GOVERNMENT OF WEST BENGAL
OFFICE OF THE DIRECTOR GENERAL
WEST BENGAL FIRE & EMERGENCY SERVICES
13-D, Mirza Ghalib Street, Kolkata – 700 016.

Memo. No. : WBFES/ 3822/18 /Kol-RB/1038/17(1038/17) Date : 06.07.18

From : **Deputy Director**
Head Quarter
West Bengal Fire & Emergency Services

To : Mr. L.P.Belani
Designated Partner
Nirvana Devcon LLP
8/1,Lalbazar Street,1st Floor Bikaner Building,
Room No-11
Kolkata – 700001

Sub:- Fire Safety Recommendation for the occupancy of Proposed construction of Fire Safety Recommendation for the occupancy of Proposed construction of B+G+XXVIII storied under group Residential Building at the premises no. 257/A, Deshpran Sashmal Road, Ward No. 94, Borough X, under Kolkata Municipal Corporation,P.S-Jadavpur,Kolkata 700 033.

This is in reference to your letter no. NDL/FIRE/NOC-4, date 05.04.2018, regarding Fire Safety measure for the occupancy of Proposed construction of B+G+XXVIII storied under group Residential Building at the premises no. 257/A, Deshpran Sashmal Road, Ward No. 94, Borough X, under Kolkata Municipal Corporation, P.S-Jadavpur,Kolkata 700 033.

The plan drawings submitted by you were scrutinized and marked as found necessary from Fire safety point of view. In returning one set of plan with recommendation, this office is issuing Fire Safety Recommendation in favour of the aforesaid building subject to the compliance of the following fire safety measure. However, necessary sanction and approval for such construction and occupancy must be obtained from competent authorities.

Encl:
1. One set of plan drawings
2. Recommendation.

5/7/18

Deputy Director
HEAD QUARTER
WEST BENGAL FIRE & EMERGENCY SERVICES

RECOMMENDATION

A. CONSTRUCTION :

1. The whole construction of the proposed building shall be carried out as per approved plan drawings conforming the relevant building rules of local Municipal Body (Kolkata Municipal Corporation).
2. The floor area exceeds 750m^2 shall be suitably compartmented by separation walls up to ceiling level having at least two hours Fire resisting capacity.
3. The interior finish decoration of the building shall be made low flame spread materials conforming I.S. specifications.
4. Provision of ventilation at the crown of the central core-duct of the building shall be provided.
5. Arrangements shall have to be made for sealing all the vertical ducts by the materials of adequate Fire resisting capacity.

B. OPEN SPACE & APPROACH :

1. The open space surrounding the building shall conform the relevant building rules as well as permit the accessibility and manoeuvrability of Fire appliance including Aerial ladders with turning facility.
2. The approach roads, internal road/drive way shall be sufficiently strong to withstand the load of Fire Engine weighing up to 45 M.T.
3. The width and height of the access gates into the premises shall not be less than 6 M wide and open to sky respecting abutting the road as shown in plan.

C. MULTIPLEX, TV ROOM,MULTIPURPOSE HALL, COMMUNITY HALL, GYM & ALL ASSEMBLY AREAS:

The doors/aisles/seating arrangement/corridors/Screen/Signage/Fire & Life Safety arrangements and Fire Protection measures shall be made as per provision of N. B. C. - Part-IV, 2016, relevant IS specification as well as the Indian Cinematography Act with up to date amendment.

D. EXIT:

1. No exit door from any occupancy of any floor in a distance is not more than the distance as specified in N. B. C. –Part – IV, 2016. The travel distance to an exit from dead end of a corridor shall not exceed 6 mtr.
2. Exits shall be so arranged that at least two separate exits are available in every floor area. Exits shall be as remote from each other as practicable and so arranged that there are no pockets or dead end occurred in which occupants may be trapped.
3. Every exit door way shall open into an enclosed stairway or a horizontal exit of a corridor.
4. Every room with a capacity of over 45 persons shall have at least two exit ways.

E. STAIRCASE:

1. All principal staircases from ground to top floor shall be pressurized as marked in the plan. A positive pressure of 25-30 pa. shall be maintained inside the staircases. Pressurization shall be maintained round the clock.

2. The staircases of the building shall be enclosed type, entire construction shall be made of brick / R.C.C. type having Fire resisting capacity not less than 4 hours respectively marked in the plan.

3.The staircases of the building shall have permanent vents at the top equal to 5% of the cross sectional area of the staircase enclosures and open able sashes at each floor level equal to 15% of the said cross section are shall have to be provided in the external wall of the building.

4. All the staircase of the building shall be negotiable to each other in each floor without entering into any room and shall be extended up to respective terrace. The roof of the stair wall shall be 1M above the surrounding roof area.

5. The width of the staircases and corridor and travel distance of different categories of occupancies shall have to conform the relevant building rules.

6. Fire and Smoke check doors at each the entrances of all the Staircase enclosures marked in the plan at each floor level shall be provided. The F.C.D. shall be of at least one hour Fire resisting wire glass window fitted with self closing type open able in the direction of escape.

7. Considering the staircases are only means of evacuation, emergency lighting arrangement directional, exit, sign etc. shall be made conforming the relevant I.S. Code in this regards.

F. **LIFT :**

1. The walls of the lift enclosure of the buildings shall be at least two hours FIRE resisting type.
2. All the lifts of the building shall be designed as high speed "Fire Lift" and conspicuously indicated/ marked in the ground floor.
3. One of the lift car of each residential tower shall be large enough to accommodate standard Ambulance Stretcher and Medical Attendants.
4. The Electrical power shall be from separate supply mains in the building and cables run within the lift shafts, light and fans in the lift cars shall be operated from 24 volts supply.
5. Arrangement shall be provided for extraction of smoke in all the lift shaft by incorporation smoke venting system designed to permit 30 Air changes per hour in case of Fire and shall be of such design as to operate on actuation of Sprinkler or Fire Alarm. In case of failure of normal electric supply, it shall automatically trip to alternate supply.
6. Exit doors of each lift shall be through a self-closing F.C.D of 2 hours fire resistance.
7. The speed of the fire lifts in the building shall be such that it can reach the top from the ground floor within 1 minute. Visual indications of floor numbers shall incorporated in the lift cars.
8. All other requirements shall conform the relevant I.S. specification including the communication facility in the lift cars connecting with the Fire Control Room of the building.
9. In case of failure of normal electricity supply, it shall automatically trip over to alternate supply. This changeover of supply could be done through manually operated change over switch. Alternatively, the lift shall be so wired that in case of power failure, it comes down at the ground level and remain stand still with door open.

10. All Lifts & lobbies on the Basement and all floors shall be pressurized. A positive pressure of 25-30 Pa shall be maintained inside the lift well and lobby. Pressurization shall be maintained round the clock.

G. REFUGE AREA:

1. Fire Refuge areas as shown in plan drawings shall be provided on the external wall with cantilever projection or other suitable means at the levels as shown in plan drawings.
2. The refuge areas shall be of Fire resisting construction and protected with self closing F.C.D. at the entrance from the corridor or the staircase lobbies.
3. The position of refuge Areas shall be such that they are negotiable by the Fire service Aerial Ladders from the ground.

H. FIRE FIGHTING WATER :

Underground water reservoirs separately for commercial block and residential blocks having water capacity of not less than 2,00,000 ltr. each, interconnected at the bottom level and Overhead water reservoirs of 25,000 ltr. Capacity on each Residential tower exclusively for Firefighting purpose with replenishing arrangements @ 2000 ltr./min. Preferably from two different sources of water supply shall be provided. The Fire Water Reservoirs shall have overflow arrangement with the domestic Water Reservoir as well as to avoid stagnancy of water. The water reservoirs shall be kept full at all time.

I. HYDRANT SYSTEM :

1. The building shall be provided with Wet Riser of 150 mm internal diameter pipe line with provision of landing valves at the Staircase landings/half landings at the rate of one such riser for 1000 Sq m of floor area. The system shall be so designed that shall be kept charged with Water all the time under pressure and capable to discharge 2850 ltr. /min at the ground floor level outlet and minimum 900 Ltr./min at the top most and farthest outlet. In both cases the running pressure shall not be less that 3.5 Kg./cm^2. All other requirements shall conform I.S. 3844-1989.
2. Provision for Hose Reel in conjunction with Wet Riser shall be made at each floor level, conforming the relevant I. S. Specifications.
3. Yard Hydrant/Ring Main Hydrant with provision of adequate number pillar type Hydrants shall be installed surrounding the residential building in accordance with relevant I.S. specification.
4. Provision of Fire service inlets shall be made as per relevant I.S. specification.

J. SPRINKLER INSTALLATION:

The automatic Sprinkler installation shall be provided in the Basement and all floor areas of the building as per I.S. 9972. Alarm gong to be incorporated along with the sprinkler system.

K. FIRE PUMP :

Provision of the Fire Pumps shall have to be made to supply water at the rate-designed pressure and discharge into the water based system, which shall be installed in the building. A separate and similar pump shall be installed for total sprinkler installation. One number each such pump shall always be kept on Stand- by of diesel driven type for Hydrant and sprinkler system .

Provision of separate Jockey Pumps shall also have to be made to keep the water based suppression system under pressurized condition at all the time. All the pumps shall be incorporated with auto starting facilities with manual operating facility. The suction of pumps shall be of positive type.The number and type and set of pumps shall be as specified in N.B.C Part-4,2016.

Fire Pump Room:

2 nos. separate Fire pump rooms as shown shall be constructed at the level of minus (-) 5.5 m. from 0 level to facilitate positive suction. However, number, type and set of pumps shall be as per with the provision of N.B.C, Part 4,2016.

I. BASEMENT :

1. The Basement shall be adequately ventilated. Automatic venting arrangement as per provisions of N.B.C Part 4 and relevant I.S specification shall be provided.
2. Automatic Mechanical smoke venting arrangements shall be provided to the basement conforming the relevant I.S. Specification and provision of NBC Part IV, 2016.
3. Mechanical extractor shall have an alternate source of supply.
4. Mechanical extractor shall have an internal locking arrangement so that extracting shall continue to operate and supply fans shall stop automatically with the actuation of Fire Detectors / suitable detection system.
5. The exit from the basement shall be on open air and from any points the travel distance shall be as per provisions of N.B.C. Part 4 to reach any exit. Continuation of staircase from the basement to upper floor will not be allowed i.e. the staircase shall be segregated on the ground floor level.
6. The basement shall be protected with auto sprinkler system conforming to I.S. 3844-1989.
7. The staircase of the basement shall be of enclosed type having fire resistance of not less than 2(two) hours and shall be situated at the periphery of the basement to be entered at ground level only from the open air and in such a position that smoke from any fire in the basement shall not obstruct any exit on the upper floor of the building.

M. ELECTRICAL INSTALLATION & DISTRIBUTION :

1. The electrical installation including transformers, Switch Gears, Main & Meters etc. and the distribution system of the premises shall be made satisfying the code of practice for Fire safety in general building as laid down in I.S. specification 1946 – 1982.
2. The vertical ducts shall be sealed at each floor level.
3. The electrical installation shall be adequately protected with automatic Fire detection and suppression system as per relevant I.S. specification.
4. **Alternative Power Supply** :
   Arrangements shall have to be made to supply power with the help of suitable generators to operate at least the Fire Pumps, Pumps for deep Tube-well, Fire Detection and Alarm System, Fire Lift etc. and also for illuminating the Staircase, corridors etc. and other places of assembly of the building in case of normal power failure.

N. DETECTION, ALARM SYSTEM :

1. Addressable analogue manual call boxes incorporating with sounders shall be installed in all floors area of the building in such manner that maximum travel distance shall not to be more than 22.5 mtr. In order to reach any of the call point.
2. Auto fire detection system with the help of Heat and smoke detector as per suitability shall be installed in all places of below and preferably above false ceiling of the building. The system shall also be made in places of rooms where valuable articles have been kept. The other requirements of the system shall be made in accordance with I.S. 2189-1988.
3. Hooters will be sounded in such a manner so that an operation of a Detector or Manual Call Point Hooters will sounded on the same floor and immediate alternate floor.
4. Micro Processor based fire alarm panel shall be installed and all shall also be connected with main panel at the Fire Control Room of the premises having direct dialing facility to the local fire service unit.
5. Both way public address systems shall be made available in all floors of the building. The system shall be connected to the Main Control Room.
6. All the installations shall also satisfy the I.S. specifications 2189 (as amended) and the code of practice as laid down in the N.B.C. Part-IV.
7. **Public Address System** :-
   Public address system linked between all floors and Control Room shall have to be established.

O. AIR CONDITIONING SYSTEM: (If any)

1. The A.H.U. shall be separated for each floor with the system Air Ducts for individual floors.
2. Arrangement shall be made for isolation at the strategic locations by incorporating auto dampers in the Air Conditioning system.
3. The system of auto shut down of A.H.U. shall be incorporated with the auto detection and alarm system.
4. The air handling unit room shall not be used for storage of any combustible materials.

P. Automated Multi layer Mechanized Car Parking System:

- **Structural design:-** The M.L.C.P. shall be constructed of structural steel construction.
- **Vertical Deck Separation:-** For M.L.C.P. having Multi Car Parking level, vertical Fire separation between the upper and lower decks by using a non- perforated and non-combustible materials (Structural Steel Plate) shall be provided. This is to minimize direct impingement of flame to the Car in the upper deck and also to prevent dripping of any possible leaking fuel to the lower deck. Proper drainage system shall have to be provided for accidental leaking of oil from the Car and sand bed shall be provided at the Ground level.
- **Fire Engine Access way:-**Access way shall be provided for the Fire Engine to gain access to the car park entrance and exit.
- **Fire Hydrant:-** Fire hydrants are to be provided in accordance with Cl. 4.4.
- **Sprinkler & Detection System:-**Open Modular Type Sprinkler along with detectors shall be provided in all M.L.C.P. areas as per relevant I. S. Specification.
- Cross zone wise Sprinkler system shall have to be implemented.
  Operating System:- Both Mechanical and Manual type operating.

Q. **FIRST AID FIRE FIGHTING SYSTEM :**

First Aid Fire fighting arrangement in the style of placing suitable type of portable Fire Extinguishers, Fire Buckets etc. in all floors and vulnerable locations of the premises shall be made in accordance with relevant I.S. specification.

R. **GENERAL RECOMMENDATIONS :**

1. Fire License shall have to be obtained for proposed storing and processing with L.P.G. (If Any).
2. Special rescue equipment like Smoke Hood, self contained B.A. set, portable lights etc. in adequate numbers shall be made available in the main fire Control Room of the premises.
3. CCTV surveillance system shall be in corporate throughout the whole building.
4. Light protection - Red Light warning system etc. shall be provided at the top of the building as recommended in NBC Part VIII building service section – 2 electrical installations.
5. Lightning Arrester arrangement to be provided at highest altitude of the buildings.
6. Fire Notice for Fire Fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.
7. Floor numbers and directional sign of escape route shall be displayed prominently.
8. The Occupants, employees and security staff of the building shall be conversant with installed Fire Fighting equipments of the building and to operate in the event of Fire and Testing.
9. A Fire Control room including a close circuit T.V system shall have to be installed for continuous monitoring of the building.
10. Arrangement shall be made for regular checking, testing and proper maintenance of all the Fire Safety installation and equipments installed in the building to keep them in perfectly good working conditions at all times.
11. A crew of trained Fireman under an experienced Officer shall be maintained round the clock for safety of the building.
12. Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of building.
13. Each year a certificate is to be obtained from the **Director General, West Bengal Fire & Emergency Services** certifying about the satisfactory services, performance of all the Fire and life Safety arrangements and installation of the building.

On compliance of all the above Fire safety recommendations, the **Director General, West Bengal Fire & Emergency Services** shall be approached for necessary inspection and testing of the installation, Fire Safety Certificate in favour of the occupancy shall be issued on being satisfied with the tests and performances of safety aspects of installation of the building.

N.B.: Any deviation and changes in construction and the nature of use of the building in respect of the approved plan drawing, without obtaining prior permission from this office, this Fire safety recommendation shall be treated as cancelled.

5/7/18

Deputy Director
HEAD QUARTER
WEST BENGAL FIRE & EMERGENCY SERVICES