

**MUNICIPAL CORPORATION OF GREATER MUMBAI.**

**MUMBAI FIRE BRIGADE.**

**Brigade Routine Circular No 154 dated 28.03.2018**

Sub.: Fire Safety Codified requirements for warehouse & NOC from Fire Brigade Department not required for construction of warehouse below 900 sq. mtrs. plot area (1400 sq.mtrs. built up area) and if Warehouse is not meant for storage of inflammables explosives or chemicals.

Ref.: Hon. M.C.'s Order vide No. MGC/A/2216 dated 15/03/2018

Codified Fire Safety requirements for the construction of following categories of warehouse, where it is not meant for storage of inflammables explosives or chemicals are annexed herewith.

- 1) Construction of warehouse below 900 sq. mtrs. plot area (1400 sq. mtrs. built up area) (Annexure 'I, 'II' & 'III')
- 2) Construction of warehouse more than 900 sq. mtrs. plot area (1400 sq. mtrs. built up area) (Annexure 'IV, 'V & 'VI')

It is pertinent to note that "Where the proposal is for construction of warehouse **below 900 sq. mtrs. plot area (1400 sq.mtrs. built up area)** compliance of the codified Fire safety requirements shall be self-certified by the architect/owner/applicant & N.O.C. from **C.F.O.'s department for construction is not necessary.** Ch Eng (DP) shall ensure that above said self-certification is obtained while granting IOD/C.C.

**Encl.: Annexure I to VI**

  
Chief Fire Officer

Copy to:

1. Chief Engineer (D.P.)
2. All Dy. Chief Fire Officer / Dy. Chief Officer (Tech.)
3. All Divisional Fire Officer (M)
4. All Asstt. Divisional Fire Officer
5. Officer In Charge Fire Station
6. All Head Clerk/Store Supervisor

  
28/3/2018  
Dy. Chief Fire Officer

# ANNEXURE I

## MUNICIPAL CORPORATION OF GREATER MUMBAI

### MUMBAI FIRE BRIGADE

**Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE HAVING PLOT AREA BELOW 900 SQ.MTRS. (1400SQ.MTRS. BUILT UP AREA) which is not used for storage of inflammables, explosives or chemicals.**

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. **The open spaces required** around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS :**
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **DOORS:-**Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm. thickness).
7. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL:-**
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.
  - iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
  - iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.
  - v. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.
8. **GOODS LIFT (if Provided)**
  - i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
  - ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.
9. **BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**
  - i. Each basement shall be separately ventilated. Vents with cross, sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall

- boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
- ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
  - iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
  - iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
  - v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
  - vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
  - vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
  - viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.
  - ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
  - x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
  - xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
  - xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
  - xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
  - xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W.G. & 2.5 mm W.G. for lift lobbies.
  - xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation system to start automatically on actuation of CO detector and the other appropriate detectors provided in the basement. (In case of car parking only)
  - xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
  - xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.

- xviii. The area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement

**10. FIRE FIGHTING REQUIREMENTS :**

- i. **UNDERGROUND WATER STORAGE TANK:-** An underground water storage tank of 1,50,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. **OVERHEAD WATER STORAGE TANK:** A tank of 15,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.
- iii. **WET RISER CUM DOWN COMER:** Wet riser cum Down Comer of internal diameter of 10 cms. of G.I. 'C' class pipe shall be provided and connected to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the wet riser cum down comer.
- iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**
  - a. Fire pump at ground level of 1800 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
  - b. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
  - c. Booster pump of capacity 450 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
  - d. Electric supply (normal) to these pumps shall be on independent circuit.
  - e. ON/OFF switch panel of all pumps shall be installed on ground floor level.
  - f. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.
- v. **AUTOMATIC SPRINKLER SYSTEM:-**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105. Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- vi. **EXTERNAL/ COURTYARD HYDRANTS:-**Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.
- vii. **HOSE & HOSE BOXES :-**One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.

- viii. **AUTOMATIC SMOKE DETECTION SYSTEM:**Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room as per Standards and guidelines given in IS-11360-1985 specification for Smoke Detectors for use in Automatic Electrical Fire Alarm system.
- ix. **PORTABLE FIRE EXTINGUISHERS:**One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.
11. **ALTERNATE SOURCE OF POWER SUPPLY:**An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.
12. **TRAINED STAFF / SECURITY GUARDS:-** Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building
13. **FIRE ALARM SYSTEM:**Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
14. **SIGNAGES:** Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
15. **GENERAL FIRE SAFETY REQUIREMENTS:**
- i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.
  - viii. **'No Smoking'** board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
  - ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C.-2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.

- x. Each compartment should be provided with minimum two exits.
- xi. Metal racks if used for storage purpose it should be of sound engineering practice.
- xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
- xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
- xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
- xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.
- xvi. The materials which are liable to dust explosion shall not be dropped.
- xvii. The materials shall be stored according to their compatibility.
- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "NO STOREGE ABOVE THIS LINE". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. Nearest fire brigade telephone number, action to be taken in case of fire/ spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiii. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxiv. Patrolling by security personnel shall be carried out round the clock.
- xxv. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvi. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.
2. As per the provision as u/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other

related activities required to be carried out in any place or building or part thereof provided that.

3. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
4. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under **sub-section (3) of section 3** regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance.
5. The names of the License Agencies approved by Directorate of Maharashtra is available in the website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
6. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loft/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
7. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
8. All portable firefighting equipment installed at various locations as per local hazard such as CO<sub>2</sub>-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
9. All the firefighting equipment / installation shall be well maintained and should be easily accessible in case of emergency.
10. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the warehouse" should be displayed in security cabin & at other strategic locations.
11. It shall be ensured that security staff & every employee shall be trained in handling firefighting equipment & basic firefighting.
12. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER", etc. should be displayed on the strategic location to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.
13. Compliance of the above mentioned requirements shall be self-certified by the architect / owner / occupant.

## ANNEXURE - II

### MUNICIPAL CORPORATION OF GREATER MUMBAI MUMBAI FIRE BRIGADE

**Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE COMPRISING OF GROUND PLUS ONE FLOOR & HAVING PLOT AREA BELOW 900 SQ.MTRS. (1400SQ.MTRS. BUILT UP AREA) which is not used for storage of inflammables, explosives or chemicals.**

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. The open spaces required around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS :**
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **STAIRCASE:**
  - i. The staircase/s of the warehouse shall be maintained 1.50 mtrs clear flight width throughout its length. (As per Table20 Regulation 21 of DCR-1991)
  - ii. The layout of the staircase of the warehouse shall be of open/enclosed type as shown on the plan throughout its height and shall be approached (gained) at each floor level through one hour fire resistant self-closing door (45 mm. thickness) placed in the enclosing walls of the staircase at landing.
  - iii. Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
  - iv. Openable sashes or R.C.C. grills with clear opening of not less than 0.5 sq.mtr. per landing on the external wall of the staircase shall be provided.
  - v. Structural steel members connected to staircase shall be protected with fire retardant coatings.
  - vi. No combustibles shall be kept or stored in staircase / passages.
  - vii. Lift lobby should not be encroached by shoe- racks, decorative items, earthen pots etc.
7. **DOORS:-** Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm. thickness).
8. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL:-**
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.



- iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
  - iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.
9. **GOODS LIFT (if Provided)**
- i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
  - ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.
10. **BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**
- i. Each basement shall be separately ventilated. Vents with cross, sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
  - ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
  - iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
  - iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
  - v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
  - vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
  - vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
  - viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.

- ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
- xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
- xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W.G. & 2.5 mm W.G. for lift lobbies.
- xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation system to start automatically on actuation of CO detector and the other appropriate detectors provided in the basement. ( in case of car parking )
- xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
- xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.
- xviii. The ventilation and area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement.

#### 11. FIRE FIGHTING REQUIREMENTS :

- i. **UNDERGROUND WATER STORAGE TANK:-** An underground water storage tank of 2,25,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. **OVERHEAD WATER STORAGE TANK:**A tank of 20,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.

- iii. **WET RISER CUM DOWN COMER:-**Wet riser cum Down Comer of internal diameter of 15 cms. of G.I. 'C' class pipe shall be provided and connected to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the wet riser cum down comer.
  - iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**
    - i. Fire pump at ground level of 2400 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
    - ii. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
    - iii. Booster pump of capacity 900 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
    - iv. Electric supply (normal) to these pumps shall be on independent circuit.
    - v. ON/OFF switch panel of all pumps shall be installed on ground floor level.
    - vi. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.
  - v. **AUTOMATIC SPRINKLER SYSTEM:**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
  - vi. **EXTERNAL/ COURTYARD HYDRANTS:-**Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.
  - vii. **HOSE & HOSE BOXES :-**One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.
  - viii. **AUTOMATIC SMOKE DETECTION SYSTEM:-**Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room as per Standards and guidelines given in IS-11360-1985 specification for Smoke Detectors for use in Automatic Electrical Fire Alarm system.
  - ix. **PORTABLE FIRE EXTINGUISHERS:**One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.
12. **ALTERNATE SOURCE OF POWER SUPPLY:** An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.

13. **TRAINED STAFF / SECURITY GUARDS:-** Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building
14. **FIRE ALARM SYSTEM:** Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
15. **SIGNAGES:** Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
16. **GENERAL FIRE SAFETY REQUIREMENTS:**
  - i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.
  - viii. **'No Smoking'** board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
  - ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C.-2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.
  - x. Each compartment should be provided with minimum two exits.
  - xi. Metal racks if used for storage purpose it should be of sound engineering practice.
  - xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
  - xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
  - xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
  - xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.

- xvi. The materials which are liable to dust explosion shall not be dropped.
- xvii. The materials shall be stored according to their compatibility.
- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "**NO STOREGE ABOVE THIS LINE**". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. Nearest fire brigade telephone number, action to be taken in case of fire/ spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiii. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxiv. Patrolling by security personnel shall be carried out round the clock.
- xxv. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvi. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. **These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.**
2. Fix firefighting installations such as risers, hydrant connections, hose reels etc. shall be provided in separate shaft having opening at floor level with Glass cabinet having locking arrangement to avoid theft and damage.
3. As per the provision as u/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other related activities required to be carried out in any place or building or part thereof provided that.
4. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
5. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance

- thereof in good repair and efficient condition, without there being actual such compliance or maintenance.
6. The names of the License Agencies approved by Directorate of Maharashtra is available in our website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
  7. **Staircases / Exits shall be so located that it will not be necessary to travel more than 30 Mtrs. from any point to reach the nearest exit as per the guidelines given in Regulation 43(2)(ii)(I)(ii)of DCR**
  8. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loft/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
  9. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
  10. All portable firefighting equipment/ installation installed at various locations as per local hazard such as Co2-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
  11. All the firefighting equipment shall be well maintained and should be easily accessible in case of emergency.
  12. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the warehouse" should be displayed in security cabin & at other strategic locations.
  13. It shall be ensured that security staff & every employee of the warehouse are trained in handling firefighting equipment & fire fighting.
  14. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER" etc. should be displayed on the strategic location to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.
  15. Compliance of the above mentioned requirements shall be self-certified by the architect / owner / occupant.



City Fire Office  
Mumbai Fire Brigade

## ANNEXURE - III

### MUNICIPAL CORPORATION OF GREATER MUMBAI MUMBAI FIRE BRIGADE

**Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE COMPRISING OF "ABOVE GROUND PLUS ONE FLOOR" (i.e. MORE THAN G+1 floor) & HAVING PLOT AREA BELOW 900 SQ.MTRS. (1400SQ.MTRS. BUILT UP AREA) which is not used for storage of inflammables, explosives or chemicals.**

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. The open spaces required around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS** :
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **STAIRCASE**:
  - i. The staircase/s of the warehouse shall be maintained 1.50 mtrs clear flight width throughout its length. *(As per Table 20 Regulation 21 of DCR-1991)*
  - ii. The layout of the staircase of the warehouse shall be of open/enclosed type as shown on the plan throughout its height and shall be approached (gained) at each floor level through one hour fire resistant self-closing door (45 mm. thickness) placed in the enclosing walls of the staircase at landing.
  - iii. Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
  - iv. Openable sashes or R.C.C. grills with clear opening of not less than 0.5 sq.mtr. per landing on the external wall of the staircase shall be provided.
  - v. Structural steel members connected to staircase shall be protected with fire retardant coatings.
  - vi. No combustibles shall be kept or stored in staircase / passages.
  - vii. Lift lobby should not be encroached by shoe- racks, decorative items, earthen pots etc.
7. **DOORS**:-Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm. thickness).
8. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL**:-
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.

- iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
- iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.

**9. GOODS LIFT (if Provided)**

- i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
- ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.

**10. BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**

- i. Each basement shall be separately ventilated. Vents with cross, sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
- ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
- iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
- iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
- v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
- vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
- vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
- viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.



- ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
- xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
- xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W .G. & 2.5 mm W.G. for lift lobbies.
- xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation system to start automatically on actuation of CO detector and the other appropriate detectors provided in the basement.( in case of car parking)
- xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
- xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.
- xviii. The ventilation and area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement.

#### 11. FIRE FIGHTING REQUIREMENTS :

- i. UNDERGROUND WATER STORAGE TANK:- An underground water storage tank of 2,25,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. OVERHEAD WATER STORAGE TANK:A tank of 20,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.

- iii. **WET RISER CUM DOWN COMER:** Wet riser cum Down Comer of internal diameter of 15 cms. of G.I. 'C' class pipe shall be provided and connected to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the wet riser cum down comer.
  - iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**
    - i. Fire pump at ground level of 2400 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
    - ii. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
    - iii. Booster pump of capacity 900 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
    - iv. Electric supply (normal) to these pumps shall be on independent circuit.
    - v. ON/OFF switch panel of all pumps shall be installed on ground floor level.
    - vi. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.
  - v. **AUTOMATIC SPRINKLER SYSTEM:**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
  - vi. **EXTERNAL/ COURTYARD HYDRANTS:-**Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.
  - vii. **HOSE & HOSE BOXES :-**One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.
  - viii. **AUTOMATIC SMOKE DETECTION SYSTEM:**Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room as per Standards and guidelines given in IS-11360-1985 specification for Smoke Detectors for use in Automatic Electrical Fire Alarm system.
  - ix. **PORTABLE FIRE EXTINGUISHERS:**One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.
12. **ALTERNATE SOURCE OF POWER SUPPLY:** An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.

13. **TRAINED STAFF / SECURITY GUARDS:-** Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building
14. **FIRE ALARM SYSTEM:** Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
15. **SIGNAGES:** Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
16. **GENERAL FIRE SAFETY REQUIREMENTS:**
  - i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.
  - viii. **'No Smoking'** board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
  - ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C.-2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.
  - x. Each compartment should be provided with minimum two exits.
  - xi. Metal racks if used for storage purpose it should be of sound engineering practice.
  - xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
  - xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
  - xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
  - xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.

- xvi. The materials which are liable to dust explosion shall not be dropped.
- xvii. The materials shall be stored according to their compatibility.
- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "NO STORAGE ABOVE THIS LINE". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. Nearest fire brigade telephone number, action to be taken in case of fire/spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiii. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxiv. Patrolling by security personnel shall be carried out round the clock.
- xxv. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvi. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. **These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.**
2. Fix firefighting installations such as risers, hydrant connections, hose reels etc. shall be provided in separate shaft having opening at floor level with Glass cabinet having locking arrangement to avoid theft and damage.
3. As per the provision as u/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other related activities required to be carried out in any place or building or part thereof provided that.
4. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency. shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
5. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance

thereof in good repair and efficient condition, without there being actual such compliance or maintenance.

6. The names of the License Agencies approved by Directorate of Maharashtra is available in our website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
7. **Staircases / Exits shall be so located that it will not be necessary to travel more than 30 Mtrs. from any point to reach the nearest exit as per the guidelines given in Regulation 43(2)(ii)(l)(ii) of DCR**
8. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loff/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
9. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
10. All portable firefighting equipment / installation installed at various locations as per local hazard such as Co<sub>2</sub>-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
11. All the firefighting equipment shall be well maintained and should be easily accessible in case of emergency.
12. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the warehouse" should be displayed in security cabin & at other strategic locations.
13. It shall be ensured that security staff & every employee of the warehouse are trained in handling firefighting equipment & fire fighting.
14. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER" etc. should be displayed on the strategic location to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.
15. Compliance of the above mentioned requirements shall be self-certified by the architect / owner / occupant.

  
Chief Fire Officer  
Mumbai Fire Brigade

## ANNEXURE - IV

### MUNICIPAL CORPORATION OF GREATER MUMBAI MUMBAI FIRE BRIGADE

**Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE COMPRISING OF GROUND FLOORED WAREHOUSE & HAVING PLOT AREA ABOVE 900 SQ.MTRS. (1400 SQ.MTRS. BUILT UP AREA) which is not used for storage of inflammables, explosives or chemicals.**

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. **The open spaces required** around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS :**
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **DOORS:-**Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm, thickness).
7. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL:-**
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.
  - iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
  - iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.
  - v. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.
8. **GOODS LIFT (if Provided)**
  - i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
  - ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.

9. **BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**

- i. Each basement shall be separately ventilated. Vents with cross sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
- ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
- iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
- iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
- v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
- vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
- vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
- viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.
- ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
- xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
- xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W.G. & 2.5 mm W.G. for lift lobbies.
- xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation

system to start automatically on actuation of CO detector and the other appropriate detectors provided in the basement. ( in case of car parking only)

- xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
- xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.
- xviii. The area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement

#### 10. **FIRE FIGHTING REQUIREMENTS :**

- i. **UNDERGROUND WATER STORAGE TANK:-** An underground water storage tank of 1,50,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. **OVERHEAD WATER STORAGE TANK:** A tank of 15,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.
- iii. **WET RISER CUM DOWN COMER:** Wet riser cum Down Comer of internal diameter of 10 cms. of G.I. 'C' class pipe shall be provided and connected to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the wet riser cum down comer.
- iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**
  - i. Fire pump at ground level of 1800 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
  - ii. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
  - iii. Booster pump of capacity 450 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
  - iv. Electric supply (normal) to these pumps shall be on independent circuit.
  - v. ON/OFF switch panel of all pumps shall be installed on ground floor level.
  - vi. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.
- v. **AUTOMATIC SPRINKLER SYSTEM:-**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.



- vi. **EXTERNAL/ COURTYARD HYDRANTS**:-Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.
- vii. **HOSE & HOSE BOXES** :-One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.
- viii. **AUTOMATIC SMOKE DETECTION SYSTEM**:Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room *as per Standards and guidelines given in IS-11360-1985 specification* for Smoke Detectors for use in Automatic Electrical Fire Alarm system.
- ix. **PORTABLE FIRE EXTINGUISHERS**:One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.
11. **ALTERNATE SOURCE OF POWER SUPPLY**:An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.
12. **TRAINED STAFF / SECURITY GUARDS**:- Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building
13. **FIRE ALARM SYSTEM**:Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
14. **SIGNAGES**: Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
15. **GENERAL FIRE SAFETY REQUIREMENTS**:
  - i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.

- viii. 'No Smoking' board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
- ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C. - 2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.
- x. Each compartment should be provided with minimum two exits.
- xi. Metal racks if used for storage purpose it should be of sound engineering practice.
- xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
- xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
- xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
- xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.
- xvi. The materials which are liable to dust explosion shall not be dropped.
- xvii. The materials shall be stored according to their compatibility.
- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "NO STOREGE ABOVE THIS LINE". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. Nearest fire brigade telephone number, action to be taken in case of fire/ spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiii. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxiv. Patrolling by security personnel shall be carried out round the clock.
- xxv. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvi. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. **These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.**
2. As per the provision as u/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other related activities required to be carried out in any place or building or part thereof provided that.
3. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
4. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance.
5. The names of the License Agencies approved by Directorate of Maharashtra is available in the website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
6. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loft/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
7. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
8. All portable firefighting equipment installed at various locations as per local hazard such as CO<sub>2</sub>-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
9. All the firefighting equipment / installation shall be well maintained and should be easily accessible in case of emergency.
10. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the warehouse" should be displayed in security cabin & at other strategic locations.
11. It shall be ensured that security staff & every employee shall be trained in handling firefighting equipment & basic firefighting.
12. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER", etc. should be displayed on the strategic location

to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.

13. Compliance of the above mentioned requirements shall be self-certified by the architect / owner / occupant.



## ANNEXURE - V

### MUNICIPAL CORPORATION OF GREATER MUMBAI

#### MUMBAI FIRE BRIGADE

#### Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE COMPRISING OF ABOVE GROUND PLUS ONE FLOOR & HAVING PLOT AREA ABOVE 900 SQ.MTRS. (1400SQ.MTRS. BUILT UP AREA)

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. The open spaces required around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS** :
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **STAIRCASE**:
  - i. The staircase/s of the warehouse shall be maintained 1.50 mtrs clear flight width throughout its length. *(As per Table 20 Regulation 21 of DCR-1991)*
  - ii. The layout of the staircases of the warehouse shall be of open/enclosed type as shown on the plan throughout its height and shall be approached (gained) at each floor level through one hour fire resistant self-closing door (45 mm. thickness) placed in the enclosing walls of the staircase at landing.
  - iii. Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
  - iv. Openable sashes or R.C.C. grills with clear opening of not less than 0.5 sq.mtr. per landing on the external wall of the staircase shall be provided.
  - v. Structural steel members connected to staircase shall be protected with fire retardant coatings.
  - vi. No combustibles materials shall be kept or stored in staircase / passages.
  - vii. Lift lobby should not be encroached by shoe- racks, decorative items, earthen pots etc.
7. **DOORS**:-Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm. thickness).
8. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL**:-
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.

- iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
- iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.

**9. GOODS LIFT (if Provided)**

- i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
- ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.

**10. BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**

- i. Each basement shall be separately ventilated. Vents with cross, sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
- ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
- iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
- iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
- v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
- vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
- vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
- viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.

- ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
- xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
- xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W.G. & 2.5 mm W.G. for lift lobbies.
- xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation system to start automatically on actuation of CO detector and the other detectors provided in the basement (in case of car parking)
- xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
- xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.
- xviii. The ventilation and area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement.

#### **11. FIRE FIGHTING REQUIREMENTS :**

- i. **UNDERGROUND WATER STORAGE TANK:-** An underground water storage tank of 2,25,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. **OVERHEAD WATER STORAGE TANK:**A tank of 20,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.
- iii. **WET RISER CUM DOWN COMER:**Wet riser cumDown Comer of internal diameter of 15 cms. of G.I. 'C' class pipe shall be provided and connected to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be

provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the Down comer.

iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**

- i. Fire pump at ground level of 2400 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
- ii. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
- iii. Booster pump of capacity 900 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
- iv. Electric supply (normal) to these pumps shall be on independent circuit.
- v. ON/OFF switch panel of all pumps shall be installed on ground floor level.
- vi. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.

v. **AUTOMATIC SPRINKLER SYSTEM:**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.

vi. **EXTERNAL/ COURTYARD HYDRANTS:-**Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.

vii. **HOSE & HOSE BOXES :-**One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.

viii. **AUTOMATIC SMOKE DETECTION SYSTEM:**Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room as per Standards and guidelines given in IS-11360-1985 specification for Smoke Detectors for use in Automatic Electrical Fire Alarm system.

ix. **PORTABLE FIRE EXTINGUISHERS:**One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.

12. **ALTERNATE SOURCE OF POWER SUPPLY:** An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.

13. **TRAINED STAFF / SECURITY GUARDS:-** Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building



14. **FIRE ALARM SYSTEM:** Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
15. **SIGNAGES:** Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
16. **GENERAL FIRE SAFETY REQUIREMENTS:**
- i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.
  - viii. 'No Smoking' board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
  - ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C.-2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.
  - x. Each compartment should be provided with minimum two exits.
  - xi. Metal racks if used for storage purpose it should be of sound engineering practice.
  - xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
  - xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
  - xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
  - xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.
  - xvi. The materials which are liable to dust explosion shall not be dropped.
  - xvii. The materials shall be stored according to their compatibility.

- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "**NO STORAGE ABOVE THIS LINE**". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. No loft should be constructed on the premises.
- xxiii. Nearest fire brigade telephone number, action to be taken in case of fire/spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiv. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxv. Patrolling by security personnel shall be carried out round the clock.
- xxvi. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvii. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. **These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.**
2. Fix firefighting installations such as risers, hydrant connections, hose reels etc. shall be provided in separate shaft having opening at floor level with Glass cabinet having locking arrangement to avoid theft and damage.
3. As per the provision as u/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other related activities required to be carried out in any place or building or part thereof provided that.
4. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
5. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance.

6. The names of the License Agencies approved by Directorate of Maharashtra is available in our website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
7. **Staircases / Exits shall be so located that it will not be necessary to travel more than 30 Mtrs. from any point to reach the nearest exit as per the guidelines given in Regulation 43(2)(ii)(I)(ii) of DCR**
8. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loft/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
9. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
10. The Occupancy certificate should be obtained from EEBP. **The EEBP shall not issue O.C. till No Objection Certificate for Occupation regarding compliance of fire safety requirements is issued from this Department.**
11. All portable firefighting equipment / installations installed at various locations as per local hazard such as CO2-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
12. All the firefighting equipment shall be well maintained and should be easily accessible in case of emergency.
13. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the Warehouse" should be displayed in security cabin & at other strategic locations.
14. It shall be ensured that security staff & every employee of the warehouse are trained in handling firefighting equipment & fire fighting.
15. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER" etc. should be displayed on the strategic location to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.
16. **In future if the said warehouse intends to go for any expansion, alteration, modification of any building an approval of this department must be obtained before commencing proposed expansion, alteration, modification.**
17. **Fire Brigade dept. reserves the right to change/alter/add/delete the terms and condition of these fire safety remarks as per the situation permits with prior intimation to the occupier.**

  
Chief Fire Officer  
Mumbai Fire Brigade

## ANNEXURE - VI

### MUNICIPAL CORPORATION OF GREATER MUMBAI MUMBAI FIRE BRIGADE

Sub - CODIFIED REQUIREMENTS FOR WAREHOUSE COMPRISING OF  
"ABOVE GROUND PLUS ONE FLOOR" (i.e. MORE THAN G+1 floor) &  
HAVING PLOT AREA BELOW 900 SQ.MTRS. (1400SQ.MTRS. BUILT UP  
AREA) which is not used for storage of inflammables, explosives or chemicals.

1. Minimum Road width require shall be as per Regulation 21 of DCR-1991
2. The open spaces required around the building shall be as per Regulation 29 of DCR-1991.
3. Height of the warehouse building shall be restricted up to 15mtr only from general ground level up to roof/terrace level as per Part-IV of N.B.C.2016 & Schedule-I of Maharashtra Fire Prevention & Life Safety Measure Act-2006.
4. **ACCESS** :Two entrance/exit gates, each of not less than 4.50 mtrs. shall be provided. Archways, if provided, shall have a height clearance of not less than 4.50 mtrs from general ground level. The courtyards shall be flushed with road level.
5. **COURTYARDS :**
  - i. The entire available courtyards on all the sides of the building shall be paved suitably to bear the load of fire engines each with a point load of 10 kg/cm<sup>2</sup>.
  - ii. All the courtyards shall be in one plane.
6. **STAIRCASE:**
  - i. The staircase/s of the warehouse shall be maintained 1.50 mtrs clear flight width throughout its length. (As per Table20 Regulation 21 of DCR-1991)
  - ii. The layout of the staircase of the warehouse shall be of open/enclosed type as shown on the plan throughout its height and shall be approached (gained) at each floor level through one hour fire resistant self-closing door (45 mm. thickness) placed in the enclosing walls of the staircase at landing.
  - iii. Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
  - iv. Openable sashes or R.C.C. grills with clear opening of not less than 0.5 sq.mtr. per landing on the external wall of the staircase shall be provided.
  - v. Structural steel members connected to staircase shall be protected with fire retardant coatings.
  - vi. No combustibles shall be kept or stored in staircase / passages.
  - vii. Lift lobby should not be encroached by shoe- racks, decorative items, earthen pots etc.
7. **DOORS:-**Doors shall be of solid core having fire resistance of not less one hour (solid wood of 45 mm. thickness).
8. **ELECTRIC CABLE CONDUIT AND ELECTRIC METER PANEL:-**
  - i. Electric cables shall be taken in concealed manner.
  - ii. Electric concealed cables shall be sealed at each floor level with non-combustible materials such as vermiculite concrete.

- iii. Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core for the entire building with provision of ELCB/MCB.
- iv. Electric meter panel shall be provided at location marked on the plan. It shall be adequately ventilated.

**9. GOODS LIFT (if Provided)**

- i. All the structural steel members of the car lift well i.e. columns, beams etc. shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.
- ii. The electrical cables used internally shall be fire retardant and heat resistant of capacity 105 degree centigrade.

**10. BASEMENT (IF PROVIDED). Shall be provided as per Regulation 38(9) of DCR**

- i. Each basement shall be separately ventilated. Vents with cross sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.
- ii. The basements shall be used for designated purpose only as per regulation of 38(9) of DCR.
- iii. The basement shall be provided with natural ventilations through the ventilators, open cut outs as per regulation of 38(9) of DCR.
- iv. The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check/ cut off lobby shall be mechanically pressurized.
- v. Mechanical ventilation shall be provided to the basement with 06 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.
- vi. The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.
- vii. Basement area shall be divided in compartments as per regulation 4.5.2 Part-IV of N.B.C.-2016
- viii. The operating switches of the mechanical ventilation shall be located in the fire control room / security cabin with appropriate zonal indications.

- ix. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- x. Suitable signage's shall be provided in the basement showing exit direction, way to exits etc.
- xi. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- xii. Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- xiii. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.
- xiv. The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W .G. & 2.5 mm W.G. for lift lobbies.
- xv. CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation system to start automatically on actuation of CO detector and the other appropriate detectors provided in the basement. (in case of car parking)
- xvi. Ventilation system shall start automatically on actuation of detector provided in the basement area.
- xvii. Exhaust duct, mechanical ventilation duct should not pass through exit or entry.
- xviii. The ventilation and area of ventilation and compartmentation if required shall be checked by EEBP.
- xix. If ramp is provided for basement for access the gradient of the ramp shall not be steeper than 1:10.
- xx. Fire curtain of rating not less than 2hrs. shall be provided at the entry of ramp to basement.

#### **11. FIRE FIGHTING REQUIREMENTS :**

- i. **UNDERGROUND WATER STORAGE TANK:-** An underground water storage tank of 2,25,000 liters capacity shall be provided, as per the design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tank shall be provided in such a manner that the depth of the tank from manhole level shall not be more than 7 mtrs.
- ii. **OVERHEAD WATER STORAGE TANK:**A tank of 20,000 liters capacity shall be provided at the terrace level. The design shall be got approved from H.E.'s department prior to erection. The tank shall be connected to the down comer through a booster pump through a non-return valve and gate valve.
- iii. **WET RISER CUM DOWN COMER:**Wet riser cum Down Comer of internal diameter of 15 cms. of G.I. 'C' class pipe shall be provided and connected

to the courtyard hydrant outlet. Pressure reducing discs or orifices shall be provided at lower level so as not to exceed the pressure of 5.5 kgs/sq.cm. A fire service inlet shall be provided at ground level to connect the mobile pump of the fire service to the wet riser cum down comer.

- iv. **FIRE PUMP, SPRINKLER PUMP BOOSTER PUMP & JOCKEY PUMP :**
- i. Fire pump at ground level of 2400 liters / min capacity giving a pressure of not less than 3.2 kgs / sq.cms. at the courtyard hydrant along with jockey pump of a suitable size.
  - ii. A sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
  - iii. Booster pump of capacity 900 liters/min. giving a pressure of not less than 3.2 kgs./sq.cms. shall be provided at the terrace level.
  - iv. Electric supply (normal) to these pumps shall be on independent circuit.
  - v. ON/OFF switch panel of all pumps shall be installed on ground floor level.
  - vi. All above pump should be surface mounted or vertical turbine type pump (submersible type pump not permitted) with adequate size of pump room.
- v. **AUTOMATIC SPRINKLER SYSTEM:**The Automatic sprinkler system shall be provided in the entire warehouse as per the guidelines given in IS 15105, Design and installation of Fixed Automatic sprinkler fire Extinguishing system.
- vi. **EXTERNAL/ COURTYARD HYDRANTS:-**Courtyard hydrants shall be provided at distance of 30.00 mtrs. each within the confines of the site. Courtyard hydrant shall be connected to the fire pump at ground level.
- vii. **HOSE & HOSE BOXES :-**One hose box each with two hoses of 15mtrs. length of 63 mm dia. Along with branch shall be provided near each courtyard hydrant outlet.
- viii. **AUTOMATIC SMOKE DETECTION SYSTEM:**Automatic smoke (beam) detection system shall be installed in entire warehouse & in electric meter panel / cabin / room as per Standards and guidelines given in IS-11360-1985 specification for Smoke Detectors for use in Automatic Electrical Fire Alarm system.
- ix. **PORTABLE FIRE EXTINGUISHERS:**One dry chemical powder (ABC type) fire extinguisher of 09 kgs. Capacity having BIS certification mark and one bucket filled with dry clean sand shall be kept for each 100 sq. mtrs. of the premises.
12. **ALTERNATE SOURCE OF POWER SUPPLY:** An alternate source of L. V./H. V. supply from a separate sub-station or D.G. Set with appropriate change over switch shall be provided for fire pump, fire alarm system, emergency lighting, corridor lighting circuits, lighting in security room, sprinkler pump, jockey pump and detector systems, etc. It shall be housed in a separate cabin.

13. **TRAINED STAFF / SECURITY GUARDS:-** Trained staff / Security Guard having basic knowledge of firefighting system shall be appointed/ posted for the said building
14. **FIRE ALARM SYSTEM:** Entire building shall be provided with manual fire alarm system with main control panel on ground floor level and pillbox and hooters. The layout of the fire alarm system shall be in accordance with IS specification.
15. **SIGNAGES:** Self-glowing /fluorescent exit signs in green colour shall be provided at prominent places as per the guidelines given in **IS:9457 for Safety colour and Safety IS:12349 for Fire Protection Safety Signs, IS:12407 for Graphics symbols for Fire Protection Plan.**
16. **GENERAL FIRE SAFETY REQUIREMENTS:**
  - i. The cross, Vertical and Horizontal gangway of at least 1.5 meter shall be kept free from Obstruction for easy movement of persons and goods.
  - ii. Good housekeeping should be maintained on the premises.
  - iii. The entire electric wiring shall be laid as per prevailing Electricity Act & Rules & the compliance certificate to that effect from Govt. Approved electrician / agency shall be submitted along with the application.
  - iv. No any combustible materials shall be kept/ store in the radius of one meter from any electric wiring and or installation.
  - v. Premises should be kept well ventilated. An exhaust fan of adequate capacity should be installed in the external wall of the storage area.
  - vi. Trade waste should be collected regularly and should be disposed off daily.
  - vii. The flooring should be kept free from any chemical and oil spillage.
  - viii. '**No Smoking**' board in Marathi, Hindi and English shall be displayed on the external wall of the premises.
  - ix. The entire storage area shall be divided into compartments (however area of each compartment shall not exceed 750sq.mt, as per regulation 4.5.2 Part-IV of N.B.C.-2016) with brick masonry fire resistance wall having fire resistance not less than two hour OR fire curtain having rating not less than 2hrs. Activation of Fire curtain shall be integrated with Automatic smoke (Beam) detection system & Fire alarm system.
  - x. Each compartment should be provided with minimum two exits.
  - xi. Metal racks if used for storage purpose it should be of sound engineering practice.
  - xii. The clearance from the top of pile to the lowest point of roof members, electrical fitting should not be less than one meter however storage height should be restricted up to maximum 2.25 mt. and the stacking of goods shall be at least 50 cms away from the walls.
  - xiii. The storage capacity on the racks shall not exceed to 75% of its maximum loading capacity.
  - xiv. Storage of inflammable, explosives or chemicals shall be strictly prohibited on the premises.
  - xv. The goods which are prone to damage due to water shall be kept on metal/wooden pallets.



- xvi. The materials which are liable to dust explosion shall not be dropped.
- xvii. The materials shall be stored according to their compatibility.
- xviii. All the commodities should be kept in different lots and should be placed at least 2 meters away from the source of heat, light and machinery. Distance between any two lots should not be less than one meter.
- xix. Refilling, decanting on the premises shall be strictly prohibited.
- xx. A colour band (50 mm wide red line) should be painted around the walls with signage indicated as "NO STORAGE ABOVE THIS LINE". This sign shall be provided at not more than 30 mts interval along the red line. The lettering of the sign shall not be less than 100 mm.
- xxi. The compulsory open space around the shed/structure shall be kept free from obstructions and encumbrances.
- xxii. Nearest fire brigade telephone number, action to be taken in case of fire/spillage & key person contact detail shall be displayed at the prominent places around the warehouse area.
- xxiii. All security personnel's, staff members and labours shall be trained to use the first aid firefighting equipment and summoning the Fire Brigade in case of any emergency.
- xxiv. Patrolling by security personnel shall be carried out round the clock.
- xxv. The exiting first aid fire-fighting equipment shall be maintained in good working orders at all times.
- xxvi. Necessary permission u/s 394 of MMC Act shall be obtained from competent MCGM Authority for ancillary commodities to be store in the warehouse.

**Note:-**

1. **These remarks are offered from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.**
2. Fix firefighting installations such as risers, hydrant connections, hose reels etc. shall be provided in separate shaft having opening at floor level with Glass cabinet having locking arrangement to avoid theft and damage.
3. As per the provision as U/s 10 of The Maharashtra Fire Prevention & Life Safety Measure Act. No person other than the License Agency shall carry out the work of providing Fire Prevention and Life Safety Measures or performing such other related activities required to be carried out in any place or building or part thereof provided that.
4. As per Maharashtra Fire prevention and life safety Measure Act.2006 the annual maintenance contract for the fire-fighting system from the licensed agency shall be carried out & certificate to that effect in Form "B" shall be submitted every six monthly i.e. in January & July to this office, regarding good working condition of the fire-fighting system. Party has given undertaking for the same.
5. No Licensed Agency or any other person claiming to be such Licensed Agency shall give a certificate under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance

thereof in good repair and efficient condition, without there being actual such compliance or maintenance.

6. The names of the License Agencies approved by Directorate of Maharashtra is available in our website [www.mahafireservice.gov.in](http://www.mahafireservice.gov.in)
7. **Staircases / Exits shall be so located that it will not be necessary to travel more than 30 Mtrs. from any point to reach the nearest exit as per the guidelines given in Regulation 43(2)(ii)(I)(ii)of DCR**
8. **Necessary permission/clearance under section 394/390 of M.M.C. Act and other permissions by concerned ward authorities etc. as per rules applicable, shall be obtained from concerned departments/authority. Also the authenticity & status of the structure including loff/mezzanine floor if any & authenticate area of the premises shall be verified, before issuing permissions for commencement of the said activity.**
9. Though certain conditions are stipulated from the said Act and the National Building Code of India, it is obligatory on part of the applicant that is developer, builder, occupier, owner, tenant, by what so ever named called to abide with the provisions of the said Act failing which it shall be actionable under the provisions of said act.
10. The Occupancy certificate should be obtained from EEBP. **The EEBP shall not issue O.C. till No Objection Certificate for Occupation regarding compliance of fire safety requirements is issued from this Department.**
11. All portable firefighting equipment/ installations installed at various locations as per local hazard such as CO2-DCP, Foam, Fire buckets & it must be strictly confirming to relevant IS specification.
12. All the firefighting equipment shall be well maintained and should be easily accessible in case of emergency.
13. Emergency Telephone numbers like "Police", "Fire Brigade", "Hospital", "Doctors", and "Responsible persons of the Warehouse" should be displayed in security cabin & at other strategic locations.
14. It shall be ensured that security staff & every employee of the warehouse are trained in handling firefighting equipment & fire fighting.
15. Cautionary boards such as "DANGER", "NO SMOKING", "EXIT", "FIRE ESCAPE", "EXTINGUISHER" etc. should be displayed on the strategic location to guide the occupants in case of emergency. The signs should be of florescent type and should glow in darkness.
16. **In future if the said warehouse intends to go for any expansion, alteration, modification of any building an approval of this department must be obtained before commencing proposed expansion, alteration, modification.**
17. Fire Brigade dept. reserves the right to change/alter/add/delete the terms and condition of these fire safety remarks as per the situation permits with prior intimation to the occupier.

  
Chief Fire Officer  
Mumbai Fire Brigade