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TAMIL NADU FIRE AND RESCUE SERVICES DEPARTMENT

From
Dr. C.Sylendrababu, IPS.,
Director General of Police (Railway)/
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.18007/C1/2019 Dated.09.06.2020

PP NOC.No.39/2020

Sir,

Sub : Tamil Nadu Fire and Rescue Services – Directorate – High Rise Building – Issue of Planning Permission NOC requested - Inspection at M/s. Navin Housing Properties Pvt Ltd, S.No. 19/6A1, 19/6A2, 19/6A3, 19/6B1, 19/6B2, 20/2B, 20/3, 20/4A, 20/4B, 20/4C, 20/5A1, 20/5A2, 20/5B1, 20/5B2, 37/6B, 37/7, 37/8, 37/9, 364/1B2, 365/1B1 of Vengaivasal Village, Medavakkam – Mambakkam Road, Chennai - Reg.

Ref : 1) The CMDA letter dated:25.11.2020.
2) The Joint Director, Northern Region, Report Rc.No.3445/C/2019, Dated:02.06.2020.

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With reference to the letter cited above, the MSB Inspection committee of Northern Region has inspected the site of M/s. Navin Housing Properties Pvt Ltd, S.No. 19/6A1, 19/6A2, 19/6A3, 19/6B1, 19/6B2, 20/2B, 20/3, 20/4A, 20/4B, 20/4C, 20/5A1, 20/5A2, 20/5B1, 20/5B2, 37/6B, 37/7, 37/8, 37/9, 364/1B2, 365/1B1 of Vengaivasal Village, Medavakkam – Mambakkam Road, Chennai for which PP NOC has been requested and the committee has made certain observations as regards Fire and Life Safety, which are reproduced below:-

Observation:-

Earlier the DFRS issued NOC this same site vide K.dis No. 13446/C1/2012 (PP NOC. No. 135/2012) Dated. 20.07.2012.

It is a Revised Planning Permission for the Additional construction for the residential building **Block A3 and A4** consists of Combined Basement Floor + Combined Stilt floor + Combined podium + 1st floor to 21 floor with the height of 66 m up to Terrace level. The plot area is 39855 Sq. m and total buildup area is 99394.916 sq. m. The proposal has side set back of 12 m at all around the building. The building is classified to come under Group "A"-Residential Building, sub division "A-4" Apartment 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 proposed building before the issue of compliance certificate as listed below:

1. There should be a Wet-riser per thousand square meters area covering all floor areas with landing valves along with delivery hoses. The riser 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 each tower. A terrace level tank of capacity 10000 liters also should be provided over the respective tower terrace. To charge the wet riser systems and the sprinkler systems one set of pumps shall be provided for each 100 hydrants or part thereof with a maximum of two sets. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers. One set of pumps contain an electrical pump of capacity 2850 LPM for hydrants, an electrical pump of capacity 2850 LPM for sprinkler system, an equal capacity of a 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. **Lower levels in high rise buildings 60 m or above in height are likely to experience high pressure and therefore, it is recommended to consider multi – stage, multi – outlet pumps (creating pressure zones) or variable frequency drive pumps or any other equivalent arrangement.**
2. Fire service inlets fitted with NRV at ground level should be provided.
3. Hose reel assembly should be covering each floor area.
4. Manually operated electric fire alarm system also includes talk back system to be provided at all floors.
5. Yard hydrant should be provided at the podium level at the inner periphery of all the blocks.

6. The First aid firefighting equipment's should be provided at all floors in accordance with the IS 2190: 2010 requirements.
7. Public Address System should be provided connecting all the floors.
8. Automatic sprinkler system should be provided at all floors and the Sprinkler shall be fed water from both underground static water storage tank and terrace level.
9. Automatic detector system should be provided at all floors.
10. Lightning arrester should be provided.
11. **All the requirements shall be satisfied for buildings constructed on podium as per Clause 4.6.1 of NBC 2016 Like :**
    a) Building having height more than 15 m above ground level shall necessarily be accessible by fire tender, as follows.
    b) Podium shall not be permitted in required minimum front open space.
    c) For buildings having floor area more than 10000 m^2 fire engines shall have an access to at least to half of the perimeter of building which shall be minimum 6.0 m wide and having 9.0m turning radius.
    d) If podium is not accessible by fire tender, the podium may be such that it is not extended beyond the building foot print to an extent more than 11.0 m on the side where fore tender access is provided. Such restriction shall not apply in case podium is accessible by fire engine.
    e) Minimum 6.0 m driveway width and 9.0 m width at turning shall be available for fire tender movement all around the podium.
    f) A podium may be permitted in a plot of area 1500 m^2 or more.
    g) A podium, if provided with ramp, may be permitted in one or more levels, however the total height shall not exceed 30m above ground level.
    h) In case a podium is not provided with ramp, nut provided with can lift only, the same may also be permitted in one or more levels, however, the total height shall not exceed 9m above ground level.
    i) If podium is accessible to fire tender, minimum 7.5m wide ramp shall be required for fire engine access with maximum slope of 1 in 10.
    j) Podium shall not be permitted in required minimum front open space.
    k) Podium, if accessible to fire tender, shall be so designed so as to take the load of fire tender weighing up to 45t minimum or as per the requirement laid down by the Fire Department.
12. Alternative & Independent power systems should be provided to Fire pumps, Emergency Lighting system and fire lift.
13. Number of Ramp, Exit, Location and its width should be conforms to the requirements of NBC of India, Part 4, Second Revision 2016.
14. Minimum two numbers of Staircases should be provided and should be away from each other as per NBC of India, Part 4, Second Revision 2016 for each Block.
15. Fire Exit - Internal staircases and External staircase:

Fire escape staircase should be pressurized as per the clause 4.4.2.5 of the requirements of National Building Code of India.

All staircases shall have minimum width for residential Building 1.25 meters effectively 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. Staircase width should be 1.25m without railing.

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 4.4.2.4.3.4 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°from the horizontal.

Fire lifts: Where applicable, 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.

16. **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.
17. **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.**
18. The First aid firefighting equipments should be provided at all floors in accordance with the IS 2190: 2010 requirements.
19. The basement shall have the following requirements:
    - I) Design criteria:
      As basements lack natural light and ventilation, their access points and integrating them into a building plan must be thoroughly studied. Ramps with very steep slopes should not be allowed and gradient of 1 in 8 or more should alone be permitted. 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: Water logged and catchment areas should be thoroughly studied prior to permitting basements in particular areas. Limiting of basement area with reference to plot coverage should be ideal.

    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) Services room shall have fire resistance of not less than two hours.

20. Basement:

The basement shall be fully sprinkled including the ramp.

The ramp to the basement or any other ramp shall not be beyond the building line. The slope of a ramp to shall not exceed 1 in 12

- 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 and shall be connected to the Co sensors / firefighting systems

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. For travel distance to be provided as per National Building code of India 2016. If the travel distance exceeds as per National Building code of India 2016 an additional staircases shall be provided at proper places.
- All floors shall be compartmented with area of each compartment not exceeding 3000m^2. Compartmentation shall be achieved by means of fire resisting wall of 2h rating or fire curtain of 2 h rating or water curtain. 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.

21. **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 at ground level. Pump house shall be situated so as to be directly accessible from the surrounding ground level.

b) Pump housing 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.

22. **Refuge area**

Refuge area for apartment buildings of height above 60 m while having balconies shall be provided at 60 m and thereafter at every 30 m. The refuge area shall be an area equivalent to 0.3 m^2 per person for accommodating occupants of two consecutive floors, where occupant load shall be derived on basis of 12.5 m^2 of gross floor area and additionally 0.9 m^2 for accommodating wheel chair requirement or shall

be 15 m^2, whichever is higher. Illuminated exit signage's should be provided with alternative source of power supply or battery back – up with "GLOW TYPE".

23. Service ducts and shafts: As per clausc 3.4.5.4 of the National Building Code of India part IV fire and life safety 2016.

24. Fire lift, Electrical Installation and Wiring, AC Duct & other Service Ducts should meet the requirements of NBC of India, Part 8, 2016.
25. The width and height of any arch or gate, if any, should have the clearance of not less than 4.5 m and 5 m respectively.
26. The compulsory open space as per DCR set back area all around the building should be designed to with stand a weight of 45 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.
27. The Service ducts such as power cables, communication cables, A/C ducts etc. should be protected with proper fire sealing/fire dampers.
28. 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.
29. Fire Resistant and Low Smoke Emission Cable should be used.
30. Assembly points should be designated at the ground floor as per the requirements of fire and life safety measures.
31. Dos and Don'ts laminated hanging pads should be available in all floors in Prominent places.
32. Evacuation route plan should be displayed in each floor at prominent places.
33. If the construction is done with prefabricated materials, sufficient natural vent / mechanized ventilation system should be provided.
34. 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.
35. 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.
36. 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 Revised Planning Permission No objection certificate to the proposed building subject to the fulfillment of the above conditions.

In view of the above PP NOC is issued on fire service point of view to accord planning permission to the above said proposed building subject to fulfillment of the above conditions, as recommended by the MSB committee. After completion of this project, Compliance Certificate should be obtained to ensure the Fire Safety Measures.

for Director,
Fire and Rescue Services,
Tamil Nadu.

To:

M/s. Navin Housing & Properties Pvt. Ltd.,
Represented by Tmt. Bhavani,
802, 804, Anna Salai,
Nandhanam,
Chennai – 600 035.

TAMILNADU FIRE AND RESCUE SERVICES
DIRECTORATE
CHENNAI-8

Copy to

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



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