TAMIL NADU FIRE AND RESCUE SERVICES DEPARTMENT

From	To
Thiru. Braj Kishore Ravi, I.P.S., DGP / Director, Tamil Nadu Fire and Rescue Services, No.17, Rukmani Lakshmipathi Salai, Egmore, Chennai – 600 008.	The Member Secretary, Chennai Metropolitan Development Authority, No.1, Gandhi Irwin Road, Egmore, Chennai – 600 008.

R.Dis.No.12929/C1/2022 Dated.26.08.2022

PP NOC No.119/2022

Sir,

Sub : Tamil Nadu Fire and Rescue Services – Directorate – High Rise Building – Issue of Planning Permission NOC requested - Inspection at M/s. Shri Kausalya Construction Limited, Plot No.6, New Door No.47/C, Old No.30, Gandhi Mandapam Road and Ambadi Road, Kotturpuram, Chennai – 600 085, T.S.No.5/21, 6/31 & 6/63, Block No.16 of Adayar Village, Chennai - Reg.

Ref : 1) The applicant letter dated:02.08.2022.
2) The Joint Director, Northern Region, Report Rc.No.3548/C/2022, Dated:16.08.2022.

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Kindly refer to the letter cited above. The MSB inspection committee of the northern region has inspected the site of M/s. Shri Kausalya Construction Limited, Plot No.6, New Door No.47/C, Old No.30, Gandhi Mandapam Road and Ambadi Road, Kotturpuram, Chennai – 600 085, T.S.No.5/21, 6/31 & 6/63, Block No.16 of Adayar Village, Chennai for which the PP NOC has been requested. The committee has made certain observations with regard to fire and life safety, which are reproduced below:-

Observation:

It is a planning permission for the proposed construction of office building consisting of basement floor (mechanical car parking) + stilt floor (part) +

ground floor (part) + 12 floors with the height of 48 meters. The plot area is 2789.39 sq. mtrs and the total floor area is 11460.97 sq. mtrs. The proposal has side setback of 10m all around the building. Turning radius of not less than 10m should be provided. The proposal is classified as Group E - Business Building, Sub-Division E-1 Office as per the National Building Code of India Part IV fire and life safety-2016.

The following fire & life safety measures should be provided in the proposed building

1. There should be a wet-before the issue of compliance certificate as listed below: riser along with hose reel assembly per thousand square meters area covering all floor areas with landing valves along with delivery hoses. The raiser should be fully charged with adequate pressure at all times & should have both automatic and manual operation. To feed the wet-riser and sprinkler system an underground static water tank of minimum capacity 200000 liters should be provided with refilling facilities for per set of pumps. A terrace level tank of capacity 20000 liters also should be provided respective tower terrace. To charge the wet riser system and the sprinkler system one set of pumps shall be provided for each 100 hydrants or part thereof with a maximum of two sets. More than one pump set installation, both pump sets shall be interconnected at their delivery headers. One set of pumps contains two electrical pump of capacity 2850 LPM for hydrants & Sprinkler, an equal capacity of a diesel pump and two electrical pump of each capacity of 180 LPM as a jockey pump should be provided near the underground water tank for each block. The pumps should be capable of developing pressure of 3.5 kg/cm^2 at terrace level hydrant point.
2. Fire duct should be sealed at each floor.
3. Water curtain system should be provided at the basement.

4. Yard hydrant should be provided at all around the building every 30 meters.
5. Fire service inlets fitted with NRV at ground level should be provided.
6. Manually operated electric fire alarm system including talk back system to be provided at all floors.
7. Public address system should be provided connecting all the floors.
8. Automatic sprinkler system should be provided at all floors including the basement.
9. Automatic detector system should be provided at all floors.
10. Alternative & independent power systems should be provided to fire pumps, emergency lighting system and fire lift.
11. BMS should be provided and automatic detection should be integrated to the BMS system and be manned 24X7.
12. Fire exit - internal staircases and external staircase:

    Atleast One staircase should be designated as fire escape staircase and should be pressurized as per the clause 4.4.2.5 of the requirements of National Building Code of India.

    As per clause 4.4.2.4.3.2 of the National Building Code of India part IV fire and life safety 2016 – All the staircases shall have minimum width of 1.50 meters without railing. The minimum width of tread without nosing shall be 300 mm for business building and the tread shall be constructed and maintained in a manner to prevent slipping. The maximum height of riser shall be 150 mm for business building and the number shall be limited to 12 per flights.

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

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

Exits shall be so arranged that they may be reached without passing through another occupied unit.

As per clause 4.4.2.4.3 (h) (6) of NBC 2016. Lift shall not open in staircases.

As per clause 4.4.2.4.3.4 of the National Building Code of India part IV fire and life safety 2016- All external stairs shall be directly connected to the ground.

Entrance to the external stairs shall be separate and remote form the internal staircase.

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

The route to the external stairs shall be free of obstructions at all times.

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

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

Fire lifts:

At least one lift should be designated as Fire lift. Fire lifts shall be provided with a minimum capacity for 8 passengers and fully automated with emergency switch on ground level. In general, buildings 15m in height or above shall be provided with fire lifts.

In case of fire, only fireman shall operate the fire lifts. In normal course, it may be used by other persons.

Each fire lift shall be equipped with suitable inter-communications equipment for communicating with the control room on the ground floor of the buildings.

The number and location of fire lifts in a building shall be decided after taking into consideration various factors like building population, floor area, compartmentation, etc.

13. **Firefighting shaft (fire tower):** An enclosed shaft having protected area of 120 min fire resistance rating comprising protected lobby, staircase and fireman's lift, connected directly to exit discharge or through exit passageway with 120 min fire resistant wall at the level of exit discharge to exit discharge. These shall also serve the purpose of exit requirement / strategy from the occupants. The respective floors shall be approachable from Firefighting shaft enable the Fire fighters to access the floor and also enabling the Fire fighters to assist in evacuation through fireman's lift. The firefighting shaft shall be equipped with 120 min fire doors. The firefighting shaft shall be equipped with fireman talk back, wet riser and landing valve in its lobby, to fight fire by fire fighters.
14. **The applicant should not provide any obstruction like transformer yard, generator, ramp to basement, swimming pool, landscape, LPG bank etc., in the setback area, so as to facilitate the easy movement and operation of an aerial ladder platform vehicle during emergency. The setback area slop gradient should not be elevated from the ground level. The entry, movement and exit of the setback should have no slope and should be hard paved and support the operation of the aerial ladder platform.**
15. The first aid firefighting equipment's should be provided at all floors in accordance with the IS 2190: 2010 requirements.
16. **Vehicular access within the site –** Internal vehicular access way including passage if any within the site shall have a clear width of 7.2m.
17. The basement shall have the following requirements:
    - I) <u>Design criteria</u>:

      Ramps with very steep slopes are not allowed and gradient of 1 in 8 or more alone is permissible. Ramps should not be constructed affecting the open space adjacent to the building. It should meet the following criteria; access, ventilation, firefighting and escape

provisions. Brightly lit, colour coded sections are must to identify the different sections of the basements.

- II) Flooding in basements:

  Basement shall be constructed in such a way that there should not be any water logging EB room / generator / etc., shall not be installed in the basement.

  a) Every basement shall be in every part at least 2.4m in height from the floor to the underside of the roof slab or ceiling.
  b) Adequate ventilation shall be provided for the same as required by the particular occupancy according to byelaws. Any deficiency may be met by providing adequate mechanical ventilation in the form of blowers, exhaust fans, air-conditioning systems, etc.
  c) The minimum height of the ceiling of any basement shall be 0.9m and the maximum, 1.2m above the average surrounding ground level;
  d) Adequate arrangements shall be made such that surface drainage does not enter the basement;
  e) The walls and floors of the basement shall be watertight and be so designed that the effects of the surrounding soil and moisture, if any are taken into account in design and adequate damp proofing treatment is given; and
  f) The access to the basement shall be separate from the main and alternative staircase supply from the licensee's service and alternative supply cables. The door/doors provided for the
  g) Service room shall have fire resistance of not less than two hours.

18. **Basement:**

- Basements shall be separately ventilated. Vents with cross-sectional area (aggregate) not less than 2.5 percent of the floor area spread evenly round the perimeter of the basement shall be provided in the form of grills, or breakable stall board lights or pavement lights or by way of shafts.

  Alternatively, a system of mechanical ventilation system may be provided with following requirements.

  a) Mechanical ventilation system shall be designed to permit 12 air changes per hour in case of fire or distress call. However, for normal operation, air changes schedule shall be as given in part 8 'Building Services, Section 3 Air conditioning. Heating and Mechanical Ventilation' of the Code.

  b) In multi-level basements, independent air intake and smoke exhaust shafts (masonry or reinforced concrete) for respective basement level and compartments therein shall be planned with its make –up air and exhaust air fans located on the respective level and in the respective compartment. Alternatively, in multi-level basements, common intake masonry (or reinforced cements concrete) shaft may serve respective compartments aligned at all basement levels. Similarly, common smoke exhaust / outlet masonry (or reinforced cement concrete) shafts may also be planned to serve such compartments at all basement levels. All supply air fans on respective levels shall be installed in fire resisting level shall be installed in fire resisting room of 120 min. Exhaust fans at the respective level shall be provided with back draft damper connection to the common smoke exhaust shafts ensuring complete isolation and compartmentation of floor

isolation to eliminate spread of fire and smoke to the other compartments / floors.

c) Due consideration shall be taken for ensuring proper drainage of such shafts to avoid insanitation condition. Inlets and extracts may be terminated at ground level with stall board or pavement lights as before. Stall board and pavements lights should be in positions easily accessible to the fire brigade and clearly marked 'AIR INLET' or 'SMOKE OUTLET' with an indication or area served at or near the opening.

d) Smoke from any fire in the basement shall not obstruct any exit serving the ground and upper floor of the building.

e) The smoke exhaust fans in the mechanical ventilation system shall be fire rated, that is 250^0 C for 120 min.

f) The smoke ventilation of the basement car parking areas shall be through provision of supply and exhaust air ducts duly installed with its support and connected to supply air and exhaust fans. Alternatively, a system of impulse fans (jet fans) may be used for meeting the requirement of smoke ventilation complying with the following.

- Structural aspects of beams and other down stands / services shall be taken care of in the planning and provision of the jet fans.
- Fans shall be fire fated, that is 250^0 C for 120 min.
- Fans shall be adequately supported to enable operations for the duration as above.
- Power supply panels for the fans shall be located in fire safe zone to ensure continuity of power supply.

- Power supply cabling shall meet circuit integrity requirements in accordance with accepted standard [4(13)].
- Supply air shall be not be less than 5 m from any exhaust discharge openings.

- The staircase of basements shall be of enclosed type having fire resistance of not less than 2 h and shall be situated at the periphery of the basement to be entered at ground level only from the open air and in such positions that smoke from any fire in the basement shall not obstruct any exit serving the ground and upper stores of the building and shall communicate with basement through a lobby provided with fire resisting self-closing doors of 1 h resistance.
- All floors shall be compartmented with area of each compartment not exceeding 3000^{m2}. Compartmentation shall be achieved by means of fire barrier wall of 2h rating or water curtain nozzle (K - 23). In case of water curtain, existing water storage shall be supplemented by water demand for water curtain nozzles for 60 min considering the largest size of compartment. The water supply for the water curtain nozzles shall be through independent electric pump of adequate capacity (flow and head) with piping / riser for the water supply to the nozzles. Separate pump to be provided for water curtain.

19. **Fire fighting pump house**

As per clause 5.1.2.2 of the National Building Code of India part IV fire and life safety 2016

a) It is preferable to install the pump house to provide positive suction and not lower 1st Basement level. Pump house shall be situated so as to be directly accessible from the surrounding ground level.

b) Pump housing shall be installed not lower than the first basement. When installed in the basement, staircase with direct accessibility

(or through enclosed passageway with 120 min fire rating) from the ground, shall be provided. Access to the pump room shall not require to negotiate through other occupancies within the basement.

c) Pump house shall be separated by fire walls all around and doors shall be protected by fire doors (120 min rating).

d) Pump house shall be well ventilated and due care shall be taken to avoid water stagnation.

e) No other utility equipment shall be installed inside the fire pump room.

f) Insertions like flexible couplings, bellows, etc., in the suction and delivery piping shall be suitably planned and installed.

g) Installation of negative suction arrangement and submersible pumps shall not be allowed.

h) Pump house shall be sufficiently large to accommodate all pumps and their accessories like PRVs, installation control valves, valves, diesel tank and electrical panel.

i) Battery of diesel engine operated fire pump shall have separate charger from emergency power supply circuit.

j) Exhaust pipe of diesel engine shall be insulated as per best engineering practice and taken to a safe location at ground level, considering the back pressure.

k) Fire pumps shall be provided with soft starter or variable frequency drive starter.

20. Glass of facade used in external walls shall comply with the following:

a. For fully sprinklered buildings having fire separation of 9 m or more, tempered glass in a non-combustible assembly with ability to hold the glass in place, shall be provided. It shall be ensured that sprinklers are located within 600 mm of the façade glass providing full coverage to the glass.

b. All gaps between floor slabs and façade assembly shall be sealed at all levels by approved fire resistance sealant material of equal fire rating as that of floor slab to prevent fire and smoke propagation from one floor to another.

c. Facade glass at each floor shall have means to open at least 10 percent of the total facade area to exhaust smoke during emergencies. Such openings, with sill level at 1.2 m, shall be in the form of openable panels of size not less than 1500 mm x 1000 mm opening outwards.

21. **Mechanical car parking:**

As per Annex (H) H-5 Automated Car Parking utilizing mechanical or computerized / Robotic means:

a) Automated car parking structure can be of open parking type or enclosed types.

b) Automated car parking facilities pose more hazard compared to manual parking due to following reasons:

- ❖ High density of cars due to lose stacking – one over another.
- ❖ Lack of provision on fire separation/ compartmentation – horizontal or vertical leading to rapid fire spread.
- ❖ Non – availability of any person to notice/control the fire in initial stages.
- ❖ Limited access to firefighting personnel.
- ❖ Extensive height and depth involved with highly combustible load.

c) The hazardous areas like DG sets, transformers, HT/LT panels for the parking lot shall be suitably segregated from other areas as per requirements given in this Code and all such areas shall be protected by suitable automatic fire suppressions systems.

The following fire & life safety measures should be provided in MLCP:

1. Fire extinguisher should be provided in MLCP.
2. Automatic sprinkler system should be provided at MLCP for each slot. All sprinklers in car parking shall be standard response type with minimum K-Factor of 80, area coverage of 9 m^2 and designed as per good practice.
3. Automatic detection system should be provided at MLCP for each slot.
4. Wet riser system with Hose Reel should be provided at MLCP.
5. Yard hydrant should be provided at MLCP.
6. Manually operated fire alarm system should be provided at MLCP.
7. Fire escape staircases, at least 1250 mm wide shall be provided.

22. **Refuge area**

a) Refuge area are provided 7^{th} and 11^{th} floor.

b) Refuge area shall be provided in buildings of height more than 24 m. Refuge area provided shall be planned to accommodate the occupants of two consecutive floors (this shall consider occupants of the floor where refuge is provided and occupants of the floor above) by considering area of 0.3 m^2 per person for the calculated number of occupants and shall include additionally to accommodate one wheelchair space of an area of 0.9 m^2 for every 200 every 200 occupants load served by the area of refuge or a minimum of 15 m^2 whichever is higher shall be provided as under.

- The refuge area shall be provided on the periphery of the floor and open to air at least on one side protected with suitable railings.
- Refuge area (s) shall be provided at / or immediately above 24 m and thereafter at every 15 m or so.

c) A prominent sign bearing the words 'REFUGE AREA' shall be installed at the entry of the refuge area, having height of letters of minimum

75 mm and also containing information about the location of refuge area on the floor above and below this floor. The same signage shall also be conspicuously located within the refuge area.

d) Each refuge area shall be ventilated and provided with first aid box, fire extinguishers, public address speaker, fireman talk back and adequate emergency lighting as well as drinking water facility.

e) Refuge area shall be approachable from the space they serve by an accessible means of egress.

f) Refuge area shall connect to firefighting shaft (comprising fireman's lift, lobby and staircase) without having the occupants requiring to return to the building spaces through which travel to the area of refuge occurred.

g) The refuge area shall always be kept clear. No storage of combustible products and materials, electrical and mechanical equipment etc shall be allowed in such areas.

h) Refuge area shall be provided with adequate drainage facility to maintain efficient storm water disposal.

i) Entire refuge area shall be provided with sprinklers.

j) Where there is a difference in level between connected areas for horizontal exists, ramps of slope not steeper than 1 in 2 shall be provided (and steps should be avoided).

23. Illuminated exit signage's should be provided with alternative source of power supply or battery back – up with "GLOW TYPE".
24. Service ducts and shafts: As per clause 3.4.5.4 of the National Building Code of India part IV fire and life safety 2016.
25. Fire lift, electrical installation and wiring, AC duct & other service ducts should meet the requirements of NBC of India, Part 8, 2016.
26. The width and height of any arch or gate, if any, should have the clearance of not less than 7 m respectively.

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1) Dry riser minimum 100 mm diameter pipe with hydrant outlets on the floors constructed with a fire service inlet to boost the water in the riser from fire service pumps.
2) Drums filled with water of 2000 liters capacity with two fire buckets on each floor.
3) A water storage tank of minimum 20000 liters capacity, which may be used for other construction purposes also.

The MSB inspection team has recommended to issue planning permission / no objection certificate to the proposed building subject to the fulfillment of the above mentioned conditions.

In view of compliance with the above said facts a PP/NOC is issued from the fire service point of view so as to accord planning permission for the above said proposed building subject to fulfillment of all the above said conditions, as recommended by the MSB committee. After completion of this project the compliance certificate should be obtained to ensure fire safety measures.

for Director,
Fire and Rescue Services,
Tamil Nadu.

To:

M/s. Sri Kausalya Constructions Ltd.,
No.4, Jayalakshmipuram, First Street,
Nungambakkam, Chennai – 600 034.

TAMILNADU FIRE AND RESCUE SERVICES
DIRECTORATE
CHENNAI-8

Copy to:

The Joint Director, Fire and Rescue Services,
Northern Region, Chennai.