



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

Memo no.:WBFES/5816/Kol-RB/412/07(420/07)

Date: 29-11-2021

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

To: Sri Vivek Kathotia, Director of Analytical Management Consultant Pvt. Ltd.
36A, Panditia Road, Ward No.-85, Borough-VIII, P.S. - Ballygunge, Kolkata-700029

Sub: Revised Fire Safety Recommendation (RFSR) for proposed construction of G+27 Storied under group Residential Building and a Single storied office building Situated at premises No.- 36A, Panditiya Road, Kolkata-700029., Ward No.- 85, Borough- VIII.

This is in reference to your application no. 0125188218700212 dated 22-09-2021 regarding the Revised Fire Safety Recommendation (RFSR) for proposed construction of G+27 Storied under group Residential Building and a Single storied office building Situated at premises No.- 36A, Panditiya Road, Kolkata- 700029., Ward No.- 85, Borough- VIII.

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 office is issuing **Revised Fire Safety Recommendation** in favor of the aforesaid building subject to the compliance of the following fire safety measure.

Recommendation:

A. CONSTRUCTION:

1. The whole construction of the proposed buildings shall be carried out as per approved plan drawings conforming the relevant buildings rules of local Municipal Body.
2. The interior finish decoration of the buildings shall be made of low flame spread materials conforming to I.S. specifications.
3. Provision of ventilation at the crown of the central core-duct of the buildings shall be provided.
4. Arrangements shall have to be made for sealing all the vertical & horizontal ducts by the materials of adequate Fire resisting capacity & the doors of service ducts / shafts of 2hr. Fire rating.

B. OPEN SPACE & APPROACH:

1. The open spaces surrounding the buildings shall conform the relevant building rules as well as permit the accessibility and manoeuvrability of Fire Appliances with turning facility.
2. The approach road shall be sufficiently strong to withstand the load of Fire Engine weighting up to 45 M.T.
3. The width and height of the access gates into the premises shall not be less than 4.5 and 5 M respecting abutting the road.
4. The Drive way as shown/approved shall be free from any obstruction for free movement of Fire Service Vehicle.
5. The FCDs Shall have to be provided as shown or marked or as per NBC Part IV 2016.

C. STAIRCASE:

1. All the principal staircases as shown or marked in the approved plan drawing from ground to top floor shall be pressurized. A positive pressure of 25-30 Pa. shall be maintained inside the staircases.
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. 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 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 regards..

D. LIFT:

1. The walls of the lift enclosure of the building shall be at least two hours FIRE resisting type and lift shaft shall be pressurized as pre-existing norms and provision of NBC Part IV, 2016
2. All the lifts of the building shall be designed as 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 the all 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. Visual indications of floor numbers shall be incorporated in the lift cars.
7. All other requirements shall conform relevant I.S. specification including the communication facility in the lift cars connecting to the Fire Control Room of the building.
8. All lift shaft and lift lobby and all staircases shall have to be pressurised which shall facilitate the pressurisation mechanism inside the places as stated round the clock or as per NBC 2016

E. REFUGE AREA and floor :

1. The Refuge areas/ at floor level shall be provided on the external wall as cantilever projection for Residential Buildings as shown in plan drawings not less than 15 Sq. mtr. area or as shown or marked at the designated level as shown / marked in the plan.
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.

F. FIRE FIGHTING WATER:

Under Ground Water Reservoir of 200,000 ltrs capacity and intermediate fire tank of 100000 liters at 16th floor level and Over Head Water Reservoir of 20,000 Ltrs capacity exclusively for Fire Fighting purpose with replenishing arrangements @2000 ltrs/min. preferably from two different sources of water shall have to be provided. The water reservoirs shall have overflow arrangement with the domestic water reservoir as well as to prevent stagnancy of water. The water reservoirs shall be kept full at all time.

G. WATER LAYOUT SYSTEM:

1. The building shall be provided with separate Wet Risers in two stages for sprinkler & hydrant of 200mm and 150 mm. internal diameter Pipe Line respectively for stage 1st (from ground floor to 15th floor level) and 2nd stage from intermediate fire pump provided at elevated level (from 16th to top floor level) 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 farthest 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. Intermediate fire pumps (Jockey, main ,stand by and sprinkler) shall have to be provided at the elevated level as shown or marked in the plan drawing
3. Provision for Hose Reel units on swiveling drum in conjunction with Wet Riser cum down comer shall be made near each landing valves.
4. Yard Hydrant / Ring Main Hydrant 150mm with provision of adequate numbers of Pillar type Hydrant shall be installed surrounding the building in accordance with relevant I.S. specifications.
5. Provision of suitable Fire Service Inlet (four way) shall be made as per relevant I.S specification.

H. FIRE PUMP:

1. 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 respective pump room for Residential building.
2. One such pump shall always be kept on stand-by of diesel driven type.
3. Provision of separate fire pump for sprinkler system in zone wise as in case of hydrant recommended above shall have to be made to keep the Water based system under pressurized condition at all the time and shall be installed.
4. Provision of separate Jockey Pumps shall also have to be made to keep the Water based suppression systems i.e. hydrant and sprinkler system separately 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. The Fire Pumps shall be multi stage and multi outlet creating pressure zones. The Number and type of fire pumps shall be as per provision of N. B. C. Part – IV, 2016.

I. Sprinkler Installation:

The automatic Sprinkler installation shall be provided in all floor areas of the Residential Building including inside the tenement as per provision of NBC Part – IV, 2016 and relevant I.S. 9972. Alarm gong to be incorporated along with the sprinkler system.

J. 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 buildings as laid down in I.S. specification 1946 – 1982.

2. Electrical distribution system shall conform all the requirements as laid in I. S. 1646-1982.

3. The electrical installation shall be adequately protected with automatic CO2/D.C.P.

4. All electrical installation viz. Transformer Switch Gear L. T., H. T. rooms shall be protected with both auto detection and suppression systems as per suitability.

K. 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 Alarm System, etc. and also for illuminating the Staircase, corridors etc. and other places of assembly of the buildings in case of normal power failure.

L. INTELLIGENCE ANALOGUE SYSTEM:

1. Auto Fire Alarm System with analogue addressable smoke / heat detectors as per suitability shall be installed in all floor area of the residential building along with podium including electrical shaft.
2. All floors shall have to be provided with detection system as per feasibility in accordance with prevailing relevant rules.
3. 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 m in order to reach any of the call point.
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 & talk back systems linked between all floors and Control Room. Shall have to be established.
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, 2016. 6. C. C. Camera & Public Address System :- Public address system linked between all floors and Fire Control Room shall have to be established. Fire Control Room: i. A well designed Fire Control Room with C.C.T.V. and Fire Control Panel and monitoring 24X7. Preparation of Emergency Evacuation: ii. There is need to have a clear policy and proper implementation of emergency evacuation measures.

M. AIR CONDITIONING SYSTEM: (If any)

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

- The system of Auto shut down of A.H.U. shall be incorporate with the auto detection and alarm system.
- Escape route like staircase, common corridors lift lobby etc. shall not be used as return air passage.
- The A.H.U. room shall not be used for storage of any combustible materials.
- Arrangements shall be made for isolation at the strategic location by incorporating auto dampers in the Air Conditioning System.
- Wherever the ducts pass through Fire Wall of Floors, the opening around the ducts shall be sealed with fire resisting materials such as asbestos etc.
- The metallic ducts shall be used even for the return air instead of space above the false ceiling.
- The material used for insulating the duct system (inside or outside) shall be of non-combustibl materials .Glass wool shall not be wrapped or secured by any materials of combustible nature . If the air handling unit serve more than one floor, the recommendation given above shall be complied with in addition as below:---

- (a) proper arrangement by way of automatic fire dampers working on fusible link for isolating all ducts at every floor from main riser shall be made.
- (b) The vertical shafts for treated fresh air shall be of masonry construction.
- (c) The air filter for A.H.U. shall be of non-combustible materials.
- (d) The A.H.U. room shall not be used for storing any combustible material.
- (e) Inspection panel shall be provided in the main trunk to facilitate the cleaning of ducts of accumulated dust and to obtain access for maintenance of fire dampers.

FIRE DAMPER:--

- Fire dampers shall be located in conditional air ducts and return air ducts/passage at the following points:--

- 1)at the fire separation wall.
- 2) there ducts/passage enter the central vertical shaft.
- 3) where the ducts pass through floors.
- 4) at the inlet of supply air duct and the return air duct of each compartment in every floor.
- 5) The damper shall operate automatically and shall simultaneously switch off the air Handling fans. Manual operation facilities shall also be provided.
- 6) Automatic Fire Dampers Shall be so arranged so as to close by gravity in the direction of air movement and to remain rightly closed open operation of a fusible link.

N. FIRTAID 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, basements and vulnerable locations of the premises shall be made in accordance with I.S. 2190-92.

O. Fire Officer:- A qualified Fire Officer with Experience of not less than 3 years shall be appointed who will be available on the premises.

- Shall Maintain the firefighting equipment in good Working condition at all time.
- Shall prepare fire order and fire operational plans and get them promulgated.
- Shall impart regular training to the occupants of the building in the use of fire fighting equipments provided in the premises and keep them informed about the fire emergency evacuation plan.
- Shall proper liason with the city Fire Brigade.
- Shall ensure that fire precautionary measures are observed at the times.

P. Additional recommendation for MLCP within the premises:-

- 1) Car Park means: A building that is used for the parking of motor vehicles but is neither a private garage nor used for the servicing of vehicles, other than washing, cleaning or polishing.
- 2) All floors of the MLCP shall have to provided with Auto-sprinkler System
- 3) At all floor level of MLCP at prescribed distance arrangement of Landing Valve and Hose Reel Hose shall have to be provided.
- 4) All floors of the MLCP shall have to be provided with heat detectors or as per admissibility in accordance with relevant rules.
- 5) All the Entry exit of the staircases on the MLCP shall have to be provided with FCD as per Specification.
- 6) For Storage of waste water, a sump with its accessories to drain out used water shall have to be provided.
- 7) Proper Signage System for Entry and Exit shall have to be provided.
- 8) An Ordinary Hazard 2 (OH2) category sprinkler system which may exceed the performance of the OH2 category sprinkler system, (ie 5 mm/m over 144m²). Therefore, the appropriateness of the sprinkler system, in terms of the schematic design, sprinkler spacing and locations, sprinkler spray technology and hydraulic requirements should be designed to the specific vehicle storage arrangement.
- 9) It may be an appropriate strategy to consider the use of a single sprinkler head located at high level (ie just beneath the ceiling/roof) to activate all the sprinkler heads covering a column of cars. This may obviate the potential problems of sprinkler heads at lower level not being activated by the fire plume if not located directly in the path of hot rising fire gases, or being affected by the cooling action of the spray from other sprinklers if it is not activated prior to other sprinklers at higher level. Similarly, fire hydrant system performance should also be validated given the potential for a multiple vehicle fire.
- 10) Vertical Openings in Enclosed Parking Structures.
 - (A) Vertical openings through floors in buildings four stories or more in height shall be enclosed with walls or partitions having a fire resistance rating of not less than 2 hours.
 - (B) Ramps in enclosed parking structures, shall not be required to be enclosed when either of the following safeguards is provided: (a) An approved, automatic sprinkler system fully protecting the parking structure (b) An approved, automatic, supervised fire detection system installed throughout the parking structure using detectors sensing products of combustion other than heat and a mechanical ventilation system in accordance with the Specification
 - (C) Openings in Fire Walls and Fire Partitions
 - (A) Doorways and other openings in fire walls and fire partitions shall be protected with approved fire doors installed in accordance with IS Specification of Standard for Fire Doors and Fire Windows.

(B) Where ducts pass through fire walls or fire partitions, the openings shall be protected in accordance with Specification of , Standard for the Installation of Air Conditioning and Ventilating Systems

(D) Floors:-

(A) Floor surfaces shall be of noncombustible material.

(B) Where combustible construction is permitted, floor surfaces shall be noncombustible and liquid tight.

(C) Asphalt shall be permitted on grade.

(D) Floors shall be graded and equipped with drains.

(E) Floors in areas of parking structures where motor fuels are dispensed shall be designed in accordance with Specification of Automotive and Marine Service Station Code.

Q. Public Address System and Talk back system :

Public address system linked between all floors and control Room shall have to be established.

R. GENERAL RECOMMENDATIONS:

1. Fire Notice for Fire Fighting and evacuation from the buildings shall be prepared and be displayed at all vulnerable places of the buildings.
2. Disposable type B. A. Musk to be kept always for emergency fire situation.
3. Fire Notice for Fire Fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.
4. Floor numbers and directional sign of escape route shall be displayed prominently.
5. The occupancy and security staff shall be conversant with installed Fire Fighting equipments of the buildings and to operate in the event of Fire and Testing.
6. Arrangement shall be made for regular checking, testing and proper maintenance of all the Fire Safety installation and equipments installed in the buildings to keep them in perfectly good working conditions at all times.
7. A crew of trained Fireman experienced officer shall be maintained round the clock for safety of the buildings.
8. Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of buildings.
9. The certificate has 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 buildings.

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 favour of the occupancy shall be issued on being satisfied with the tests and performances of safety aspects of installation of the buildings.

N.B. : Any deviation and changes the nature of use of the buildings in respect of the approved plan drawings, without obtaining prior permission from this office, this Fire Safety Recommendation will be treated as cancelled.

Signature Not Verified
Digitally signed by ABHIJIT
PANDEY
Date: 2021.11.29 13:25:21 IST

Director
West Bengal Fire & Emergency Services

Memo No.: WBFES/5816/KOI-RB/412/07(420/07)