



Government Of West Bengal
Office Of The Director General
West Bengal Fire & Emergency Services
13D, Mirza Ghalib Street, Kolkata - 16

Memo no.:FSR/0125186218700933

Date: 27-12-2021

From:
Director
Fire Prevention Wing,
West Bengal Fire & Emergency Services

To: MACFARLANE AND CO LIMITED
9/1, R.N MUKHRJEE ROAD, KOLKATA 700001

Sub: Fire Safety Recommendation for a Proposed construction of G+XII storied under group Residential Building in the name of MACFARLANE AND CO LIMITED At the premises 18 Radhanath chowdhury lane WARD NO- 58, BOROUGH – VII Entally, Kolkata -700015.

This is in reference to your application no. 0125186218700933 dated 28-10-2021 regarding the Fire Safety Recommendation for a Proposed construction of G+XII storied under group Residential Building in the name of MACFARLANE AND CO LIMITED At the premises 18 Radhanath chowdhury lane WARD NO- 58, BOROUGH – VII Entally, Kolkata -700015.

The plan submitted by you was scrutinized and marked as found necessary from Fire Safety point of view. In returning one set of plan with recommendation, this is issuing Fire Safety Recommendation in favor of the aforesaid building subject to the compliance of the following fire safety measure.

Recommendation:

1. REFUGE AREA:

1. Two (2) nos Fire Refuge Area shown at the level +24.7 mtr & area shown 15.54 sq mtr each, enclosed with FCD.
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 landings.
3. The position of refuge Areas shall be such that they are negotiable by the Fire service Aerial Ladder from the ground floor.

2. CONSTRUCTION:

1. The whole construction of the proposed Residential complex shall be carried out as per approved plan drawings conforming the relevant building rules of local Municipal Body / competent authority.
2. The floor area exceeds 750m² 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 of all the vertical & horizontal ducts by the materials of adequate Fire resisting capacity at each floor.

3. 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 / driveway and dedicated clear open space for Fire Service Aerial Ladder of areas as shown 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 gate into the premises shall not be less than 5M & 5.5 M respecting the abutting road.

4. STAIRCASE:

1. 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.
2. 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.
3. 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.
4. The width of the staircases and corridor and travel distance of different categories of occupancies shall have to conform the relevant building rules.
5. 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.
6. 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 regard.

5. 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.

7. LIFT:

1. The walls of the lift enclosure of the buildings shall be at least two hours FIRE resisting type as pre-existing norms and provision of NBC Part IV, 2016.
2. The lift of the buildings shall be designed at high speed "Fire Lift" and shall be conspicuously indicated / marked.
3. The Electric power shall be from separate supply mains in the building and cables run with in the lift shafts, light and fans in the lift cars shall be operated from 24 volts, supply on emergency in case of failure of normal power supply lift shall automatically trip over alternate power supply.
4. 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.
5. Exit doors of the lift lobby shall be through a self- closing smoke stop door of 1 hour fire resistance for Residential Towers.
6. 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 in

visual indications of floor numbers shall incorporated in the lift cars.

7.All other requirements shall conform the I.S. specification including the communication facility in the lift cars connecting to the Fire Control Room of the building.

Multi Layer Automated Mechanized Car Parking System:

1.Structural design: - The M.L.C.P. shall be constructed of structural steel construction.

2.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.

3.Fire Engine Accessway: - Accessway shall be provided for the Fire Engine to gain access to the car park entrance and exit.

4.Fire Hydrant: - Fire hydrants are to be provided in accordance with CI. 4.4

5.Natural Ventilation: -Each car parking deck shall be provided with at least 50% external ventilation openings of the perimeter wall areas and uniformly distributed.

6.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.

7.Cross zone wise sprinkler system shall have to be implemented.

8.Fire Pump: - Separate Jockey and Sprinkler pump of suitable capacity shall have to be installed for the M.L.C.P.

9.Operating System: - Both Mechanical and Manual type operating system shall have to be provided.

9. FIRE FIGHTING WATER:

1.Underground water reservoirs having total water capacity of not less than 1,00,000 (1Lac) ltrs for shall be provided exclusively for firefighting purpose.

2.Overhead reservoir of not less than 20,000 ltrs. Capacity on roof of Residential Block as shown / marked in the plan drawings exclusively for firefighting purpose shall be kept full at all time.

3.The water reservoirs shall have overflow arrangement with the domestic water reservoirs as well as to avoid stagnancy of water.

4.Provision of necessary manhole shall be made on the top of these reservoirs as per specification.

5.Provision of replenishment at the rate of at least 2000 lts./min. from two separate sources of water supply shall be made.

6.The deep tube wells for the replenishment of the reservoirs shall be incorporated with auto starting facility with actuation of auto detection and suppression arrangement of the premises and shall also be connected with dual power supply units.

7.Provision of placing Fire Appliances near the underground water reservoir to be made to draw water in case of emergency.

10. WATER LAYOUT SYSTEM:

1. The buildings shall be provided with Wet Riser for hydrant of 150 mm. internal diameter Pipe Line each 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 lts/min. at the ground floor level outlet and minimum 900 lts/min. at the top most and furthest outlet. In both cases the running pressure shall not be less than 3.5 Kgs/Sq.cm. All other requirements shall be conforming I.S. 3844 – 1989.

2. Provision for Hose Reel units on swivelling drum in conjunction with Wet Riser shall be made near each landing valves.

3. Yard Hydrant / Ring Main Hydrant with provision of adequate numbers of Pillar type Hydrant shall be installed surrounding the buildings in accordance with relevant I.S. specifications.

4. Provision of suitable Fire Service Inlet shall be made as per relevant I.S specification.

11. FIRE PUMP:

Provision of the Fire Pump 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 respective pump room for Residential Towers. One such pump shall always be kept on stand-by of diesel driven type. Provision of separate Jockey Pumps shall also have to be made to keep the Water based suppression systems i.e., hydrant and sprinkler system under pressurized condition at all the time. All the pumps shall be incorporated with both manual and auto starting facilities. The suction of pumps shall preferably of positive type or in case of negative suction the system shall be wet riser-cum-down comer with suitable terrace pump with overhead tank.

Main-2850 LPM

- Jockey for hydrant-180 LPM
- Stand by (Preferably Diesel driven) -2850 LPM

12. SPRINKLER INSTALLATION:

The automatic Sprinkler installation shall be provided in 2nd floor assembly area as per provision of NBC Part – IV, 2016 and relevant I.S. 9972. Alarm gong to be incorporated along with the sprinkler system.

13. ELECTRICAL INSTALLATION & DISTRIBUTION:

1. The electrical installation including transformers, Switch Gears, L. T., H. T. Rooms, panel rooms, 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 & horizontal ducts shall be sealed at all floor level by approved fire resisting materials.
3. The electrical installation shall be adequately protected with automatic fire detection and suppression system as per provision of N. B. C. Part– IV, 2016 and relevant I. S. specification.
4. Alternative Power Supply: Arrangements shall have to be made to supply power with the help of a generator to operate at least the Fire Pump, Pump for deep Tube-well, Fire Detection and Alarm System, signage etc. and also for illuminating the Staircase, corridors etc. and other places of assembly of the building in case of normal power failure.

14. Detection and Alarm System:

1. Manually operated Electrical Fire Alarm system with at least 5 numbers of break glass type call boxes fitted with Hooters along with public address system, at each floor connecting with visual panel board shall be made in Control Room. The Control Room shall be located at the entrance of Ground Floor of the building, other requirements of the system shall be made conforming I.S. 2189 – 1988.
2. Auto fire detection system with the help of heat and smoke detector shall be installed in all 1st floor to 4 th floor all area and rest on corridors including lift lobby for residential area of below and preferably above false ceiling of the building. The other requirements of the system shall be made in accordance with I.S. 2189-1988.
3. Hooter will be sounded in such a manner so that on actuation of a Detector or Manual Call Point Hooters will sounded on the same floor and immediate alternate floor.
4. Smoke detector shall have to be installed in all floor area of the building.
5. Public Address System: -
Public address system shall have to be provided and linked between all floors and Control Room with talk back facility.

Intelligence Analogue System:

1. Auto Fire Alarm System with analogue addressable smoke / Heat detector as per suitability shall be installed in each floor.

2. Addressable analogue manual call boxes incorporating with sounders shall be installed in all floors area of the building in such a manner that maximum travel distance shall not be more than 22.5 mtrs. in order to reach any of the call point.

3. 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.

4. 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.

5. All the installations shall also be satisfying the I.S. specifications 2189 (as amended) and the code of practice as laid down in the N.B.C. Part-IV.

16. 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 units' room shall not be used for storage of any combustible materials.

5. Escape route like staircase, common corridors, lift lobby etc. shall not be used as return air passage.

6. Wherever the ducts pass through Fire wall of floors, the opening around the ducts shall be sealed with Fire resisting materials such as asbestos rope vermiculite concrete etc.

7. The metallic ducts shall be used even for the return air instead of space above the false ceiling.

8. The materials used for insulating the duct system (inside or outside) shall be of non-combustible materials glass wool shall not be wrapped or secured by any materials of combustible nature.

9. Area more than 750 sq. m. on individual floor shall be segregated by a Fire wall and automatic fire damper for isolation shall be provided.

10. Air duct services main floor area, corridors etc. shall not pass through the staircase enclosures.

11. The air handling units shall be separation for each floor, and air ducts for every floor shall be separated and in no way interconnected with the ducting of any other floor.

12. If the air handling units serve more than 1 floor, the recommendation given above shall be complied with in addition to the conditions given below:-

a) Proper arrangements by way of automatic Fire dampers working on fuse able link for isolating all ducting at every floor from the main riser shall be made.

b) When the automatic Fire alarm operates the respective air handling units of the air conditioning system shall automatically switched off.

13. The vertical shaft for treated fresh air shall be of masonry construction.

14. The air filters for air handling units shall be of non-combustible materials.

15. Inspection panel shall be provided in the main trucking to facility the cleaning of ducts of accumulated dust and to obtain access for maintenance of fire dampers.

16. No combustible materials shall be fixed nearer than 15cm to any duct unless such duct properly enclosed and protected with non-combustible materials (glass wool or Spun wool with neoprene facing enclosed and wrapped with aluminium sheeting) at least 3.2m thick. And which would not readily conduct heat.

17. **FIRST AID FIRE FIGHTING SYSTEM:** First Aid firefighting 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 I.S. 2190 – 1992.

General Recommendations:

1 Disposable type B. A. Musk to be kept always for emergency fire situation.

2 Fire Notice for Fire Fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.

3 Floor numbers and directional sign of escape route shall be displayed prominently.

4 The occupants and security staff shall be conversant with installed Fire Fighting equipment's of the building and able to operate in the event of Fire and Testing.

5 Arrangement shall be made for regular checking, testing and proper maintenance of all the Fire Safety installation and equipment's installed in the building to keep them in perfectly good working conditions at all times.

6 A crew of trained Fireman under an experienced officer shall be maintained round the clock for safety of the building.

7 Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of building.

8 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 Life and Fire Safety arrangements and installation of the building.

On compliance of all the above Fire and Life 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 favor 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 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 will be treated as cancelled.

Validity unknown

Digitally signed by ABHIJIT
PANDEY
Date: 2021.12.27 17:31:47 IST

Director
West Bengal Fire & Emergency Services

PS GROUP REALTY PVT. LTD.

Sanjay Kumar Singh
Director / Authorised Signatory