

ANNEXURE - V

FOR REFERENCE OF OCCUPIER/ENGINEER/ARCHITECT – GUIDELINES FOR PREPARING PLANS

- (1) Should be submitted in blue print drawing or CAD print.
- (2) Should be in duplicate.
- (3) Should be signed by Occupier and the Engineer/Architect indicating his registration number with rubber stamp.
- (4) Should be drawn to scale, suitably dimensioned:-
- (5) The site and block plan must be drawn to a scale of 1 cm = 5 mts. with North direction shown.
- (6) The scale of building plans, elevations, equipment, layout, cross sections, must be drawn to a scale of 1 cm = 1 mt.
- (7) All dimensions should be in metric systems.
- (8) Should be prepared by a person having requisite qualifications such as an Architect registered with the Institution of Architects or Registered Engineer. Name and address of the Engineer/Architect to be given.
- (9) Site plan should show immediate surroundings including adjacent buildings and other structures, roads, drains, etc., factory boundary should be shown in green including all its premises and precincts therein.

LAYOUT PLANS

- (10) Should show all the departments, sections, aisles, stairs, floor openings, pits, reservoir sumps, tanks, boiler house, coal yard, generator room, effluent plant, work benches, workshop, passageways through the working room, etc. giving access to the means of escape in the case of fire and emergency.
- (11) Should show placement of machinery and equipment, including lifting machines, pressure plants, furnace, etc., indicating the distance of at least 1 mt. between the machines, machines and adjacent walls, pillars, etc.
- (12) Should show location of all the statutory facilities like latrines, urinals and washing facilities, cloak room, canteen, rest/shelter room, lunch room, first aid room, drinking water centre's, spittoons, etc., clearly marked and detailed plans with respect to each of these facilities.
- (13) Should show all figures, dimensions, specifications, distances and necessary schedules of doors and windows, machineries and equipments on plans at proper places.
- (14) Should show proposed changes of additions and alterations in the following distinctive colours:-
 - (i) Proposed extension in pink colour.
 - (ii) Proposed demolition in yellow colour.

TECHNICAL SPECIFICATIONS FOR FACTORY BUILDINGS

(1) SITE:-

While considering the factory site, it should be ensured that the proposed factory does not create any nuisance to the neighborhood including adjacent industries or the general population. In case a factory generating trade waste and effluents, then the care should be taken to see that the same are disposed off in a manner approved by the Goa State Pollution Control Board.

In case of industrial units having a potential danger of creating a major hazard that the factory should ensure that there is a green zone/clear distance around the factory including as per the directions given by the Court in regard to location safety aspects of factories.

(2) FLOOR :-

- (i) Floor should be cemented.
- (ii) There should be mastic flooring in flammable areas to eliminate sparks.

(3) HEIGHT :-

- (i) Height of the building will vary depending upon the manufacturing process. However minimum height from floor to the lowest point of the roof should not be less than 3.75 mts.
- (ii) For spans of building upto 12 mts. the height shall not be less than 3.75 mts. for spans between 12-21 mts. the height shall not be less than 4.25 mts.
- (iii) In case of A/c rooms lesser height upto 2.12 mts. could be accepted depending upon the number of workers employed, size of the room, processes carried out, standby power supply, etc.

(4) WINDOWS AND SKYLIGHTS :-

- (i) Sill height of windows at working level should not be more than 1 mt.
- (ii) Windows should be fully openable outwards.
- (iii) Should not be less than 152.5 x 91.5 cms.
- (iv) Distance between the centres of consecutive windows should not exceed 2.4 mts.
- (v) If natural lighting is inadequate, sufficient number of transparent sheets or glass tiles should be provided.
- (vi) For building over 3.75 mts. height, every additional 3.75 mts. height is considered as one floor for providing additional openings.

(5) DOORS :-

- (i) Minimum size should be 205 cms. X 120 cms.
- (ii) Opening outside in the direction of nearest exit.

(6) EMERGENCY EXIT :-

(See rule 73 (10) of the Goa Factories Rules, 1985)

- (i) At least one for every room
- (ii) Should provide free and unobstructed passage.
- (iii) Travel distance to the exit should not be more than 30 mts.
- (iv) In case of those factories where high hazard materials are stored or used, the travel distance to the exit shall not exceed 22.5 mts.
- (v) If any part of the factory building is above or below the level of the ground floor, then two or more external, separate and substantial stairways of fireproof material should be provided at diagonally opposite levels to provide direct access to the ground floor.
- (vi) Stairway shall not have angle greater than 45o to the horizontal and width less than 90 cms.

(7) BREATHING SPACE :-

Breathing space of 14.2 cubic mts. /worker is required. Actual height upto 4.2 mts. should only be taken into account for calculating the breathing space (see Annexure – IV)

(8) OVERCROWDING :-

- (i) Space for free movement :
- (ii) In power factories at least 3.3 sq.mts. space is required for each worker.
- (iii) Non-power factories, space required is 1.5 – 2.3 sq. mts. Space occupied by machinery and other fixtures not to be considered.
- (iv) For workers who squat on the floor and work, space required per worker is 1.47 sq. mts. in addition to the space required for free movement.

(9) SPACING OF MACHINERY :-

Minimum 1 meter distance is to be allotted in between machinery and fixtures like planers, etc. whose traverse of the bed is towards the wall, then a clear space of at least 45 cms. between the wall and the maximum traverse of the bed with the largest size of the object to be turned should be left.

(10) VENTILATION :-

(See rule 24 of the Goa Factories Rules, 1985)

- (i) Ventilation standard specified in the Act and the Rules thereunder shall generally be adhered to.
- (ii) Openings in the wall should be at least more than 15% of the floor area.
- (iii) Minimum air movement – 30 mts./min.
- (iv) (a) every 3.75 mts. height is considered as one floor area.
(b) only openable window area is taken in consideration for ventilation.
- (v) Ridge ventilators should be provided for the full length of the roof.
- (vi) Roof extractors, ventilation cowl to be provided.
- (vii) Openings or openable ventilators needed for each bay of north light roof.

(11) MEZZANINE FLOOR :-

- (i) Sufficient head room over all working platforms is needed.
- (ii) Platforms and stepways above floor level should be provided with hand rails on all the sides and toe boards.

(12) EXHAUST :-

Effective dust/fume/heat extraction system is necessary for local exhaust wherever painting buffing, heat processes, etc., are involved. Details of systems adopted to remove heat, dust, fume, vapour, smoke, gases, air-borne contaminants, radio-active waste, etc. should be given and should be shown in plans.

(13) ILLUMINATION AND ELECTRICAL FITTINGS :-

- (i) Standard of lighting should be as per ISI specifications (see Rule 37 of the Goa Factories Rules, 1985)
- (ii) All wiring should be of industrial type.
- (iii) Flame-proof wiring and fittings to be provided in explosive environment.

(14) SANITARY FACILITITES :-

(see Rules 47 to 56 of the Goa Factories Rules, 1985)

- (i) Separately for male and female workers.
- (ii) Independent entry for male and female workers.
- (iii) Well distributed in convenient places.
- (iv) In following number:-
 - (a) Latrines:-

One for every 25 upto 100 workers and thereafter one for every 50 workers.

(b) Urinals:-

One for every 50 upto 500 workers and thereafter one for every 100 workers.

(15) WASHING FACILITIES :-

(see Rule 91 of the Goa Factories Rules, 1985)

(i) Separately for male and female workers.

(ii) Independent entry for male and female workers.

(iii) Well distributed in convenient places.

(iv) In following number:-

(a) Wash places:-

One for every 20 upto 200 workers and thereafter one for every 50 workers.

(b) Bathrooms:-

One for every 25 upto 100 workers and thereafter one for every 50 workers.

(16) ARRANGEMENT FOR DRYING OF WET CLOTHING AND KEEPING CLOTHING :-

(Applicable to factories listed under rule 92 of the Goa Factories Rules, 1985.)

Separately for male and female workers.

(17) CANTEEN :-

(Applicable to factories employing 250 and more workers. See Rule 96 of the Goa Factories Rules, 1985.)

(i) 1 sq. mt. per worker.

(ii) To accommodate 30% workers working at a time.

(iii) 15 mts. away from source of obnoxious dust, fumes or smoke, coal-stack, latrines, urinals, boiler house, ash dumps, noisy areas, etc.

(iv) Sufficiently lighted.

(v) Floor and inside walls upto a height of 1.2 mts. from the floor should be of smooth and impervious material.

(vi) Minimum height should be 3.75 mts.

(18) SHELTER/REST ROOM AND LUNCH ROOM :-

(Applicable to those employing 150 and more workers) (See rule 103 of the Goa Factories Rules, 1985.)

(i) In addition to dining hall required under section 46.

(ii) 1.12 sq. mts. of floor area per worker.

(iii) Heat resistant material for wall and roof.

(iv) Minimum height should be 3.75 mts.

(19) CRECHE :-

(Applicable when female employment is 30 and more. See Rule 104 of the Goa Factories Rules, 1985.)

- (i) 2 sq. mts. of floor area for child required.
- (ii) Washing arrangement for children.
- (iii) Sanitary facilities.
- (iv) Cupboard for storage.
- (v) Room for the nurse.
- (vi) Playground suitably fenced.
- (vii) Arrangement for storing milk, food, etc.
- (viii) Mother's feeding room.
- (ix) Minimum height should be 3.75 mts.
- (x) Shall be away from source of obnoxious dust, fumes or smoke, coal-stack, latrines, urinals, boiler house, ash dumps, noisy areas, etc.

(20) AMBULANCE ROOM :-

(Applicable when 500 and more workers are employed) (See rule 95 of the Goa Factories Rules, 1985.)

- (i) Minimum area 24 sq. mts.
- (ii) Floor and walls of smooth, hard and impervious material.
- (iii) Doctor's examination room.
- (iv) Sitting room for visitors.
- (v) Latrines, urinals and wash places.

(21) DRINKING WATER :-

(See rule 41 to 46 of the Goa Factories Rules, 1985.)

- (i) 5 lts./worker/day.
 - (ii) Public water supply.
- OR
- (iii) Any other source approved by Health Authorities.
 - (iv) One water centre for every 150 workers.
 - (v) One on each floor.

(22) FIRE FIGHTING ARRANGEMENT :-

(See rule 73 of the Goa Factories Rules, 1985.)

- (i) Fire hydrant in the form of 15 cms. diameter pipe to supply 500 lts. of water per minute, at a pressure not less than 7 kgs./sq. cms., to give flow for 100 minutes. Hydrant point shall be positioned at convenient location from store and other areas.
- (ii) Fire extinguishers, fire buckets, etc.

(23) DECONTAMINATION FACILITIES :-

Decontamination facilities should be provided in accordance with rule 90 Q of the Goa Factories Rules, 1985.