TAMIL NADU FIRE AND RESCUE SERVICES DEPARTMENT

From
Thiru. R.C. Kudawla, I.P.S.,
ADGP / Director,
Tamil Nadu Fire and Rescue Services,
No. 17, Rukmani Lakshmipathi Salai,
Egmore,
Chennai – 600 008.

To
Thiru. C.N. Raghavendran and
C.R. Arvind,
New No.6, Bishops Garden,
Off. Greenways Road,
Chennai – 600 028.

R.Dis.No.15720/C1/2016 Dated.22.03.2017
PP.NOC.No. 17/2017

Sir,

Sub: Tamil Nadu Fire and Rescue Services Department – Directorate – High Rise Building – Planning Permission NOC requested – Inspection at M/s C.N. Ragavendran & C.R. Aravind, Old Door No.11 G, New No. 13, Mount Poonamallee Road, Nandambakkam, Chennai – 600 069 - Reg.

Ref: 1) Your letter received dated:16.08.2016.
2) The Joint Director, Northern Region, Letter RC.No.2531/C/2016, dated:13.02.2017.

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With reference to the letter cited above, the MSB Inspection committee of Northern Region has inspected the site at M/s C.N. Ragavendran & C.R. Aravind, Old Door No.11 G, New NO. 13, Mount Poonamallee Road, Nandambakkam, Chennai – 600 069 for which NOC has been requested and the committee has made certain observations as regards Fire and Safety, which are reproduced below:-

Observation:

It is a planning proposal and this proposed construction consisting of Basement floor + Stilt Floor + 9 Floors and height of this building is 39.70 m up to terrace level and the plot area is 4000 square meters and the total buildup area is 9742.31 square meters. The building is classified to come under Group E Business Building, Sub Division E - 1 Office Building as per the National Building Code of India Part IV Fire and Life Safety – 2005. The proposal has side set back of 9 m at all around the building. This building does not come under CMDA rejection list.

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 at this building 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 system and sprinkler system an underground static water tank of minimum capacity 2,00,000 liters should be provided with refilling facilities. A terrace level tank of capacity 20,000 liters also should be provided. To charge the wet riser system and the sprinkler system two electrical pumps of capacity 2850 LPM for hydrants and sprinkler system, an equal capacity of a Diesel Pump and an electrical pump of 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
2. Yard hydrants should be provided at all around the building.
3. Fire service inlets fitted with NRV at ground level should be provided.
4. Hose reel assembly should be covering each floor area.
5. Manual Fire alarm call points should be provided at all floors.
6. Automatic sprinkler system should be provided at all floors.
7. Public Address System should be provided connecting all the floors.
8. Automatic detection system and Alarm system to be provided as per NBC.
9. Alternative & Independent power systems should be provided to Fire pumps, Emergency Lighting system and fire lift.
10. Number of ramp and exit location and there width should be conforms to the requirements of National Building Code of India, Second Revision part IV 2005.
11. The staircases shall not be arranged round a lift shaft as per Section 4.9.3 of the requirements of National Building Code of India.
12. Fire escape - Internal staircases and External staircase:

    a) <u>Internal staircases:</u>

    As per clause 4.9.6 of the National Building Code of India part IV Fire and Life safety 2005 - All staircases shall be minimum width for Office Building 1.50m. The minimum width of tread without nosing shall be

300 mm Office 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 Office Building, and the number shall be limited to 15 flights.

b) Fire exit: As per clause 4.2.3 of the National Building Code of India part IV fire and life safety 2005 - 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.

As per 4.2.10 - All exits shall provide continuous means of egress to the exterior of a building or to an exterior open space leading to a street.

As per 4.2.11 - Exits shall be so arranged that they may be reached without passing through another occupied unit.

c) External staircases:

As per clause 4.11.2 of the National Building Code of India part IV fire and life safety 2005 - All external stairs shall be directly connected to the ground.

As per 4.11.3 - Entrance to the external stairs shall be separate and remote form the internal staircase.

As per 4.11.4 - Care shall be taken to ensure that no wall opening or window opens on to or close to an external stairs.

As per 4.11.5 - The route to the external stairs shall be free of obstructions at all times.

As per 4.11.6 - The external stairs shall be constructed of non-combustible materials, and any doorway leading to it shall have the required fire resistance.

As per 4.11.7 - No external staircase, used as a fire escape, shall be inclined at an angle greater than 45°from the horizontal.

d) Fire tower: As per clause 4.13.1 of the National Building Code of India part IV fire and life safety 2005 - In high rise buildings with over 8 story's or 24 m in height, at least one required means of egress shall preferably be a fire tower.

As per 4.13.2 - The fire towers shall be constructed of walls with a 2 h fire resistance rating without openings other than the exit doorways,

with platforms, landings and balconies having the same fire resistance rating.

e) Fire lifts:

As per 4.15.1 - 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.

As per 4.15.2 - In case of fire, only fireman shall operate the fire lifts. In normal course, it may be used by other persons.

As per 4.15.3 - Each fire lift shall be equipped with suitable inter-communications equipment for communicating with the control room on the ground floor of the buildings.

As per 4.15.4 - 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. The applicant should not provide any obstruction like transformer yard, generator, 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.
14. Any Ramp should not be exceed the building line and should not obstruct the side back area at all around the building for the easy movement of an aerial ladder platform vehicle operation during emergency.
15. The First aid firefighting equipment's should be provided at all floors in accordance with the IS 2190: 2010 requirements.
16. 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.

17. 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 air inlets shall be provided at basement floor level land smoke outlets at basement ceiling level. Inlets and extracts may be terminated at ground level with stall board

or pavement lights as before, but ducts to convey fresh air to the basement floor level have to be laid. Stall board and pavement lights should be in positions easily accessible to the fire brigade and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.

- 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 2005. If the travel distance exceeds as per National Building code of India 2005 an additional staircases shall be provided at proper places.
- In multi-storey basements, intake ducts may serve all basement levels, but each basement levels and basement compartment shall have separate smoke outlet duct or ducts. Ducts so provided shall have the same fire resistance rating as the required smoke extraction time for smoke extraction ducts.
- Mechanical extractors for smoke venting system from lower basement levels shall also be provided. The system shall be of such design as to operate on actuation of heat/smoke sensitive detectors or sprinklers, if installed, and shall have a considerably superior performance compared to the standard units. It shall also have an arrangement to start it manually.
- Mechanical extractors shall have an internal locking arrangement, so that extractors shall continue to operate and supply fans shall stop automatically with the actuation of fire detectors.
- Mechanical extractors shall be designed to permit 30 air changes per hour in case of fire or distress call. However, for normal operation, air changes schedule as per National Building code of India 2005.
- Mechanical extractors shall have an alternative source of supply.
- Ventilating ducts shall be integrated with the structure and made out of brick masonry or reinforced cement concrete as far as possible and

when this duct crosses the transformer area or electrical switchboard fire dampers shall be provided.

- 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.

18. Illuminated exit signage's should be provided with alternative source of power supply or battery back – up with "GLOW TYPE".
19. Fire lift, Electrical Installation and Wiring, AC Duct & other Service Ducts should meet the requirements of NBC of India, Part 4, Second Revision 2005.
20. 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.
21. 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 area. 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.
22. The Service ducts such as power cables, communication cables, A/C ducts etc. should be protected with proper fire sealing/fire dampers.
23. 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.
24. Fire Resistant and Low Smoke Emission Cable should be used.
25. Assembly points should be designated at the ground floor as per the requirements of fire and life safety measures.

26. Dos and Don'ts laminated hanging pads should be available in all floors in Prominent places.

27. Evacuation route plan should be displayed in each floor at prominent places.

28. If the construction is done with prefabricated materials, sufficient natural vent/mechanized ventilation system should be provided.

29. 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.

30. Refuge area should be provided as per the requirements of sec 4.12.3 of the National Building Code of India, Part 4, Second Revision 2005.

31. Glass of façade 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. Façade glass at each floor shall have means to open at least 10 percent of the total façade 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.

32. 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 No objection certificate to the proposed building subject to the fulfillment of the above conditions.

2) In view of the above 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, Fire Licence should be obtained to ensure the Fire Safety Measures.

for Director,
Fire and Rescue Services,
Tamil Nadu.

23/3/17 23/3/17 23/3/17

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