. standard s and shall obtain N.O.C. from the fire authority before applying for occupation certificate.

7. Fire Prevention in Buildings

7.1. General requirements:

(1) Open spaces on road sides shall be as under:

(2) Provided that for buildings having height more than 18.0 mts, the provisions of special structures Chapter-vi of these regulations shall be applicable

(3) For high rise building above 18 meters the open space required shall be as per Table 10, under regulation No 24.1

7.2. Construction

(1) Types Of Construction

The types of construction according to fire resistance shall be classified in to four Categories, namely, type 1 construction, Type 2 construction, Type 3 construction and Type 4 construction as per Table 1 given under 3.3. 1 Part 4 NBC -second revision. The Fire resistance test for structural elements shall be done in accordance with IS-3808: 1979. The fire resistance rating of various building components such as wall, columns, beams and floors are given in Table2 to Table 15 part 4 NBC-second revision.

(2) Steel Framed Constructions

Load bearing steel beams and column s of buildings having total covered area of 500 m2 and above shall be protected against failure/ collapse of structure in case of fire. This could be achieved by covering the exposed steel supporting members by suitable fire resistance rated materials like concrete, vermiculite (Hydrous silicate of Aluminum, Magnesian or Iron) etc as per IS-15103:2002.

7.3. Electrical Installations for fire purposes:

(1) Electric cable/wires used shall be of 700 volt grading with Mechanical circuit breaker and earth Leak Circuit Breaker (MCB and ELCB).

(2) Electrical Installations form fire safety point of view shall comply with IS¬ I 646: J 997. Use of fire resistance cables and wires. Subject to any of the above regulations every person who undertakes construction of a building and/ or who designs the structural member of the building shall comply with the provisions of National Building Code prevailing at the relevant time or the provisions of the Indian standard Specifications published form time to time.

(3) Every person who undertakes the construction work on a building or directs or supervises such work shall be responsible and shall ensure use of sound and good quality building materials, properly put together for optimum safety. He shall be liable for all consequences arising out of breach of these of these regulations.

7.4. Elevators (LIFTS) I Escalators:

(1) Lift shall be provided in all buildings as prescribed hereunder:

(2) The planning and design of lifts including their number, type and capacity depending on the occupancy of the building , the popul ation on each floor based on the occupant load and the building height shall be in accordance with section 5- installation of lifts and escalators, national building code of India.

(3) In case of Building having height more than 13.0 mts from ground level, lift shall be provided and not withstanding anything contained in the development control regulations in case of building with 21 meters or more in height, at least two lifts shall be provided. From these lifts at least one of them shall be designed as fire lift as specified in NBC.

(4) Lift shall be provided at the rate of one lift for 20 dwelling units of all the floors, or part thereof for residential buildings and at the rate of one lift per I000.00 sq.mts. or part thereof of built-up area for non-residential buildings.

(5) The tenement and built-up area on ground floor and two upper floors shall be excluded in computing the above requirement.

(6) Lift shall be provided from ground floor or lower level and shall have minimum capacity of six persons. On the basis of detailed calculations based on the relevant provisions of National Building Code, the number of lifts can be varied.

(7) Minimum internal dimensions for passenger lifts shall be 1500 mm x 1500 A clear landing area in front of the lift doors shall be 1800mm x 1800mm and clear opening width of the doors shall be of minimum 900 mm. A handrail of 600 mm length at 1000 mm height from the floor shall be provided.

(8) The time of an automatically closing door should be minimum 5 seconds and the closing speed should not exceed 0.25 m/sec. The interior of the cage shall be provided with a device that audibly indicates the floor the cage has reached and indicates that the door of the cage for entrance/exit is either open or closed.

(9) Maintenance:

(a) The lift installation should receive regular cleaning, lubrication adjustment and adequate servicing by authorized competent persons at such intervals as the type of equipment and frequency of service demand. In order that the lift installation is maintained at all times in a safe condition, a proper maintenance schedule shall be drawn up in consultation with the lift manufacturer and rigidly followed. A log book to record all items relating to general servicing and inspection shall be maintained.

(b) The electrical circuit diagram of the lift with the sequence of operation of different components and parts shall be kept readily available for reference by persons responsible for the maintenance and replacement, where necessary, to the satisfaction of the competent authority.

(c) Any accident arising out of operation of maintenance of the lifts shall be duly reported to the competent authority.

7.5. Exit Requirements:

(1) General Exit Requirements

(a) An exit may be a doorway , corridor; passageway(s) to an internal staircase, or external staircase, or to a veranda or terrace(s) , which have access to the street, or to 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.

(b) Lifts and escalators shall not normally be considered as exits.

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

(d) Every buildin g meant for human occupancy shall be provided with exits sufficient to permit safe escape of occupants, in case of fire or other emergency.

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

(f) No building shall be so altered as to reduce the number, width or protection of less than that required.

(g) Exits shall be clearly visible and the route to reach the exits shall be clearly marked and sings posted to guide the occupants of the floor concerned. Sings shall be illuminated and wired to an independent electrical circuit on an alternative source of supply. The color of the exit signs shall be green.

(h) The floors of area covered for the means of exit shall be illuminated to values not less than I ft candle (I 0 lux) at floor level. In auditoriums, theatres, concert haiJs and such other places of assembly, the illumination of floor exit/ access may be reduced during period of perfonnances to value not less than 1/5 ft candle (2 lux)

(i) Fire doors with 2 hour fire resistance shall be provided at appropriate places along the escape route and particularly at the entrance to lift lobby and stairwell where a funnel or flue effect may be created, inducing an upward spread of fire and smoke.

(j) All exits shall provide continuous means of egress to the exterior of a building or to an exterior space leading to a street.

(k) Exits shall be arranged that they may be reached without passing through another occupied unit.

(2) Illumination of means of Exit .

(a) Staircase and corridor light shall confirm to the following:

(b) The staircase and corridor lighting shall to the separate circuits and shall be independently connected so that they could be operated by one switch installation on the ground floor easily accessible to firefighting staff at any time irrespective of the position of the individual control of the light points, if any. It should be miniature circuit breaker type of switch so as to avoid replacement of fuse in case of crisis;

(c) 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

(d) Suitable arrangement shall be made by installing double throw switches to ensure that the lighting installed in the staircase and the corridor does not get connected. Double throw switch shall be installed in the service room for tenninating the stand-by supply.

(3) External Stairs

(a) An external staircase is desirable to be provided for high rise buildings and special buildings, if the safe travel distance for exit not maintained. External stairs, when provided shall comply with the following:

(b) External stairs shall always be kept in sound operable conditions.

(c) All external stairs shall be directly connected to the ground.

(d) Care shall be taken to ensure that no wall opening or window opens on to an external stairs.

(e) The route to the external stairs shall be free of obstructions at all time.

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

(g) No external staircase, used as a fire escape, shall be inclined at an angle greater than 45° from the horizontal.

(h) External stairs shall have straight flight not less than 1250 mm wide with 250 mm treads and risers not more than 190 mm. The number of risers shall be limited to 15 per flight.

(i) Handrail s shall be of height not less than 700 mm and not exceeding 850 - 900 mm. There shall be provisions of balusters with maximum gap of 150 mm.

(4) Horizontal Exits

(a) The width of horizontal exit shall be same as for the exit doorways.

(b) A horizontal exit shall be equipped with at least one fire I smoke door of minimum two -hour fire resistance of self-closing type. Further, it should have direct connectivity to the fire escape staircase for evacuation.

(c) Where there is a difference in level between connected areas for horizontal exits, ramps, not more than I to I0 slope shall be provided; steps shall not be used.

(d) Doors in horizontal exits shall be open able at all times from both sided.

7.6. Fire Access Stair Cases

(1) Staircases to abut on outer wall or be external part of to the building are naturally cross ventilated.

(2) The stairs should not have opening to any part of the building. At least one staircase shall be on external walls of building and shall open directly to the exterior, interior open space or to an open plan of safety. Further, the provision or otherwise of alternative staircases shall be subject to the requirements of travel distance being compiled with. It shall be 20 mt. for hazardous use,25 mt for residential use and 30 mt. for non-residential use.

7.7. Doorways

(1) Every exit doorway shall open into an enclosed stairway compartmented from rest of building or a horizontal exit of a corridor or passageway providing continuous and protected means of egress.

(2) No exit doorway shall be less than I 000 mm in width except assembly buildings where door width shall be not less than 2000 mm. All Doorways shall be not less than 2000 mm in height.

(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 900 mm. overhead or sliding doors shall not be installed.

Note: In the case of building where there is a central corridor, the doors of rooms shall open outward and flush to the wall to pem1it smooth flow of traffic in the corridor.

(4) Exit door shall not open immediately upon a flight of stairs. A-landing equal to at least the width of the door (not less than 900mm) shall be provided in the stairway at each doorway. The level of landing shall be the same as that of floor, which it serves. Manual door should incorporate kick plate 300 mm high to withstand impact of wheelchair footrest where doors are glazed. Door handle and locks should be positioned between 900-1000 mm from floor level.

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

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

7.8. Corridors and Passageways & Stairs:

(1) Flight :-No flight shall contain more than 12 16 risers, but in residential buildings, in narrow plots and in high density Housing a single flight staircase may be permitted.

(2) Risers: - The maximum height of a riser shall be 19 16 19cm. in a residential building and 16 cm. in any other occupancy. However, on an internal stairway within a dwelling unit a riser may be 25 cm. high.

(3) Treads:- The minimum width of the tread without nosing shall be 25 cm. for staircase of a residential building, other than fire escapes. In other occupancies the minimum width of the tread shall be 30 cm. It shall have a non-slippery finish and shall be maintained in that fashion.

(4) Head room: The minimum head room in a passage under the landing of a staircase under the staircase shall be 2.2 m.

(5) Floor indicator: The number of each floor shall be conspicuously painted in figures at least 15 cm. large on the wall facing the fight of a stairway or at such suitable place as is distinctly visible from the fights.

(6) Hand Rail: Hand rail a minimum height of 0.9 m. from the center of the tread shall be provided.

(7) For all residential and non-residential building except individual detached building minimum clear width of lobbies or corridor shall be as shown in the table below:

Sr. No.	Type of occupancy		Minimum width of Stairway/Staircase Corridor(in meters
1	Residential building	(a) Low rise	1.2
		(b) Hotels and High rise	1.5
2	Educational building	(a)Up to 24m. high	1.5
		(b)Over 24m. high	2.0
3	Institutional buildings (i.e. hospital)	(a) Upto l 0 beds	1.5
		(b) Over l0 beds	2.0
4	Assembly buildings		2.0
5	Mercantile, business, industrial storage, hazardous	(a) Low rise	1.5
		(b) High rise	2.0

7.9. Internal/Additional Staircases:

(1) Additional stairs shall be constructed of non-combustible materials throughout.

(2) A staircase shall not be provided around a lift shaft unless provided with fire stop door of one hour rating at every floor level and no other openings in the inside walls

(3) Hollow combustible construction shall not be permitted.

(4) No gas piping, electrical panels or AC ducts shall be allowed in the stairway. However service shafts/ ducts may be permitted. Electrical Shafts/ ducts shall have not less than 2hour fire resistance. For other service shafts/ ducts, the fire resistance shall be not less than 1hour.

(5) Notwithstanding the detailed provision for exits, the following minimum width shall be provided for staircases-

Type of Occupancy	Width of Internal stair in mts
Residential building, Hotel building, Educational building, Institutional buildings. (i.e. hospital), Mercantile, business, storage industrial, hazardous, buildings.)	
Height up to 25 m	1.2
Height> 25m	2.0
Assembly buildings	2.0
Note:- a. Incase of low-rise apartment type building, minimum stair width for more than 6 tenements on each floor shall be 1.5 mts. b. No winders shall be allowed except in case of individual dwelling unit	

(6) The minimum width of tread without nosing shall be 250 mm for intemal staircase of residential buildings, other than fire escapes. This shall be 300 mm for assembly, hotels, educational, institutional, business and other buildings. The treads be constructed and maintained in a manner to prevent slipping.

(7) The maximum height of riser shall be 190 mm for residential buildings and 160 mm for other buildings and the number shall be limited to 12 per flight.

(8) Continuous handrails shall be provided on both sides including the wall (if any) at two levels: upper at 850 mm - 900 mm and lower at 700 mm. to be measured from the base of the middle of the treads to the top of handrails. Balusters/ Railing shall be provided in such a way that the width of staircase does not reduce. The maximum gap between balusters shall be 150 mm.

(9) All steps, edges must have a contrasting color band of 50 mm width stretched entirely across the step width for uses other than residential use.

(10) Soffit (underside /open area under the stairs) of the stairs and ramps should be enclosed or protected with rails or raised curbs or marked with a tactile surface (11).

(11) The design of staircase shall also take into account the following:

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

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

(c) External exit door of staircase enclosure at ground level shall open directly to the open spaces.

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

(e) Lifts shall not open in staircase.

(f) No combustible material shall be used for decoration/ wall paneling in the staircase.

(12) Beams/ columns and other building features shall not reduce the head room/ width of the staircase.

(13) The exit way with arrow indicating the way to the escape route shall be provided at a height of 1.8 m from the floor level on the wall and shall be illuminated by electric light connected to corridor circuits. All exit way marking signs should be flush with the wall and so designed that no mechanical damage shall occur to them due to moving of furniture or other heavy - equipments. Further, all landings of floor shall have floor indicating the number of floor as per byelaws. The floor indication board shall be placed on the wall immediately facing the flight of stairs and nearest to the landing. It shall be of size not less than 0.5 m x 0.5 m.

(14) Individualfloors shall be prominently indicated on the wall facing the staircases.

(15) In case of single staircase, it shall terminate at the ground floor level and the access to the basement shall be by a separate staircase.

7.10. Cellar:

In a building unit, the cellar may be pem1itted on the following conditions:

(a) Clear width of the stair leading to the cellar shall not be less than the width of the regular staircase leading to upper floors.

(b) No stairs to be constructed under these regulations shall consist of any wooden material.

(c) Adequate opening for ventilation should be provided as directed by Competent Authority. The materials of the construction and fixtures of the cellar should be of fire resisting nature and in no case; wood shall be used as structural part of the cellar or any fixtures thereof. The extent of ventilation shall be the same as required by the particular occupancy for which the basement is used. Any deficiency must be made well by resort to a mechanical system, viz. blowers, exhaust fans, air conditioning system, according to the standards in Part VIII Building Services, Section-I Lighting and Ventilation, National Building Code.

(d) Uses permitted: - parking, safe deposit vault, A.C. Plant, storage other than inflammable material. MRI or X-Ray room in hospital.

(e) Staircase at a distance of different occupancies shall have to be provided to reach the lower most floor of the cellar.

(f) Stairs in the basement shall only lead to the ground or first floor. It shall not lead to upper floors so that it becomes a part of the staircase leading to the terrace of the building.

(g) In a building unit where more than two lifts are required to be provided as per th is regulation, minimum two lifts shall be provided to reach the lower most level of the cellar.

7.11. Ramps :

Ramp for basement or storied parking: - For parking spaces in a basement and upper at least two ramps of adequate width and slope shall be provided preferably at the opposite and end. Such ramps may be permitted in the side and rear marginal open spaces, after leaving sufficient space for movement of firefighting equipments.

7.12. Loft:

The loft at a minimum height of 2. 1 mts. from floor level not exceeding 30% floor area of the room may be allowed in any room.

7.13. Control of development on terrace & basements/cellar:

(1) No development, including use, shall be permitted on the terrace & basement space which is located at egress f the stair leading to terrace should be kept open. Storage in such space either temporary or pennanent shall not be permitted

(2) Uses permitted: - parking, safe deposit vault, A.C. Plant, storage other than inflammable material. MRI or X-Ray room in hospital

7.14. Emergency and Escape Lighting

(1) The emergency lighting shall be provided to be put on w ithin one second of the failure if the normal lighting supply and shall be of independent of main supply

(2) Escape lighting lumin aries should be sited to cover the following locations

a. At each exit door,

b. Near each staircase so that each flight of stairs receives direct light,

c. Near any other change of floor level,

d. Outside each final exit and close to it,

e. Near each fire alarm call point,

f. Near fire fighting equipment and,

g. To illuminate exit and safety signs as required by the enforcing authority.

h. Note:• For the purpose of this clause 'near' is normally considered to be within 2m measured horizontally.

(3) Emergency lighting systems shall be designed to ensure that a fault or failure in any one luminaries does not further reduce the effectiveness of the system.

(4) The luminaries shall be mounted as low as possible, but at least 2m above the floor level.

(5) Sign are required at all exits, emergency exits and escape routes, which should comply with the graphic requirements of the relevant Indian standards.

(6) Emergency lighting luminaries and their fitting shall be fire resistance type.

(7) It is essential that the wiring and installation of the emergency lighting systems are of high quality so as to ensure their perfect serviceability at all times.

(8) The emergency lighting system shall be capable of continuous operation for a minimum duration of I hour and 30 minutes.

(9) The emergency lighting system shall be well maintained by periodical inspections and tests so as to ensure their perfect serviceability at all times.

(10) Electric supply for fire pump/fire lift should be provided separately and not get switched off along with the main supply of building.

(11) Electrical services

a. These shall confonn to those given in C-1.12 Part 4 NBC Second revision and the IS; 1646-1999 and particular attention is drawn to the following:

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

c. Separate circuits for fire fighting pumps, lifts, staircases, corridor lighting and blowers for pressurizing system shall be provided directly from the main switch gear panel and these circuits shall be laid in separate conduit pipes, so that fire in one circuit will not affect the others. Such circuits shall be protected at origin by an automatic circuit breaker with it's no- volt coil removed. Master switches controlling essential service circuits shall be clearly labelled.

d. An independent and well ventilated electrical service room shall be provided on the ground level or first basement with direct access from outside or from the corridor for the purpose of termination of electric supply from the licensees'

service and alternative supply cables. The doors provided for the service room shall have fire resistance of not less than 2 hours.

Note :- If service room is located at the first basement, it should have automatic fire extinguishing system

e. Suitable circuit breakers shall be provided at the appropriate points.

(12) Emergency Power Supply

a. For every building having height more than 45 m, A stand-by electric generator shall be installed to supply power to staircase and corridor lighting circuits, fire lifts, the stand-by fire pump, pressurization fans and blowers, smoke extraction and damper systems in case of failure of nonn al electric supply. The generator shall be capable of taking starting. current of all the machines and circuits stated above simultaneously. If the stand-by pump is driven by diesel engine, the generator supply need not be connected to the main electrical pump . Where pa rallel HT/LT supply from a separate sub-station is provided with appropriate transformer for emergency, the provision of generator may be waived in consultation with Authority .

7.15. Water Supplies

In addition to normal requirements for the purpose of fire the following shall be applicable.

(1) Water storage tanks

a. Under ground water tank of at least one lakh litres capacity and accessibl e for fire fighting vehicles. The covering slab shall be able to withstand the total vehicular load of 45 tons equally divided as a four point load when the slab forms a part of pathway/driveway.

b. Requirement of wet riser cum down-comer installation and capacity of fire pumps etc. shall be as per Table 23 part 4 NBC. Second revision. The requirements regarding size of mains/risers shall be as given in Table 24 part 4 NBC. second revision . The wet risers shall be designed for zonal distribution ensuring that unduly high pressures are not developed in risers and hose pipes.

(2) Water storage tanks

a. A satisfactory supply of water for the purpose of fire fighting shall always be available in the form of underground/terrace level static storage tank w ith capacity for various building specified under Table23, part 4 NBC second revision with arrangement for replenishment by means of alternative source of supply at the rate of 1000 liters per minute for

underground static tank. When this is not practicable, the capacity of static storage tank(s) shall be increased proportionately in consultation with the local fire brigade.

b. The static storage water supply required for the above mentioned purpose shall entirely be accessible to the fire engines of the local fire service. Provision of suitable no . of manholes shall be made available for inspection, repairs, insertion of suction hose etc. The covering slab shall be able to withstand the total vehicular load of 45 tons equally divided as a four point load when the slab forms a part of pathway/driveway.

c. The domestic suction tank connected to the static water storage tank shall have an overflow capable of discharging 2250 liters per minutes to a visible drain point from which be a separate conduit , the overflow shall be conveyed to a storm water drain.

d. To prevent stagnation of water in the static water storage tank, the suction tank of the domestic water supply shall be fed only through an overflow arrangement to maintain the level therein at the minimum specified capacity.

e. The static water storage tank shall be provided with a fire brigade collecting head with 4 no 63 mm diameter (2 no 63 mm diameter for pump with capacity 1400 ll mm) instantaneous male inlets arranged in a valve box at a suitable point at street level and connected to the static tank by a suitable fixed pipe not less than 150mm in diameter to discharge water into the tank when required at the rate of 2250 liters per minute, if tank is in the basement or not approachable for the fire engines.

f. Requirement of wet riser/ down-comer installation and capacity of fire pumps etc. shall be as per Table 23 part 4 NBC. second revision. The requirements regarding size of mains/risers shall be as given in Table 24 part 4 NBC. second revision . The wet risers shall be designed for zonal distribution ensuring that unduly high pressures are not developed in dsers and hose pipes.

(3) Internal/ yard hydrants, hose reels and fire service inlet

a. The requirement for the above shall be governed by Table 23 part 4 NBC second revision and the relevant Indian Standards (IS: 9668-1990 ,Code of Practice for Provision and Maintenance of Water Supplies for Fire

fighting, IS: 3844-1989, Code of practice for Installation and Maintenance of Internal Fire Hydrants and Hose reels on Premises; and IS: 13039-1991 Code of practice for Provision and Maintenance of External Fire Hydrant System)

b. At least two yard hydrant and one fire service inlet shall be provided. one hydrant outlet, one hose reel, one set of on/off switch for the tire pump and a set of extinguisher to be placed inside the building for every 1000 sq.mt floor area.

7.16. Fire Alarm System

(1) Fire Alarm System with smoke detection alarm system shall be provided for all nonresidential building having height more than 25 mt.

(2) The requirement for the above shall be governed by Table 23 part 4 NBC second revision and the relevant Indian Standards (IS: 9668- I 990,Code of Practice for Provision and Maintenance of Water Supplies for Fire fighting, IS: 3844-1989, Code of practice for Installation and Maintenance of Internal Fire Hydrants and Hose reels on Premises; and IS: 13039-1991 Code of practice for Provision and Maintenance of External Fire Hydrant System)

7.17 tomatic Sprinkler System

(1) Automatic Sprinkler System shall be provided for all the building having height more than 40 m and building having basement used for car parking.

(2) The requirements of Automatic Sprinkler System for each type of occupancy shall be as per Table 23 and section 5.1.7 of Part 4 NBC second revision, The design and installation of the fixed Automatic Sprinkler System shall be as per IS: 15 105-2002

7.18. Compartmentation

(I) The building shall be suitably compartmenta lized so that fire/ smoke remain confined to the area where fire incident has occurred and does not spread to the remaining part of the building.

(2) All floors shall be compartmented with area not exceeding 750 m2 by a separation wall with 2 h fire rating. For floors with sprinklers the area may be increased by 50 percent. In long buildings, the fire separation walls shall be at distances not exceeding 40m. For departmental stores, shopping canters and basements, the area may be reduced to 500 m2 for compartmentation. Where thisis not possible, the spacing of the sprinklers shall be suitably reduced When reducing the spacing of sprinklers, care should be taken to

prevent spray from one sprinkler, impending the performance of an adjacent sprinkler head.

7.19. Other automatic fire extinguishing system

(I) For requirements for other frre extinguishing systems like Automatic Medium/High Velocity Water Spray or emulsifying System, Fixed Foam Installations, Co2 tinguishing Systems and systems using Halon Alternatives , reference shall be made to sections 5.1.8, 5.1.9,5.1.1 0 and 5.3 of part 4 NBC second revision draft as required for special risk

(2) For requirements for other fire extinguishing systems like Automatic Medium/High Velocity Water Spray or emu lsifying System, Fixed Foam Installations, Co2 Extinguish ing Systems and systems using Halon Alternatives, reference shall be made to sections 5.1.8, 5.1.9,5.1.1 0 and 5.3 of part 4 NBC second revision draft.

7.20. Portable Fire Extinguishers

(1) Various types of fire extinguishers suitable for different classes of fires shall be for different classes of fires shall be provided in buildings. One unit of 5 kg DCP, One unit of 4.5 kg of C02 shall be provided for every 1000 sq. Mt of floor area.

(2) Various types of fire extinguishers suitable for different classes of fires shall be for different classes of fires shall be provided in buildings in accordance with provisions contained in IS:2189-1992- Code of Practice for Selection, Installation and Maintenance of Portable First aid Fire Extinguishers (Third Edition)

7.21. Lighting/Electrical Protection

(I) The lighting protection for buildings shall be provided as given in Part 8, Building Services section 2 Electrical Installation NBC. Lightening arrestor to be provided

(2) The lighting protection for buildings shall be provided as given in Part 8, Building Services section 2 Electrical Installation NBC

7.22. Smoke and Fire Venting

(1) The provisions for smoke and fire venting for industrial buildings with large floor areas shall conform to regulations given in annex D, Part4-NBC second revision. shall be provided for special buildings and for hotel and hospital building more than 25 m height

(2) The provisions for smoke and fire venting for industrial buildings with large floor areas shall conform to regulations given in annex D, Part4-NBC second rev1• s 1• on.

7.23. Ventilation:

(1) All enclosures should have open able windows and vents to be opened in case of ftre or smoke accumulation.

(2) If the floor or the building is centrally air-conditioned then a provision to stop the air handling unit should be provided and it shall be blocked by a damper and the same air duct should act as smoke extractors with the extraction fan switching on automatically, if a fi e or smoke is detected.

(3) (v) Ventilation from the Top and Skylight etc.:-Where an open well for light and ventilation, within the space enclosed by a stairway and its landings, is proposed to be provided, the least horizontal dimensions of which are equal to two times the width of the staircase then the requirements of clause(c) and (d) may be dispensed with provided that there shall be in the roof directly over each such stair well, a ventilating skylight with provided fixed or movable louvers to the satisfaction of the Competent Authority. The glazed roof of the skylight shall not be less than 3.7 sq. Mts. in area. No lift or any other fixture shaH be erected in such staircase well

(4) ventilation in stair case : all the stair cases should have openings in a manner that appropriate cross ventilation on each floor are maintained. No such ventilation shall be covered by facade which would obstruct the ventilation. Specifically when glass facade are provided they shall be provided in such a manner that the cross ventilation is available.

8. Fire detection/ extinguishing system:

(I) In addition to requirements under Table 23 Part 4 NBC second revision Hazardous building shall have vapour detectors/ explosion suppression system/ automatic sprinklers, besides hydrant system, wet risers and automatic fire alarm system depending on the type of fire hazard involved.

(2) Each building where gas is employed for any purpose shall be provided with an approved outside gas shut-off valve conspicuously marked. The detailed requirements regarding safe use of gas shall confom1 to Part 9 NBC Plumbing Services, Section 3 Gas supply

(3) Equipment or machinery which generates or emits combustible or explosive dust or fibres shall be provided with an adequate dust collecting and exhaust system

9. Service Ducts/ Shafts

(1) Electrical shafts/ducts shall have not less than 2h fire resistance and for other services shafts/ducts, the fire resistance shall be not less than 1h. All such ducts/ shafts shall be properly sealed and fire stopped at all floor levels.

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

(3) Refuse chutes shall have opening at least 1m above roof level for venting purpose and they shall have an enclosure wall of non-combustible material with fire resistance of not less than 2 hours. They shall not be located within the staircase enclosure or service shafts, or air- conditioning shafts. Inspection panel and doors shall be tight fitting with

1 hour fire resistance; the chutes should be as far away as possible from exits.

10. Air-conditioning.

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

(2) The ducting shall be constructed of substantial gauge metal as per IS: 655-1963- Specification for Metal Air Ducts.

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

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

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

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

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

(8) When the automatic fire alarm operates, the respective air-handling.

(9) Units of the air-conditioning system shall automatically be switched off.

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

11. Sub- Stations

(1) The sub-station shall have separate fire resisting walls/surroundings and shall necessarily be located at the periphery of the floor having separate access preferably from fire escape staircase.

(2) The outside walls, ceiling and floor including doors and windows to the sub-station area shall be of 2h fire rating.

(3) A sub-station or a switch-station with oil- filled equipment must not be located in the building. When housed inside the building, The transformer shall be of premises by walls/doors/cut outs having fire resistance rating of 4h

(4) The Sub-Station area needs to be maintained at negative air pressure and area in substation shall not be used as storage/dump areas.

(5) No transformer shall be allowed inside the building.

(6) Substation to be provided at rear corner of a building unit after leaving enough open space around the building for fire fighting requirements

12. Boilers and Boiler rooms

(1) The boiler shall be installed in a fire resisting room of 4h fire resistance rating, and this room shall be situated on the periphery of the building and in no case in basement. dike shall be provided at the lower level

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

13. Fire Control Rooms

(1) For building height having more than 45m and floor area 5000 sq.mt and more on each floor, there shall be a control room on the entrance floor of the building with communication system (suitable public address system) to all floors and facilities for receiving the message from different floors. Details of all floor plans along with the details of fire fighting equipment and installations shall be displayed in the fire control room. The fire control room shall also have facilities to detect the fire on any floor through indicator board's connection; fire detection and alarm system on all floors. The fire staff in charge of the fire control room shall be responsible for maintenance of the various services and the fire fighting equipment and installations in co-ordination with security, electrical and civil staff of the building.

14. Fire Officer

For hotels, business and mercantile use and for building height having more than 40m and floor area 5000 sq.mt and more on each floor, a qualified Fire Officer with experience of not less than 3years + two fire men shall be appointed who will be available on the premises.

15. Fire Drills

(1) Fire Notices/Orders shall be prepared to fulfil the requirements of frre fighting and evacuation from the building in the event of fire and other emergency. The occupants shall be made thorough ly conversant with their action in the event of emergency, by displaying fire notices at vantage points and also through regular training. Such notices should be displayed prominently in broad letters.

(2) For guidelines on fire drill and evacuation procedures reference may be made to Annex E of part 4 NBC second revision.

16. Fire Lifts

(1) To enable fire services personnel to reach the upper floors with the minimum delay, one fire lift per 1200 m2 of floor area shall be provided and shall be availab le for the exclusive use of the firemen in an emergency.

(2) The lift shall have a floor area of not Jess than 1.4 m2. It shall have loading capacity of not less than 545 KG (8 persons lift) with automatic closing doors of minimum 0.8m width.

(3) The electric supply shall be on a separate service from electric supply mains in a building and the cables run in a route safe from fire, that is, within the lift shaft. Lights and fans in the elevators having wooden panelling or sheet steel construction shall be operated on 24 volt supply.

(4) Fire fighting lift should be provided with a ceiling hatch for use in case of emergency,

(5) In case of failure of normal electric supply, it shall automatically change over to alternate supply. For apartment houses, this changeover of supply could be done through manually operated changeover switch. Alternatively, the lift shall be so wired that in case of power failure, it comes down at the ground level and comes to stand-still with door open.

(6) The operation of fire lift should be by a simple toggle or two -button switch situated in glass- fronted box adjacent to the lift at the entrance level. When the switch is on, landing call points will become in-operative and the lift will be on car control only or on a priority control device. When the switch is off, the lift can be used by the occupants in normal times.

(7) The words 'Fire Lift ' shall be conspicuously displayed in fluorescent paint on the lift landing door at each floor level.

(8) The speed of the fire lift shall be such that it can reach the top floor from ground level within one minute.

17. Refuge Area

(I) Following provisions shall apply:

(2) Refuge area shall be provided on the external walls/ periphery of the floor preferably on a cantilever projection , open to air at least on one side, protected with suitable railings and shall have direct access to fire ladder

(3) Minimum area of 15 m2on external wall with minimum width of 0.75 m at every 18 m height ;for floor area up to 1000 m2

(4) If floor area> 1000 m2,another Refuge Area on another end of the floor.

(5) For floors above 25 m and up to 39m-One refuge area on the floor immediately above 25 meter.

(6) For floors above 39 meter-One refuge area on the floor immediately above 39 m and so on after every 15 m

(7) Note- Residential flats in multi-storeyed buildings with balcony , need not be provided with refuge area, however flats without balcony shall be provided with refuge area as given above.

18. Basements

(1) These shall confonn to those given in C- 1.6 Part 4 NBC second revision and particular attention is drawn to the following:

(2) The staircase of basements shall be of enclosed type having fire resistance of not less than 2 hours and shall be situated at the periphery of the basement to be entered at ground level only from the open air and in such position that smoke from any fire in the basement shall not obstruct any exit serving the ground and upper storeys of the building. It shall communicate with basement through a lobby provided with fire resisting self closing doors of one hour resistance . If the travel distance exceeds the desired level, additional staircases shall be provided at proper places.

(3) Mechanical extractors for smoke venting shall be designed to permit 6 changes per hour in case of fire or distress call. For normal operations, air changes schedule shall be as given in part 8 NBC building services, section 3.

(4) Discharge apparatus of all natural draft smoke vents shall be so arranged as to be readily accessible for opening by fire service personnel.

(5) Use of basement for kitchen shall not be permitted. Building services such as, boiler rooms in basement shall comply with the provisions of the IE Act/ Rules.

19. Terrace drainage: -

(1) In all non-residential buildings, for the effective drainage of water which is likely to accumulate when the event of fire the drainage should be design for double the capacity what would have been required as per the GDCR.

20. Materials for interior decoration

(I) Only material s conforming to class 1 flame spread classification as per Is: 12777-1989 shall be used . Materials which are combustible in nature and may spread toxic fumes I gases shall not be used for interior decoration I furnishings etc.

(2) Glass of favade for high rise building shall be of 1 hour fire resistance

21. Electrical installations:

(1) The planning , design and installation of electrical installation, air-conditioning and heating work shall conform to the provisions of part viii building services. section 2- electrical installations. section 3-air-conditioning and heating, national building code of India.

22. Fire Safety of Existing Buildings

1. The Owner/ developer/ occupants shall have the assessment of fire safety system of an existing building/structure damaged/undamaged carried out at stipulated periodical intervals through expert(s) chosen from a panel of experts identified by the Competent Authority. The intervals for maintenance and inspection shall be specified by Chief Fire Officer, usually every 6 months

2. The owner/developer/occupant on advice of such expert(s) shall carry out such repair/restoration and strengthening/retrofitting of the building found necessary so as to comply with the safety standards laid down in the national building code and the Indian standards as specified.

3. In case, the owner/developer/occupant does not carry out such action, the Competent Authority or any agency authorized by the competent authority may carry out such action at the cost of owner/developer/occupant.

4. The Competent Authority may direct the owner/developer/occupant, whether the building could be occupied or not during the period of compliance.

CHAPTER IV- SPECIAL REGULATIONS FOR SPECIAL BUILDINGS

23. Requirements for Fire Protection for buildings having height 18 or more

(1) The builder has to provide for any other requirement for fire protection or Safety as may be required by the Chief Fire Officer when the building is complete for NOC to be issued .

(2) Documents required for Issuing a NOC:

a. Letter of request for inspection.
b. Copies of receipt of charges paid for inspection and NOC.
c. Test certificate of extinguishers , check and refilled.
d. Copies of fitness certificate from inspector of lifts for all lifts.
e. Annual Maintenance contract signed and Notarized on Rs. 100 stamp.
f. Letter of acceptance from both the parties to contract.
g. Photographs and video of the site inspection and testing.

24. Requirements for buildings having height 18 to 40 mts. (both inclusive)

24.1. Hydrant system:

(1) ON/OFF switches located near the hose reel hose or hydrant outlet, at each floor for the main Fire- Pump at the underground water tank with a capacity to discharge 900 liters per minute at 3 bar pressure as measured at the terrace level should be installed.

(2) The Riser for the buildings exceeding 18 meters height should not be of less than 150mm. internal diameter. The riser should be connected to the bottom of the terrace tank with a stop va lve and a NRV to act as a downcommer.

(3) One riser is required for every lOOOsq . meters floor area and if the building is divided into two or more parts then each part should have a separate riser with all the fittings at each floor level.

(4) Each floor should have one hydrant outlet with a coupling for attaching a 63mm. dia. hose.

(5) 25mm. bore Hose-reel hose with 8mm, shut-off nozzle at each floor landing. The length of the hose reel hose should be enough to reach the fruthest corner of the floor.

(6) Hose-box with 15 meters long 63mm. dia. hose and 12.5mm bore nozzle at alternate floors. The hose-reel hose should be coupled to the Riser.

(7) Fire-service inlet should be installed at a point near the entry to the premises where a fire service vehicle can approach easily.

(8) The Overhead tank shall be of a capacity of not less than 20,000 liters.

(9) The underground tank shall be of not less than 1,00,000 liters.

24.2. Fire lift:

(1) The Fire-lift and all the lifts should have a provision to ground automatically in case of electricity failure. Each building should have at least one lift as a Fire- lift and if the building is divided into two or more parts then each part should have a Fire-lift. Lift-well should have blowers to pressurize the lift-well so connected that it will automatically operate when alarm cali point is operated, so that it prevents the lift well getting smoke logged.

24.3. Fire alarm:

(I) Fire alarm calls point to be installed at each floor with sounders capable of being heard all throughout the building.

24.4. Fire Extinguishers:

(1) One C02 extinguisher of 4.5kg and one extinguisher of 5kg DCP to be installed on each floor in case of commercial building

AND/OR

Two C02 extinguishers of 2kg capacity on eac floor and 5kg DCP extinguisher on alternate floors in case of residential buildings

(2) If the building is divided into two or more parts then each part should have these extinguishers installed.

24.5. Staircase:

(1) The staircase has to be open from at least one or two sides but if the staircase is in the center core of the building it has to be pressurized to prevent it getting smoke logged and open for two sides.

(2) The riser/ downcommer should be located in the staircase or close to it to make it easily approachable in case of fire from the floor below or above.

24.6. Basement:

(I) The basement of 200 sq. meters or more should be protected with;

a. Automatic sprinkler system with at least one sprinkler head for one car parking space

b. Additionally be protected by a Hydrant outlet and two 25mrn. bore Hose- reel hoses with 8 mm. bore nozzles at each basement level.

24.7. Lightening arrester:

(I) A lightening arrester should also be installed and be properly earthed to prevent damage to the building when the lightning strikes.

25. Requirements for Fire Protection for buildings having height more than 40 mts

(1) Open space: Adjacent to the building 8 metres, motorable open to sky with atleast 40 ton load bearing capacity. Opening /gates to the premises atleast 8 metres wide. The rescue I fire fighting vehicles should be able to appr'oach all sides of the building.

(2) Fire fighting system:

Ultra high pressure fire fighting system, having the specifications stated here under shall have to be provided.

a. Specification: The wet, ultra high pressure system shall comprise of ultra- high pressure (six plunger, 150 lpm @ I 00 bar) pwnp working at not more than I 000 rpm connected to an electric motor of I 000 rpm. Only, feeding a 25mm. SS. Pipe of seamless construction and joints shall be argon welded.

b. Each floor (Basement I ground I all higher floors) shall have, a 16mm. dia. R-II hose with 40 lpm. fog gun working at I 00 bar pressure and be able to give a throw of 20 metres. There shall be a hose reel at each floor& shall be located at easily approachable pJace and shall be long enough to reach the extreme end of the floor.

c. The pump shall be fed by a I 0,000 litres water tank containing clean drinking quality soft water. The high pressure pump along with the tank may be located at the ground I basement I terrace level, there shall be appositive feed to the pump. The discharge line at the pump shall be fitted with a pressure regulator and a high pressure by-pass valve to make the system safe.

d. A quick release adaptor at the ground floor shall be installed where fire service vehicle can be connected to the high pressure system line.

(3) Hydrant System:

The system shall be with a I50mm. internal dia. Riser with hydrant landing valves at each floor (Basement I ground I all higher floors). An air vent valve at the top most level. The riser shall be of 'C' class pipes and welded to fme finish and coated with anti-corrosive paint and coloured RED. All hydrant valves used shall be of SS. The hydrant pipe shall also be connected to the bottom of the terrace tank with a NRV and a stop valve.

(4) Sprinkler system:

The entire building (each floor including the basement, ground and al1 higher floors) shall be sprinklered. One sprinkler head (57 degree Celsius for every 10 sq. metres, only A separate line for the spdnklers shall be installed and connected to the base of the terrace tank with a shut-off vale and a NR V. The sprinkler system shall be fed from the underground tank with a separate pump and a sprinkler system installed with a gong valve (TYCO or similar type) and an Eiectrical flow switch for automatic operation. Fatihest end at each floor shaH have a drain valve for the system to be tested. The tank supplying water to the sprinkler system shall be of I,50,000 litres capacity installed with a pump of 2200 lpm @I 0 bar. Residential buildings are exempted from sprinklers on higher floors but must for basements and commercial floors.

(5) Fire lift:

All lifts of the building shall be Fire lifts and shall have a provision to ground in case of electrical failure and shall be installed with a panic button and a talk-back system. The lift shall not be installed in the center of the building and the lift shaft shall be ventilated from the top with smoke extractors. The lift for the higher floors shall end at the ground level and not go to the basement.

(6) Staircase:

The staircase shall be of RCC construction & ventilated and shall be kept open except the parapet wall, all the space above the parapet wall shall be kept open. The staircase shall be designed ! located at the exterior part of the building. The width of the staircase shall not be less than 2 metres. If the staircase is in the center of the building and is not ventilated then a fire escape staircase (fire tower) has to be installed on either sides of the building with travel distance not more than 30 metres.

(7) Fire alarm:

The fire alarm shall be of addressable type and automatic coupled to the smoke I fire detector. The detectors shall be at least one unit for each enclosure on every floor. The alarm shall be audible in all parts of the building. The alarm system shall be UL certified.

(8) Extinguishers:

Each floor shall have 2 units of C02 extinguishers of 4.5kg. capacity and I unit of Skg. capacity of Dry chemical powder. These units shall be for each 1000 sq. metres of floor area.

(9) Electric supply:

a. Electric supply to the High pressure Fire pump, fire lift, Sprinkler pump all shall be suppli ed parall el to the building supply and should not get cut- off if the supply to the building is switched off.

b. All the electric wiring used shall be of 900 volt grad ing and connected to each enclosure through a MCB for a particular load.

(I0) Auto glow signage:

All exits, corridors and staircase shall have auto glow signs for people to escape in case of fires in darkness. Even the floors shall have guide marks guiding towards the staircase.

(11) Lightening arrester:

A lightening arrester shall be installed and properly eatthed.

(12) Ventilation:

a. All enclosures should have openable windows and vents to be opened in case offrre or smoke accumulation.

b. If the floor or the building is centrally air-conditioned then a provision to stop the air handlin g unit should be provided and it shall be blocked by a damper and the same air duct should act as smoke extractors with the extraction fan switching on automatically, if a fire or smoke is detected.

c. Ventilation of stair-cases:-

Every stair case provided under the foregoing clauses shall be lighted and ventilated to the satisfaction of the Authority from an open air space not less than 1 sq.mt.

d. Windows in stair-case Bay:

There shall be provid ed a window or windows of an aggregate area of at least 1.2 sq.metres on each storey in such of the wall of the stair-case room which abuts on such I sq.mt. open air space to l ight and ventilate such staircase.

(13) Skip floor I refuge room:

a. The building shall have 1Oth & 18th floor as skip floors, where there shall be no enclosures allowed and can have some utilities installed but shall house a refuge room adjacent to the staircase.

b. The refuge room shall be of 2 hours fire resistance with 2 hours fire resistant, self-closing door, lightin g, rest and drinking water facilities and the exterior wall of the room shall have door size glass openin g for fire service ladders to approach.

(14) Basement:

a. The basement shall not open in to the staircase or lift well directly. If so then it has to be protected by 2 hours fire resistant self closing doors. The basements sh all be provided with natural ventilations and more than one basement shall have mechanical smoke extraction installed with a capacity of one air change every 10 minutes .

26. Mixed Occupancy

(I) Places of assembly in buildings of other occupancy, such as all rooms in hotels, restaurants in stores and assembly rooms in schools, shall be so located, separated or protected as to avoid any undue danger to the occupants of the place of assembly from a fire/smoke originating in the other occupancy No mix development shall be permitted with the buildings having height more than 45mt. OR Commercial and residential use shall be separated by provision of skip floor/service floor.

(2) Every place of assembly, every tier of balcony, and every individual room used as a place of assembly shall have exits sufficient to provide for the total capacity therein as required such that door width for assembly building shall not be less than 2000 mm. for every 600 person.

(3) Every palace of assembly shall have at least four separate exits as remote from each other as practicable.

(4) Clear aisles not less than 1.2m in width shall be formed at right angles to the line of seating in such number and manner that no seat shall be more than seven seats away from an aisle.

(5) Rows of seats opening to an aisle at one end only shall have not more than seven seats. Under the condition, where all these aisles do not directly meet the exit doors, cross- aisles shall be provided parallel to the line of seating so as provide direct access to the exit, provided that not less than one cross aisle for every I0 rows shall be required. The width of cross-aisles shall be minimum of 1 m. Steps shall not be placed in aisles to overcome differences in levels, unless gradient exceeds 1 in I 0.

(6) The fascia of boxes, balconies and galleries shall have substantial railings not less than 1OOOmm high above the floor. The railings at the end of aisles extending to the fascia shall be not less than 1000 mm high for the width of the aisle or 110Omm high at the foot of steps.

(7) Cross aisles except where the backs of seats on the front of the aisle project 600mm or more above the floor of the aisle shall be provided with railings not Jess than 900mm high.

(8) No turnstiles or other devices to restrict the movement of persons shall be installed in any place of assembly in such a manner as to interfere in any way with the required exit facilities.

(9) In theatres and similar places of public assembly where persons are admitted to the building at a time when seats, are not available for them are allowed to wait in lobby or similar palace until seats are available, such use of lobby or similar space shall not encroach upon the required clear width of exits. Such waiting shall be restricted to areas separated from the exit ways by substantial permanent partition or fixed rigid railing not less than 105cm high. Exits shall be provided for such waiting spaces on the basis of 1 person for each 0.3m2 of

(10) Waiting space area. Such exits shall be in addition to exits specified for the main auditorium area and shall conform in construction and arrangement to the general rules of exits given above.

(11) No display or exhibit shall be so installed or operated as to interfere in any way with access to any required exit, or with any required exit sign.

(12) All displays or exhibits of combustible material or construction and all booths and temporary constructions in connection therewith shall be so limited in combustibility or protected so as to avoid any undue hazard of fire which might endanger occupants before they have opportunity to use the available exits, as determined by the authority.

(13) Places of assembly in buildings of other occupancy may use exits common to the place of assembly and the other occupancy , provided the assembly area and the order occupancy are considered separately, and each has exits sufficient to meet the requirements of the code.

(14) Exits shall be sufficient for simultaneous occupancy of both the place of assembly and other parts of the building, unless authority determines that the simultaneous occupancy will not occur.

(15) At least half the required means of exit shall lead directly outdoors or through exit ways completely separated from exits serving other parts of the building.

(16) The decoration of place of assembly shall be of non-flammable materials. Fabrics and papers used for such purpose shall be treated with an effective flame retardant material. Stage settings made to

combustible materials shall likewise be treated with fire retardant materials of class I flame spread.

(17) Seats in places of public assembly, accommodating more than 300 persons, shall be securely fasten d to the floor except as permitted in (o) below. All seats in balconies and galleries shall be securely fastened to the floor, except that in nailed-in enclosures like boxes with level floors and having not more than 14 seats, the seats need not be fastened . Tapestry of the seats shall be fire resistance .

(18) Chairs not secured to the floor may be pennitted in restaurants, night clubs and other occupancies where fastening of seats to the floor may not be practicable, provide that in the area used for seating, excluding dance floor, stage, etc, there shall be not more than one seat for each I .4m2 of floor area and adequate aisles to reach exits shall be maintained at all times .

(19) Seats without dividing arms shall have their capacity determined be allowing 450 m per person.

(20) The spacing of rows of seats from back shall neither be less than 850 mm nor less than 700nm1 plus the sum of the thickness of the back and the inclination of the back. There shall be a space of not than 350mm between the back of one seat and the front of the seat immediately behind it as measured between plumb lines.

(21) Rooms containing high-pressure boilers , refrigerating machiner other than domestic refrigerator type, or other service equipments subject to possible explosion shall not be located directly under or adjacent to required exits. All such rooms shall be effectively cut off from other parts of the building and provided with adequate vents to the outer air.

(22) All rooms or areas used for storage of any combustible material or equipment, or for painting, refinishing, repair or similar purposes shall be effectively cut off from assembly areas or protected with a standard system of automatic sprinklers. They shall be located away from staircases.

(23) Every stage equipped with fly galleries, grid irons and rigging for movable theatre type scenery shall have a system of automatic sprinklers over and under such stage areas or spaces and auxiliary spaces, such as dressing rooms, store rooms and workshops. The proscenium opening shall be provide with a fire- resisting cut1ain, capable of withstanding a lateral pressure of 4 KN/ m2 over the entire area. The curtain shall have an emergency closing device capable of

causing the curtain to close without the use of power and when so closed , it shall be reasonably tight against the passage of smoke.

(24) The stage roof of every theatre using movable scenery or having a motion picture screen of highly combustible construction shall have a ventilator or ventilators in or above it, open able from the stage floor by hand and also opening by fusible links or some other approved automatic heat/ smoke actuated device, to give a free opening equal to at least one-eighth the area of the floor of the stage.

(25) The proscenium wall of every theatre using movable scenery or decorations shall have exclusive of the proscenium opening, not more than two openings entering the stage, each not to exceed 2 rn2 and fitted with self- closing fire resistant doors.

(26) Automatic smoke vents actuated by smoke detectors shall be installed above

the auditorium or theatres, including motion picture houses, with capacity of 8 air change per hour.

27. Institutional buildings

(1) These shall conform to those given in 6.3 Part 4NBC second revision, and particular attention is drawn to the following:

(2) In building or sections occupied by bed-ridden patients where the floor area is over 280 m2, facilities shall be provided to move patients in hospital beds to the other side of a smoke barrier from any part of such building or section not directly served by approved horizontal exits or exits from first floor (floor 2) of a building to the outside.

(3) Not less than two exits of one or more of the following types shall be provided for every floor, including basements, of every building or section:

a. Doors leading directly outside the building.
b. Stairways
c. Ramps.
d. Horizontal Exits and
e. Fire staircase.

(4) All required exits as per table 17.8.a.i of corridor width

(5) No building constructed in whole or in part of combustible materials shall be used to confine inmates in cells or sleeping quarters, unless automatic sprinkler protection is provided.

28. Industrial buildings

(1) These shall conform to those given in SECTION 6.7 Part 4 NBC Second revision and particular attention is drawn to the following:

a. Exits shall be so located that it will not be necessary to travel more than 20m from any point to reach the nearest exit.

b. Form every point in every floor area, there shall be at least 2 exits accessible in two different directions: where floor areas are divided into rooms, there shall be at least two ways of escape from every room, however small, except toilet rooms, so located that the points of access thereto are out of or are suitably shielded from areas of high hazard.

c. All high hazard industrial occupancies shall have automatic sprinkler protection or such other protection as a appropriate to the particular hazard, including explosion venting for any area subject to explosion hazard, designed to minimize danger to occupants in case of fire or other emergency before they have time to utilize exits to escape.

29. Requirements for Special buildings - hotels I malls I multi-plex:

1. All the enclosures should have sprinkler system with separate piping and a fire pump for the sprinkler system. (one sprinkler head to cover 10 sqmts).
2. Each enclosure should have smoke sensor attached to a central alarm system.
3. In centrally air-conditioned building there shall be smoke detectors to cut-off the air-handling unit of the ac system.
4. There shall be a powered ventilation system at the top most area (with electric wiring done externally) to start with the alarm system.
5. All the information deWhen the plan is approved, before the construction of the building these shall be printed along with each plan and line drawing of the system.
6. When the building is ready, the Fire officers should inspect the same and the inspection should be photographed and videographed and this shall be submitted to the sanctioning authority along with the inspection report and all the inspecting officers shall sign the report and the certificate issued to this effect.
7. Rs. 25001 charges are collected for each inspection. The party shall bear the cost of photo I video. Rs. 10001- charges towards issuance of NOC.
8. There shall be a written agreement between the owners of the building and the contractor installing the system and the agreement shall be Notarized.

30. Storage buildings

(1) These shall conform to those given in section 6.8 Part 4 NBC second revision and particular attention is drawn to the following:

(2) Every area used for the storage of hazardous commodities to be permitted at ground level only and shall have an exit within 20 m of any point in the area where persons may be present. This distance may be increased to 35m where automatic sprinkler protection provided.

31. Building for hazardous use

(1) These shall conform to those given in 6.9 Part 4 NBC second revision and particular attention is drawn to the following:

CHAPTER V- STRUCTURAL SAFETY AND SERVICES

32. Structural Design

32.1. The structural design of foundations, elements made of masonry, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall conform to the provisions of part VI structural design section- I Loads, section-2 Foundation, section-3 Wood, section-4 masonry, section-S Concrete,section-6 Steel, National Building Code of India, taking into consideration the Indian Standards and Guidelines for hazard safety as given below:

32.2. General Structural Safety:

(1) The following Codes shall have to be followed:

a. IS: 456: 2000 " Code Of Practice For Plain And Reinforced Concrete"

b. IS: 800- 1984 "Code of Practice for Generai Construction in Steel"

c. IS 875 (Part 2): 1987 Design loads (other than earthquake) for building and structures Part 2 imposed loads.

d. IS 875 (Part 3): 1987 Design loads (other than earthquake) for building and structures Part 3 Wind Loads

e. IS: 883 I 966 "Code of Practice for Design of Structural Timber in Building"

f. IS 1904: 1987 "Code of Practice for Structural Safety of Building-Foundations"

g. IS 1905: 1987 "Code of Practice for Structural Safety of Building-Masonry Walls"

(2) For Earthquake Protection

a. IS :1893-1984 "criteria for earthquake resistant design of structures (fourth revision)"

b. IS :13920-1993 "ductile detailing of reinforced concrete structures subjected to seismic forces - code of practice"

c. IS :4326-1993 "earthquake resistant design and construction of buildings - code of practice (second revision)"

d. IS is:13828-1993 "improving earthquake resistance of low strength masonry buildings- guidelines"

e. IS: 13827-1993 "improving earthquake resistance of earthen buildings- guidelines",

f. IS:13935-1993 "repairand seismic strengthening of buildings guidelines"

g. "Improving Earthquake Resistance of Buildings - Guideline", by Expert Group, Government of India, Ministry of Urban Affairs & Employment, published by Building Materials and Technology Promotion Council, 1998.

(3) For Cyclone/Wind Storm Protection

a. IS 875 (3)-1987 "code of practice for design loads (other than earthquake) for buildings and structures, part 3, wind loads"

b. "Improving Wind/Cyclone Resistance of Buildings -Guideline", by Expert Group, Government of India, Ministry of Urban Affairs & Employment, published by Building Materials and Technology Promotion Council, 1998.

c. Note:

i. Wherever an Indian standard including those referred in the national building code or the national building code is referred, the latest version of the same shall be followed.

ii. In pursuance of the above, a certificate as indicated in form-2(c) shall be submitted along with building plans/drawings and other building information schedule annexed thereto.

33. Quality Control Requirements

33.1. The quality of all materials and workmanship shall conform to accepted standards and Indian standard specifications and codes as included in part v building materials and part vii constructional practices and safety, national building code of India .

33.2. All borrow pits dug in the course of construction and repair of buildings, embankmentsetc. shall be deep and connected with each other in the fmmation of a drain directed towards the lowest level and properly stepped for discharge into a river, stream, channel or drain, and no person

shall create any isolated borrow pit which is likely to cause accumulation of water that may breed mosquitoes.

33.3. Alternative materials, method of design and construction and tests:-

(I) The provisions of the regulations are not intended to prevent the use of any material or method of design of construction not specifically prescribed in them provided any such alternative has been approved. nothing of the provisions of these regulations is intended to prevent the adoption or architectural planning and layout conceived as an integrated development scheme. the competent authority may approve any such alternative if it conforms to the provisions of the relevant parts of the national building code, regarding material, design and construction, and the material, method, or work offered is, for the purpose intended, at least equivalent to that prescribed in these regulations inquality, -strength, compatibility, effectiveness, fire and water resistance, durability and safety.

(2) All buildings shall be constructed on a quality control requirement s.

(3) In case of existing building under construction based on approved building permission, structural safety requirements shall have to be observed.however due to such structura l work of strengthening/retrofitting in the event of natural disaster if certain setbacks and margin get reduced, special permission may be granted on case to case basis .

33.4. Tests:

(1) Whenever there is insufficient evidence of compliance with the provisions of the regulations or evidence that any material or method of design or construction does not conf01m to the requirements of the regulations, in order to substantiate claims for alternative m aterials, design or methods of construction, the competent authority may require tests, sufficiently in advance, as proof of compliance. these tests shall be made by an approved agency at the expense of the owner as follows :-

(2) Test Methods:- Test methods shall be as specified by the regulation s for the materials or design or construction in question. if there are no appropri'ate test methods specified in the regulations, the competent authority shall determine the test procedure. for methods or tests for building materi'als, reference shall be made to the relevant Indian standards as given in the national building code of India published by the bureau of Indian standards .

(3) Test result to be preserved:- copies of the result of all such tests shall be retained by the competent authority for not less than two years after the acceptance of the alternative materi al

(4) The testing of the materials as per Indian standards shall be carried out by laboratories approved by the competent authority on this behalf.

(5) The laborato ry/agency shall work out in consultation with the constructionagency a testing programme of materials such as cement, steel and quality of concrete includin g its mixing, laying and strength at site as well as in the laboratory.

(6) This should cover variousstages of construction from foundation to completion as per regulation the laboratory shall maintain a duly authenticated report in a bound register, copy of which will be submitted to the construction agency, which will in turn forward the testing report to the competent authority.

34.Structural Stability and Fire Safety of Existing Buildings

(I) The competent authority shall have the assessment of structural and/or fire safety of an existing building/structure damaged/undamaged carried out at stipulated periodical intervals through expert(s) chosen from a panel of experts identified by the competent authority.

(2) The owner/developer/occupant on advise of such expert(s) shall carry out such repair/restoration and strengthening/retrofitti ng of the building found necessary so as to comply with the safety standards laid down in the national building code and the Indian standards as specified.

(3) In case, the owner/developer/occupant does not carry out such action, the competent authority or any agency authorized by the competent authority may carry out such action at the cost of owner/developer/occupant.

(4) The competent authority shall specify the period within which such compliance is to be carried out.

(5) The competent authority may also direct the owner/developer/occupant, whetherthe building could be occupied or not during the period of compliance.

(6) In case of existing building under construction based on approved building permission, structural safety requirements shall have to be observed.however, due to such structural work of strengthening/ retrofitting if certain setbacks and margin get reduced, special permrssion.

CHAPTER VI - MISCELLANEOUS

35.Effect of other provisions of GDCR

35.1. With regard to procedure to be followed the manner of application, the documents to be submitted along with the applications, the protocols of drawings to be submitted, etc.unless otherwise prescribed, the provisions of GDCR of the appropriate authority shall apply mutatis mutandis .

35.2. Notwithstanding anything contained in any regulations or any relevant law, for the purpose of fire prevention and life safety, these regulations shall be applicable.

35.3. Having obtained NOC or permission under these regulations, shall not deem to have obtained permissions under other or relevant regulations or relevant law.

36.Safety And Maintenance Of Buildings

36.1. It shall be the duty of every owner to maintain and keep in perfect working order, at all times, all the fixed fire protection systems, installations and first-aid fire extinguishers, as well as fire lifts and escape stairs, provided in the building.

36.2. At intervals of not more than 12 months, he shall submit a Certificate from the Fire Department or the I Registered/ Accredited Fire Protection Consultant certifying that all the requirements as stated above are properly maintained, and are in good - working condition

37.Fire protection requirements during construction of buildings

37.1. Fire and life safety during construction: During the construction of any building or buildings or for development on the site, minimum safety measures, as specified in NBC Part 7, "Construction Practices and safety" shall be complied .

Form - A

1. Name of building

2. Address of the building

3. Name & address ofthe building/ promoter

4. Name & address of the owners/ occupiers of individual flats

5. Plot area

   a) Title

   b) Land use (in case of residential building indicate no of dwelling units)

6. Covered area (grade level)

7. Height of the building

8. Overall height (from grade level)

   a) Whether setback areas are conforming to unified building bye law/ AUDA regulations.

9. Number of basements (please indicate level below in each case)

   a) If basement extends beyond building line, please indicate the load bearing strength of the roof of tbe basement

   b) Area of basement

   c) Whether any plaza is proposed? Is so, details of the level of piazza and ramps etc be indicated.

10. Number of floors (including ground floor)

11. Occupancy use (please mention separately for basement and floors)

12. Covered area of typical floor

13. parkin g areas (please give details)

14. Details of surrounding property/ features

15. Approach to proposed building, width of the road and connecting roads if any

16. Please give details of water supply available exclusively for fire fighting

18. If yes, please indicate the number of risers and internal diameter of each. One wet riser attached to the bottom of terrace tank with NRV &stop valve in down coming also.

19. Has any down comer been provided ? If so, please give details

20. Is a public or other water storage facility available nearby? If so, please give the capacity an.d distance from your building, also please indicate if it is readily accessible

21. Give any other information that you can regarding availability of water supply for fire fighting.

22. Are internal hydrants being provided? If so, please indicate:

a) No. Of hydrants on each floor including basements and terrace minimum one hydrant for every l000 sq.mt of floor area.

b) Have these hydrants singl e or twin outlets? Bore not less than 25mm, through bore with 8mm shutoff nozzle to reach the farthest corner of the floor.

23. Are internal hydrants being provided? If so please indicate:

a) No of hose-reels on each floor including basements and terrace

b) Bore and length of hose reel tubing on each reel

c) Size (bore) and type of nozzle fitted to each hose reel.

d) Is the hose reel connected directly to the riser on ly?

24. Is the hose reel connected directly to the riser only?

Are fire hoses being provided near each hydrant? If so, please indicate

a) The type of hose

b) The size (bore) of hoses

c) The length of each hose

d) Total no of hoses provided near each hydrant

25. Are branch pipes being provided? (not :- universal branch pipe conforming to is:2871 - 1983 is to be provided as per is:3844-1989,nozzle dia. 12.5mm.

26. Is the basement to use for car parking?

a) Is it being sprinkl ed?

b) Whether any cubicles are proposed in the basement/

c) J f so, the area of each cubicle. Whether segregation/ compartmentation of the basement is being provided?

d) If so, please give details.

27. Is the building being equipped with automatic fire detection and alarm system? If so please indicate

a) The type of detectors used

b) The standard to which the detectors conform

c) The code to which the installation confonns.

28. Are manual call boxes being installedin the building for raising an atann in the event of outbreak of a fire? If so, please give details.

29. Is public address system being installed in the building with loudspeakers on each floor?

30. Is fire control room being provided in entrance lobby of the building? In the case of building having floor area of 5000 sq.mt or more and Height more than 30mt.

31. Is an intercom systembeing provided between the different floors and the fire control room in entrance lobby?

32. How many stairca ses are being provided in the building? Please indicate in each case

a) Width of the stairway

b) Width of risers

c) Height of risers

d) If the treads are of non-slippery type.

33. What is the proposed average occupant load per floor?

34. How many lifts are being installed in the building? Please indicate in each case

a) The floor between which the lift runs

b) The type of door fitted to the lift car and landing doors

c) Fire resistance rating of the lift car

d) Floor area of the lift car

e) Loading capacity of the lift car

f) Is communication system being installed in the lift car?

g) Is a ftreman 's switch being installed in the lift for grounding it in the event of a fire?

35. Are stationary fire pumps being installed for pressurizing the wet riser? If so please indicate

a) The number of pumps

b) The size of suction and delivery connection each pump

c) The output of each pump

d) The maximum head against which the pump can operate at the output mentioned me

e) Is the pump automatic in action?

36. Is a standby source of electric supply being provided? If it is through a generator,
please indicate:

a) The capacity (output)

b) The function that can be maintained simultaneously by the use of generator such as operating lifts, fire pumps, emergency lighting etc

c) Will the generator be automatic in action or has to be started manually?

37. Are any yard hydrants being fed fi•om the building's flre pump?

38. where more than one lift is being installed in a common enclosure, will individual
lifts be separated by fire-resisting walls of 2 house ftre rating?

39. Will the lift lobby or the stairway be pressurized? If so, give details.

40. Will the lift lobbies and staircases be effectively enclosed to prevent fire/ smoke entering them from outside at any floor?

41. Will all the exits and direction of travel to each exit be sing posted with illuminated signs?

42. Is false ceiling being provided in any portion of the building? If so please indicate and mention of the material being used for the false ceiling is combustible or non- combustible?

43. Will the building be centrally air-conditioned? If so please indicate,

a) The material used for construction of and its fittings

b) The type of tinning used for ducts if any

c) The type of lagging used, if any for insulating any portion of the duct,

Please also indicate how the lagging is secured.

d) If false ceiling is being installed please give infonnation as at 42 above.

e) If plenum is used as return air passage, Is it being protected with frre detectors? Please give details.

f) Is a separate AHU being provided for each floor?

g) Whether automatic shutdown of AHU is coupled with detection system?

h) Is the ducting for each floor effectively is it continuous on more than one floor?

i) Will fire dampers be provided in acducting? if so, give details of their installation?

44. Where are the switch-gears and transformers being located?, please indicate. Please indicate as it shall not be allowed inside the building.

a) If the switchgears and transformers have been housed in separate compartments, effectively separated from each other and from other portions of the building by a 4 hours fire resistance wall?

b) What precautions will be taken to portions a possible fire in the transformers from spreading?

45. (i) Where electrical cables, telephone cables, dry I wet risers I down-comers pass through a floor or a wall, will the spaces (apertures) around the cables/ pipes be effectively sealed/ plugged with non-combustible , fire resisting material?

(ii) Ventilation

a) Whether natural ventilation is relied upon?
If so give details of vents for stairwell, lift shaft etc

b) Whether mechanical ventilation is being proposed?
If so, give details of proposed system indicating the number of air changes forthe basements and other floor.

c) Whether mechanical ventilation is being coupled with automatic detection system?

46. please indicate the number and type of fire extinguishers which will be provided at various locations and the arrangement for the maintenance of the extinguishers

47. Please indicate if the fire extinguishers bear the isi certification mark?

48. Whether the refuge area is being provided ? If so, the floor on which it will be provided and the total area being provided floor-wise.

49. Is the building being protected against lightning? If so does the lightning protector conform to any code? Please give details.

50. Please confirm that the work has not been started on site and construction will be started only after final approval of the competent authority. Give position of construction at site.

1. FORMS FOR APPLICATION

1.1. For high rise building and for special building like assembly, institutional, industrial storage and hazardous occupancy the following additional information shall be furnished/indicated in the following plans in addition to the items under clause 3.3.

(1) Access to fire appliances/vehicles with details of clear motorable access way around the building and vehicular turning circle.

(2) Size (width) of main and alternate staircase along with balcony approach, corridor, and ventilated lobby approach as the case may be.

(3) Location and details of lift enclosures.

(4) Location and size of fire lift.

(5) Smoke stops lobby/door, where provided.

(6) Refuse chutes, refuse chamber, service duct etc. where to be provided.

(7) Vehicular parking space.

(8) Refuse area, if any.

(9) Details of building services, air-conditioning system with position or dampers, mechanical ventilation system, electrical services, boilers, gas pipes etc. where provided.

(10) Details of exits including provision of ramps etc. for hospitals.

(11) Location of generator, transformer and switch gear room where required.

(12) Smoke exhauster system, if any.

(13) Details of fire alarm system network.

(14) Location of centralised control, connecting all fore air, suste, built-in fire protection arrangements and public address system etc. where required.

(15) Location of dimension of static water storage tank and pump room.

(16) Location and details of fixed fire protection installations such as sprinkles wet risers, house reels, drenchers, CO2 installations etc.

(17) Location and details of first-aid firefighting equipment /installations.

(18) Location for electric transformer.

By order and in the name of the Governor of Gujarat,

(S.G. Bhatt)
Deputy Secretary to Government

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