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TAMIL NADU FIRE AND RESCUE SERVICES DEPARTMENT

From
Tmt. Seema Agrawal, I.P.S.,
DGP / Director, TNUSRB,
Director Fire and Rescue Services (FAC).,
No.17, Rukmani Lakshmipathi Salai,
Egmore, Chennai – 600 008.

To
The Member Secretary,
Chennai Metropolitan
Development Authority,
No.1, Gandhi Irwin Road,
Egmore, Chennai – 600 008.

R.Dis.No.16974/C1/2022
R.Dis.No.16989/C1/2022
PP NOC No.167/2022

Dated.20.12.2022

Sir,

Sub : Tamil Nadu Fire and Rescue Services – Directorate – High Rise Building – Issue of Revised Planning Permission NOC requested - Inspection at M/s. Alliance Villas Pvt. Ltd., G.N.T Road, Madhavaram, Chennai – 600 060, S.No.701/1A, 1B, 2A, 2B, 702/1(pt), 1A, 1B, 1C, 1D & 2 and 761/2, T.S.No.1/2, 1/3 & T.S.No.2, Block No.20 of Madhavaram Village, Chennai - Reg.

Ref : 1) The applicant letter dated:17.10.2022.
2) The Joint Director, Northern Region, Report Rc.No.4832/C/2022 & Rc.No.5071/C/2022, Dated:22.11.2022.

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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. Alliance Villas, G.N.T Road, Madhavaram, Chennai – 600 060, S.No.701/1A, 1B, 2A, 2B, 702/1(pt), 1A, 1B, 1C, 1D & 2 and 761/2, T.S.No.1/2, 1/3 & T.S.No.2, Block No.20 of Madhavaram Village, Chennai for which the revised 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 request for revised planning permission of noc issued vide ref (2) above for the construction of residential cum commercial building consisting of 4 blocks & temple with extended lower basement floor block A & C (parking & STP) and upper basement floor for blocks A, B & C (parking, STP & sumps). **Block A (residential building)** consisting of stilt floor + 18 floor with the height of 56.90 meters up to terrace level. **Block B (club house)** consisting of ground floor + 4 floor (swimming pool, partly hall, gym, tuition centre & co-working space) with the height of 18.25 meters up to terrace level. **Block C (convention center)** consisting of ground floor + 7 floor with the height of 30 meters up to terrace level. **Block D (temple)** consisting of Ground floor and **block E (shop)** consisting of ground floor + 1 floor. The plot area is 19702.04 sq. mtrs and total buildup area is 83004.52 sq. mtrs. The proposal has side set back of 12 meters at all around the building for residential and 7 meters at all around the building for assembly building. Turning radius of not less than 12 meters should be provided. The building is classified to come under Group "A"-Residential Building, Sub-Division "A-4" Apartment and Group "D"-Assembly Building, Sub-Division "D-3" Marriage Hall as per the classification of the National Building Code of India Part IV fire and life safety – 2016.

The following fire & life safety measures should be provided in the proposal before the issue of compliance certificate as listed below:

For residential block, club house & shop:

1. There should be a wet-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 150000 liters should be provided with refilling facilities. A terrace level tank of capacity 10000 liters also should be provided in respective towers. 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.

For assembly building:-

2. There should be a wet-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. A terrace level tank of capacity 20000 liters also should be provided in respective towers. 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.
3. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers. Alternative to provisions of additional set of pumps, the objective can be met by providing additional diesel pump of the same capacity and doubling the water tank capacity as required for one set of pumps. One set of pump contains two electrical pumps of capacity 2280 LPM and equal capacity of one Diesel Pump and two electrical pumps of each capacity of 180 LPM as a Jockey pump should be provided near the underground water tank. The pumps should be capable of developing pressure of 3.5 kg/cm^2 at terrace level hydrant point.
4. Fire service inlets fitted with NRV at ground level should be provided.
5. Manually operated electric fire alarm system including talk back system to be provided at all floors.
6. Yard hydrant should be provided at all around the building every 30 meters.
7. The first aid firefighting equipment's should be provided at all floors of all blocks in accordance with the IS 2190: 2010 requirements.

8. Automatic sprinkler system should be provided at all floors including basement and block A, B, C & E.
9. Automatic detector system should be provided at all floors at block A, B, C & E.
10. Water curtain system should be provided at the basement with separate pump.
11. BMS should be provided and Automatic detection should be integrated to the BMS system and be manned 24X7.
12. Public address system should be provided connecting all the floors.
13. Lightning arrester should be provided.
14. Alternative & independent power systems should be provided to fire pumps, emergency lighting system and fire lift.
15. Number of ramp, exit, location and its width should be conforms to the requirements of NBC of India, Part 4, Second Revision 2016.
16. Fire exit - internal staircases and external staircase:

For residential building:

Five staircases are provided. 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 – The staircases shall have minimum width of 1.25 meters without railing. The minimum width of tread without nosing shall be 250 mm for residential 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 Residential Building and the number shall be limited to 12 per flights.

For assembly building:-

Two staircases are provided. 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 – One staircase is provided with a width of 2.25m and another one staircase is provided with a width of 2.5m without railing. The minimum width of tread without nosing shall be 300 mm for Assembly 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 Residential 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 4.4.2.1 Table (5) Travel distance of 30m should be provided.

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.

A staircase shall not be arranged round a lift shaft.

<u>Fire lifts</u>: As per clause 4.4.2.4.3 (h) (6) of NBC 2016. Lift shall not open in staircases.

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.

17. **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.

18. **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 should not have any slope / gradient and not be elevated from the ground level.**
19. The swimming pool should be constructed as per G O NO.97 municipal administration and water supply (MA 1) Department Dated.07.07.2015.
20. **Vehicular access within the site –** Internal vehicular access way including passage if any within the site shall have a clear width of 7.2m.
21. The basement shall have the following requirements:

- I) Design criteria:

  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, fire fighting 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.

22. **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.

23. **Any ramp should not exceed the building line and should not obstruct the side set back area at all around the building for the easy movement of an aerial ladder platform vehicle operation during emergency.**

24. **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.

25. **Life safety – assembly occupancy:-**

As per clause 6.4.2.2 of the National Building Code of India part IV fire and life safety 2016.

a) Assembly occupancies of theatres, cinema halls and multiplexes shall be so located in the mall building that their exits will be separate and lead the occupant directly to exit discharge.

b) The common path of travel shall be 30 m. The maximum dead end of corridor distance shall not exceed 6 m.

c) The minimum width of an exit passageway shall be 2.0 m.

d) The corridors at the exit passageway on the external wall of the building shall be naturally ventilated and provided with emergency lightings.

e) 50 percent lifts in common areas in D – 6 shall be with features and requirements of fireman's lift.

f) The manual call points shall be break glass and not pull stations.

g) Photo luminescent markings shall be done along the width and length of treads in all enclosed exits staircases. Exit directional arrow on the wall (in the direction of egress) shall be 175 mm x 50 mm.

26. 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.

27. **Refuge area**

a) **Refuge area provided on 5th floor (at 19.5m) and shall be not less than 10 percent of gross area of floor. Next refuge area to be at / on the floor immediately above 24 m. The refuge area shall be 10 percent of the respective floor, which may be divided into two or more separate refuge area at each of the respective floors, with each being not less than 100 m^2. Refuge area shall also meet all the requirements of life safety as per 4.**

- 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.

b) 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.

c) 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.

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

e) 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.

f) 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.

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

h) Entire refuge area shall be provided with sprinklers.

28. 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).

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

30. 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.

31. Fire lift, electrical installation and wiring, AC duct & other service ducts should meet the requirements of NBC of India, Part 8, 2016.

32. The width and height of any arch or gate, if any, should have the clearance of not less than 7 m respectively.

33. The compulsory open space as per DCR set back area all around the building should be designed to with stand a weight of 64 tons at any point of operation for the use of Hydraulic platform vehicle. In any case, no ramp, landscape garden and swimming pool shall be allowed in the

setback are. The entire setback area earmarked shall be hard paved or provided with reinforced concrete so as to withstand the weight of the aerial ladder platform.

34. The service ducts such as power cables, communication cables, A/C ducts etc. should be protected with proper fire sealing/fire dampers.
35. The cable gallery should be routed through fire resistant duct or fire protected tray. Suitable detectors shall be provided along the lines of the cable gallery.
36. As per section 3.2 of BIS 12459, 1988 – code of practice for fire safety in cable regularization, 1m transparent fire retardant coatings shall be applied to all cables at termination points in electrical panels and all cables inside the distribution boxes.
37. Fire resistant and low smoke emission cable should be used.
38. Assembly points should be designated at the ground floor as per the requirements of fire and life safety measures.
39. Dos and don'ts laminated hanging pads should be available in all floors in prominent places.
40. Evacuation route plan should be displayed in each floor at prominent places.
41. If the construction is done with prefabricated materials, sufficient natural vent / mechanized ventilation system should be provided.
42. A trained fire officer with a crew shall be arranged to maintain as well as to operate the fire protection systems in case of any need.
43. During construction of the building the following fire protection measures should be provided in good working condition:
    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 of revised 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 revised 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. Alliance Villas Pvt. Ltd.,
No.36/1, Gandhi Mandapam Road, Kotturpuram,
Chennai – 600 085.

TAMILNADU FIRE AND RESCUE SERVICES
DIRECTORATE
CHENNAI-8

Copy to:

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



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