

ACCORDING TO NATIONAL BUILDING CODE OF INDIA -2005, PART- IV

Clause No- 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 processed, for example, assembly plants, industrial laboratories, dry cleaning plants, power plants. Energating units, pumping stations, fumigation chambers, laundries, buildings or structures in gas plants, refineries, dairies and saw-mills, etc.

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

Sub-division 0-1 Buildings used for low hazard industries.

Sub-division 0-2 Buildings used for moderate hazard industries.

Sub-division 0-3 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.

ANNEX B

(Clauses 3.1.8 and 3.1.11)

BROAD CLASSIFICATION OF INDUSTRIAL AND NON- INDUSTRIAL OCCUPANCIES INTO DIFFERENT DEGREE OF HAZARD

B – 1 LOW HAZARD OCCUPANCIES

Abrasive manufacturing premises

Aerated water factories

Agarbati manufacturing premises

Analytical and / or Q.C. Laboratories

Arecanut slicing and / or Betelnut factories

Asbestos steam packing and lagging manufacturers

Assembly buildings small (D-4 and D-5)

Battery charging and service stations

Battery manufacturing

Breweries

Brick works

Canning factories

Cardamom factories

Cement factories and / or asbestos or concrete products manufacturing premises

Ceramic factories, crockery, stoneware pipe manufacturing

Clay works

Clock and watch manufacturing

Clubs

Coffee curing, roasting and grinding factories

Condensed milk factories, milk pasturising plants and dairies

Confectionary manufacturing

Dwellings, lodges, dormitories etc.

Educational and research institutions

Electric lamps (incandescent and fluroescent) and T.V. tube manufacturing

Electroplating works

Engineering workshops

Fruits and vegetables dehydrating and drying factories

Fruits products and condiment factories

Glass and glass fibre manufacturing

Godowns and warehouses (non-combustible goods)

God thread/ gilding factories

Gum and / or glue and gelatine manufacturing

Ice candy and ice-cream and ice factories

Ink (excluding printing ink) factories

Mica products manufacturing

Office premises

Places of worship

Pottery works

Poultry farms

Residential buildings (A-1 to A-4) (except hotels A-5)

Salt crushing factories/ refineries stables
Sugar candy manufacturing
Sugar factories and refineries
Tanneries
Umbrella assembling factories
Vermicelli factories
Water treatment/ filtration plants and water pump houses
Zinc/ copper factories

B – 2

MODERATE HAZARD OCCUPANCIES

Airport and other transportation terminal buildings
Aluminium factories
Assembly buildings (D -1 to D-3)
Atta and cereal grinding
Bakeries and biscuits factories
Beedi factories
Bobbin factories
Book-binders, envelopes and paper bag manufacturing
Cable manufacturing
Camphor boiling
Candle works
Carbon paper/typewriter ribbon makers
Card board box manufacturing
Carpenter, wood wool and furniture makers

Carpet and durries factories
Cashewnut factories
Chemical manufacturers (using raw materials having F.P > 23° C)
Cigar and cigarette factories
Coir factories
Cold storage premises
Computer installations
Cork products manufacturing (coir, carpets, rugs and tobacco) (hides and skin presses)
Dry cleaning, dyeing and laundries
Electric sub-stations/ distribution stations
Electric generating stations except under ground powerhouses
Enamelware factories
Filler and wax paper manufacturing
Flour mills
Garment makers
Ghee factories (other than vegetables)
Godowns and warehouses (other than non- combustible goods)
Grains and seed disintegrating or crushing
Grease manufacturing
Hosiery, lace, embroidery and thread
Hospitals including 'X' ray and other diagnostic clinics (institutional buildings)
Incandescent gas mantle manufacturers
Industrial gas manufacturing (only halogenated hydrocarbons/ inert gases)
Man-made yarn/fibre (except acrylic fibre/yarn)

Manure and fertilizer works (blending, mixing and granulating only)
Mercantile occupancies (departmental stores, shopping complex, etc)
Mineral oil blending and processing
Museum, archives, record rooms
Oil and leather cloth factories
Open storage of flammable liquids (in drums, cans etc)
Oxygen plants
Paper and cardboard mills (except raw material yard)
Piers, wharves, dockyards
Plastic goods manufacturing
Plywood/wood veneering factories
Printing press premises
Pulverizing and crushing mills
Residential apartments, hotels, cafes, restaurants
Rice mills
Rope works
Rubber goods manufacturing
Rubber tyres and tubes manufacturing
Shellac factories
Soaps and glycerine factories
Spray painting
Starch factories
Tea factories (including blending packing of tea)
Telephone exchanges, garages

Textile mills

Tobacco chewing and pan masala making

Tobacco re-dyeing factories

Woolen mills

B – 3 HIGH HAZARD OCCUPANCIES

A)

Aircraft hangers

Aluminium/ magnesium powder plants

Bitumanized paper / hessian cloth/ tar felt manufacturing

Bulk storage of flammable liquids (tanks farm etc)

Celluloid goods making

Chemical manufacturers (where raw materials have a F.P. > 23 ° C)

Cigarette filter manufacturing

Cinema films and T.V. production studios

Coal, coke and charcoal ball and briquettes making

Collieries , steel plants

Cotton seeds cleaning and delinting factories

Cotton waste factories

Distilleries

Duplicating / stencil paper making

Fire works manufacture

Foamed plastic and / or converting plants

Godowns of warehouses (combustible / hazardous goods) (H)

Grass, hay, fodder and BHOOSA (chaff)

Hazardous occupancy buildings (J)

Industrial gas manufacturing (except halogenated hydrocarbon gases/ inert gases)

Industrial units (G-3 occupancies)

Jute mills and jute presses

Linoleum factories

Man-made fibres (only acrylic fibre/yarn making)

Match factories

Mattress and pillow makings (foam plastics)

Metal or tin printers (if more than 50 percent is engineering, shift to ordinary hazard)

Oil mills

Oil extraction plants

Oil terminals / depots

Paints / Varnish factories

Paper and cardboard mills (only raw material yard)

Pressing factories

Printing ink making

Resin, lamp black and turpentine manufacture

Saw mills

Surgical cotton manufacturing

Tarpaulin and canvas proofing factories

Turpentine and resin distilleries

Tyre retreading and resolving factories

Underground shopping complexes (F-3)

B)

Ammonia and urea synthesis plants

Explosive factories

LPG bottling plants

Petrochemical plants

Petroleum refineries

Information required of Inflammable Substances as specified in Para 1 of the advertisement dated 26/12/06

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Carpet and durries factories
Cashewnut factories

Chemical manufacturers (using raw materials having F.P > 23° C)

Cigar and cigarette factories

Coir factories

Cold storage premises

Computer installations

Cork products manufacturing (coir, carpets, rugs and tobacco) (hides and skin presses)

Dry cleaning, dyeing and laundries

Electric sub-stations/ distribution stations

Electric generating stations except under ground powerhouses

Enamelware factories

Filler and wax paper manufacturing

Flour mills

Garment makers

Ghee factories (other than vegetables)

Godowns and warehouses (other than non- combustible goods)

Grains and seed disintegrating or crushing

Grease manufacturing

Hosiery, lace, embroidery and thread

Hospitals including 'X' ray and other diagnostic clinics (institutional buildings)

Incandescent gas mantle manufacturers

Industrial gas manufacturing (only halogenated hydrocarbons/ inert gases)

Man-made yarn/fibre (except acrylic fibre/yarn)

Manure and fertilizer works (blending, mixing and granulating only)

Mercantile occupancies (departmental stores, shopping complex, etc)

Mineral oil blending and processing
Museum, archives, record rooms
Oil and leather cloth factories
Open storage of flammable liquids (in drums, cans etc)
Oxygen plants
Paper and cardboard mills (except raw material yard)
Piers, wharves, dockyards
Plastic goods manufacturing
Plywood/wood veneering factories
Printing press premises
Pulverizing and crushing mills
Residential apartments, hotels, cafes, restaurants
Rice mills
Rope works
Rubber goods manufacturing
Rubber tyres and tubes manufacturing
Shellac factories
Soaps and glycerine factories
Spray painting
Starch factories
Tea factories (including blending packing of tea)
Telephone exchanges, garages
Textile mills
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Oil mills
Oil extraction plants
Oil terminals / depots
Paints / Varnish factories
Paper and cardboard mills (only raw material yard)
Pressing factories
Printing ink making
Resin, lamp black and turpentine manufacture
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Surgical cotton manufacturing
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Underground shopping complexes (F-3)

B)

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अग्नि निवारण और अग्नि सुरक्षा नियमावली 2005 की धारा 4 के अन्तर्गत औद्योगिक भवन (ग्रुप जी) में प्रस्तावित अग्निशमन व्यवस्था के न्यूनतम मानक जो एन0बी0सी0 2005 पार्ट -4 में निर्धारित है।

Sl. No.	Type of Building Occupancy	Fire Extinguisher	Hose reel	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually Operated Electric Fire Alarm System	Automatic Detection and Alarm Fire Alarm System	Underground Static Water Stronge Tank	Terrace tank	Pump Near Underground Static Water Storage Tank (Fire Pump)	Pump Near Terrace Tank
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	INDUSTRIAL BUILDING (G)												
	Low Hazard (G-1)												
1	Built up area more then 100m2 and upto 500 m2	Each 100M2 2 Nos	Each Floor 1 No	NIL	Each Floor 1 No.	NIL	More then 200M2 in basement	NIL	NIL	NIL	5000 Lts with Basement 10000 Ltr.	NIL	450 LPM
2	Built up area more then 500m2	Each 100M2 2 Nos	Each 1000 m2 Built-up are 1 No.	Each 1000M2 Built-up are 1 No.	Each 1000 m2 Built-up are 1 No.	30 mtr Distance for 1 No.	Entire Building	NIL	YES	100000 Ltrs	10000 Lts	Electric & Diesel Pump each 2280 LPM & Jockey Pump 180 LPM	450 LPM
	Moderate Hazard (G-2)												
1	Built up area more then 100m2 and upto 500 m2	Each 100M2 2 Nos	Each Floor 1 No	NIL	Each Floor 1 No.	NIL	Entire Building	NIL	NIL	NIL	10000 Lts	NIL	900 LPM
2	Built up area more then 500m2 upto 1000m2	Each 100M2 2 Nos	Each 1000m2 Built-up area 1 No.	Each 1000m2 Built-up area 1 No.	Each 1000m2 Built-up area 1 No.	30 mtr Distance for 1 No.	Entire Building	YES	YES	75000 Ltrs	20000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	900 LPM
3	Built up area more then 1000m2	Each 100M2 2 Nos	Each 1000m2 Built-up area 1 No.	Each 1000m2 Built-up area 1 No.	Each 1000m2 Built-up area 1 No.	30 mtr Distance for 1 No.	Entire Building	YES	YES	100000 Ltrs	20000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	900 LPM
	High Hazard (G-3)												
1	Built up area upto 300m2	Each 100M2 2 Nos	Each Floor 1 No	Each Floor 1 No.	Each Floor 1 No	NIL	Entire Building	NIL	YES	25000 Ltr	10000 Ltr.	Electric & Diesel Pump each 1620 LPM Jockey Pump 180 LPM	450 LPM

Sl. No.	Type of Building Occupancy	Fire Extinguisher	Hose reel	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually Operated Electric Fire Alarm System	Automatic Detection and Alarm Fire Alarm System	Underground Static Water Stronge Tank	Terrace tank	Pump Near Underground Static Water Storage Tank (Fire Pump)	Pump Near Terrace Tank
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	Built up area more then 300m2 upto 500m2	Each 100M2 2 Nos	Each Floor 1 No.	Each Floor 1 No.	Each Floor 1 No.	30 mtr Distance for 1 No.	Entire Building	YES	YES	50000 Ltrs	20000 Lts	Electric & Diesel Pump each 1620 LPM Jockey Pump 180 LPM	900 LPM
3	Built up area more then 500m2	Each 100M2 2 Nos	Each 1000 m2 Built-up are 1 No.	Each 1000 m2 Built-up are 1 No.	Each 1000m2 Built-up are 1 No.	30 mtr Distance for 1 No.	Entire Building	YES	YES	100000 Ltrs	20000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	900 LPM
STORAGE BUILDING (H)													
1	Blow 15 m in height and covered area 250 Mtr Sqr.	Each 100M2 2 Nos	Each Floor 1 No.	NIL	NIL	NIL	Entire Building	NIL	NIL	25000 Ltrs	5000 Lts	Electric & Diesel Pump each 1620 LPM Jockey Pump 180 LPM	450 LPM
2	Blow 15 m in height and covered area 250 Mtr Sqr. Ground Only	Each 100M2 2 Nos	Each Floor 1 No.	Each Floor 1 No.	Each Floor 1 No.	30 mtr Distance for 1 No.	Entire Building	NIL	YES	50000 Ltrs	10000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	450 LPM
3	Ground plus one floor	Each 100M2 2 Nos	Each Floor 1 No.	Each Floor 1 No.	Each Floor 1 No.	30 mtr Distance for 1 No.	Entire Building	NIL	YES	75000 Ltrs	10000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	450 LPM
2	More the Ground plus 1 floor	Each 100M2 2 Nos	Each Floor 1 No.	Each Floor 1 No.	Each Floor 1 No.	30 mtr Distance for 1 No.	Entire Building	NIL	YES	100000 Ltrs	10000 Lts	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	450 LPM

Sl. No.	Type of Building Occupancy	Fire Extinguisher	Hose reel	Wet Riser	Down Comer	Yard Hydrant	Automatic Sprinkler System	Manually Operated Electric Fire Alarm System	Automatic Detection and Alarm Fire Alarm System	Underground Static Water Stronge Tank	Terrace tank	Pump Near Underground Static Water Storage Tank (Fire Pump)	Pump Near Terrace Tank
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	HAZARDOUS BUILDING (J)												
1	UP to 15 Mtr in height Single Story Building.	Each 100M2 2 Nos	Each Floor 1 No.	NIL	NIL	30 mtr Distance for 1 No.	Entire Building	YES	YES	Minimum 4 hours fire fighting requirement	NIL	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	NIL
2	More then 1 floor but not acceding 15 mtr	Each 100M2 2 Nos	1000 m2 for 1 No.	1000 m2 for 1 No.	1000 m2 for 1 No.	30 mtr Distance for 1 No.	Entire Building	YES	YES	Minimum 4 hours fire fighting requirement	50000Ltr.	Electric & Diesel Pump each 2280 LPM Jockey Pump 180 LPM	900 LPM