

**RISK BASED CLASSIFICATION OF
BUILDINGS AS PER NBC 2005**

**भारत की राष्ट्रीय भवन
निर्माण संहिता 2005
National Building
Code of India 2005**



**भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS**

2.36 Ventilation — Supply of outside air into, or the removal of inside air from an enclosed space.

2.37 Venting Fire — The process of inducing heat and smoke to leave a building as quickly as possible by such paths that lateral spread of fire and heat is checked, fire fighting operations are facilitated and minimum fire damage is caused.

2.38 Volume to Plot Area Ratio (VPR) — The ratio of volume of building measured in cubic metres to the area of the plot measured in square metres and expressed in metres.

2.39 Wet Riser — An arrangement for fire fighting within the building by means of vertical rising mains not less than 100 mm nominal diameter with landing valves on each floor/landing for fire fighting purposes and permanently charged with water from a pressurized supply.

NOTE — For definitions of other terms, reference shall be made to good practice [4(2)].

3 FIRE PREVENTION

3.1 Classification of Building Based on Occupancy

3.1.1 General Classification

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

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

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

Examples of buildings in each group are given in **3.1.2** to **3.1.10**.

3.1.2 Group A Residential Buildings

These shall include any building in which sleeping accommodation is provided for normal residential purposes with or without cooking or dining or both facilities, except any building classified under Group C.

Buildings and structures under Group A shall be further sub-divided as follows:

Sub-division A-1 Lodging or rooming houses

Sub-division A-2 One or two-family private dwellings

Sub-division A-3 Dormitories

Sub-division A-4 Apartment houses (flats)

Sub-division A-5 Hotels

Sub-division A-6 Hotels (Starred)

a) *Sub-division A-1 Lodging or rooming houses* — These shall include any building or group of buildings under the same management, in which separate sleeping accommodation for a total of not more than 40 persons (beds), on transient or permanent basis, with or without dining facilities but without cooking facilities for individuals is provided. This includes inns, clubs, motels and guest houses.

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

b) *Sub-division A-2 One or two-family private dwellings* — These shall include any private dwelling which is occupied by members of one or two families and has a total sleeping accommodation for not more than 20 persons.

If rooms in a private dwelling are rented to outsiders, these shall be for accommodating not more than three persons per room.

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

c) *Sub-division A-3 Dormitories* — These shall include any building in which group sleeping accommodation is provided, with or without dining facilities for persons who are not members of the same family, in one room or a series of closely associated rooms under joint occupancy and single management, for example, school and college dormitories, students, and other hostels and military barracks.

d) *Sub-division A-4 Apartment houses (flats)* — These shall include any building or structure in which living quarters are provided for three or more families, living independently of each other and with independent cooking facilities, for example, apartment houses, mansions and chawls.

e) *Sub-division A-5 Hotels* — These shall include any building or group of buildings under single management, in which sleeping accommodation is provided, with or without dining facilities for hotels classified up to 4 Star Category.

- f) *Sub-division A-6 Hotels (starred)* — These shall include the hotels duly approved by the concerned authorities as Five Star and above Hotels.

3.1.3 Group B Educational Buildings

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

Buildings and structures under Group B shall be further sub-divided as follows:

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

Sub-division B-2 All others/training institutions

- a) *Sub-division B-1 Schools up to senior secondary level* — This sub-division shall include any building or a group of buildings under single management which is used for students not less than 20 in number.
- b) *Sub-division B-2 All others/training institutions* — This sub-division shall include any building or a group of buildings under single management which is used for students not less than 100 in number.

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

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

3.1.4 Group C Institutional Buildings

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

Buildings and structures under Group C shall be further sub-divided as follows:

Sub-division C-1 Hospitals and sanatoria

Sub-division C-2 Custodial institutions

Sub-division C-3 Penal and mental institutions

- a) *Sub-division C-1 Hospitals and sanatoria* — This sub-division shall include any building or a group of buildings under single management, which is used for housing persons suffering from physical limitations because of health or age, for example, hospitals, infirmaries, sanatoria and nursing homes.

- b) *Sub-division C-2 Custodial institutions* — This sub-division shall include any building or a group of buildings under single management, which is used for the custody and care of persons, such as children, convalescents and the aged, for example, homes for the aged and infirm, convalescent homes and orphanages.

- c) *Sub-division C-3 Penal and mental institutions* — This sub-division shall include any building or a group of buildings under single management, which is used for housing persons under restraint, or who are detained for penal or corrective purposes, in which the liberty of the inmates is restricted, for example, jails, prisons, mental hospitals, mental sanatoria and reformatories.

3.1.5 Group D Assembly Buildings

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

Buildings under Group D shall be further sub-divided as follows:

Sub-division D-1 Buildings having a theatrical or motion picture or any other stage and fixed seats for over 1 000 persons

Sub-division D-2 Buildings having a theatrical or motion picture or any other stage and fixed seats upto 1 000 persons

Sub-division D-3 Buildings without a permanent stage having accommodation for 300 or more persons but no permanent seating arrangement.

Sub-division D-4 Buildings without a permanent stage having accommodation for less than 300 persons with no permanent seating arrangement.

Sub-division D-5 All other structures including temporary structures designed for assembly of people not covered by sub-divisions D-1 to D-4, at ground level.

Sub-division D-6 Buildings having mixed occupancies providing facilities such as shopping, cinema theatres, and restaurants.

Sub-division D-7 All other structures, elevated or underground, for assembly of people not covered by sub-divisions D-1 to D-6.

- a) *Sub-division D-1* — This sub-division shall

include any building primarily meant for theatrical or operatic performances and exhibitions and which has a raised stage, proscenium curtain, fixed or portable scenery or scenery loft, lights, motion picture houses, mechanical appliances or other theatrical accessories and equipment and which is provided with fixed seats for over 1 000 persons.

- b) *Sub-division D-2* — This sub-division shall include any building primarily meant for use as described for sub-division D-1, but with fixed seats up to 1 000 persons.
- c) *Sub-division D-3* — This sub-division shall include any building, its lobbies, rooms and other spaces connected thereto, primarily intended for assembly of people, but which has no theatrical stage or permanent theatrical and/or cinematographic accessories and has accommodation for 300 persons or more, for example, dance halls, night clubs, halls for incidental picture shows, dramatic, theatrical or educational presentation, lectures or other similar purposes having no theatrical stage except a raised platform and used without permanent seating arrangement; art galleries exhibition halls, community halls, marriage halls, places of worship, museums, lecture halls, passenger terminals and Heritage and Archeological Monuments.
- d) *Sub-division D-4* — This sub-division shall include any building primarily intended for use as described in sub-division D-3, but with accommodation for less than 300 persons with no permanent seating arrangements.
- e) *Sub-division D-5* — This sub-division shall include any building or structure permanent or temporary meant for assembly of people not covered by sub-divisions D-1 to D-4, for example, grandstands, stadia, amusement park structures, reviewing stands and circus tents.
- f) *Sub-division D-6* — This sub-division shall include any building for assembly of people provided with multiple services/facilities like shopping, cinema theatres and restaurants, for example, multiplexes.
- g) *Sub-division D-7* — This sub-division shall include any building or structure permanent or temporary meant for assembly of people not covered by D-1 to D-6, for example, underground or elevated railways.

3.1.6 Group E Business Buildings

These shall include any building or part of a building which is used for transaction of business (other than that covered by Group F and part of buildings covered

by 3.1.1.1); for keeping of accounts and records and similar purposes, professional establishments, service facilities, etc. City halls, town halls, court houses and libraries shall be classified in this group so far as the principal function of these is transaction of public business and keeping of books and records.

Business buildings shall be further sub-divided as follows:

Sub-division E-1 Offices, banks, professional establishments, like offices of architects, engineers, doctors, lawyers and police stations.

Sub-division E-2 Laboratories, research establishments, libraries and test houses.

Sub-division E-3 Computer installations.

Sub-division E-4 Telephone exchanges.

Sub-division E-5 Broadcasting stations and T.V. stations.

3.1.7 Group F Mercantile Buildings

These shall include any building or part of a building, which is used as shops, stores, market, for display and sale of merchandise, either wholesale or retail.

Mercantile buildings shall be further sub-divided as follows:

Sub-division F-1 Shops, stores, departmental stores markets with area up to 500 m².

Sub-division F-2 Shops, stores, departmental stores markets with area more than 500 m².

Sub-division F-3 Underground shopping centres.

Storage and service facilities incidental to the sale of merchandise and located in the same building shall be included under this group.

3.1.8 Group G Industrial Buildings

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

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

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

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

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

The hazard of occupancy, for the purpose of the Code, shall be the relative danger of the start and spread of

fire, the danger of smoke or gases generated, the danger of explosion or other occurrences potentially endangering the lives and safety of the occupants of the buildings.

Hazard of occupancy shall be determined by the Authority on the basis of the fire loads of the contents, and the processes or operations conducted in the building, provided, however, that where the combustibility of the material, the flame spread rating of the interior finish or other features of the building or structure are such as to involve a hazard greater than the occupancy hazard, the greater degree of hazard shall govern the classification.

For determination of fire loads and fire load density for arriving at the classification of occupancy hazard, guidance including the calorific values of some common materials, is given at Annex A.

A broad classification of industrial and non-industrial occupancies into low, moderate and high hazard classes is given at Annex B, for guidance. Any occupancy not covered in Annex B, shall be classified in the most appropriate class depending on the degree of hazard.

Where different degrees of hazard of occupancy exist in different parts of a building, the most hazardous of those shall govern the classification for the purpose of this Code, except in cases where hazardous areas are segregated or protected as specified in the Code.

- a) *Sub-division G-1* — This sub-division shall include any building in which the contents are of such comparative low combustibility and the industrial processes or operations conducted therein are of such a nature that there are hardly any possibilities for any self propagating fire to occur and the only consequent danger to life and property may arise from panic, fumes or smoke, or fire from some external source.
- b) *Sub-division G-2* — This sub-division shall include any building in which the contents or industrial processes or operations conducted therein are liable to give rise to a fire which will burn with moderate rapidity or result in other hazardous situation and may give off a considerable volume of smoke, but from which neither toxic fumes nor explosions are to be feared in the event of fire.
- c) *Sub-division G-3* — This sub-division shall include any building in which the contents or industrial processes or operations conducted therein are liable to give rise to a fire which will burn with extreme rapidity or result in other hazardous situation or from which poisonous fumes or explosions are to be feared in the event of a fire. For fire safety in petroleum and fertilizer plant, good practice [4(3)] may be referred.

3.1.9 Group H Storage Buildings

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

3.1.10 Group J Hazardous Buildings

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

- a) Storage, under pressure of more than 0.1 N/mm² and in quantities exceeding 70 m³, of acetylene, hydrogen, illuminating and natural gases, ammonia, chlorine, phosgene, sulphur dioxide, carbon dioxide, methyloxide and all gases subject to explosion, fume or toxic hazard, cryogenic gases, etc;
- b) Storage and handling of hazardous and highly flammable liquids, liquefiable gases like LPG, rocket propellants, etc;
- c) Storage and handling of hazardous and highly flammable or explosive materials (other than liquids); and
- d) Manufacture of artificial flowers, synthetic leather, ammunition, explosives and fireworks.

NOTE — A list of hazardous substances giving quantities, for which or exceeding which owners handling such substances are required to be covered under the Public Liability Insurance Act, has been notified under Government of India, Ministry of Environment and Forests Notification No. G.S.R. 347(E) dated 1 August 1996.

fire, the danger of smoke or gases generated, the danger of explosion or other occurrences potentially endangering the lives and safety of the occupants of the buildings.

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