



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

Memo no.:FSR/0125186201202388

Date: 30-10-2020

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

To: Usshar By Riverbank Developers Pvt. Ltd.
225C, AJC Bose Road, 4th Floor, Kolkata-700020

Sub: Fire Safety Recommendation for the occupancy of proposed 3 Nos. of B+G+XXXI Storied (TOWER- I , II & XII) and 01 No. B+G+III storied MLCP (PODIUM) under group residential Building Namely " USSHAR" by " RIVERBANK DEVELOPERS PVT LTD" Within calcutta Riverside project at the Premises No. 1, NEW BATA ROAD, BATANAGAR,WARD NO- 27 & 28, UNDER MAHESHTALA MUNICIPALITY, KOLKATA -700140.

This is in reference to your application no. 0125186201202388 dated 05-10-2020 regarding the Fire Safety Recommendation for the occupancy of proposed 3 Nos. of B+G+XXXI Storied (TOWER- I , II & XII) and 01 No. B+G+III storied MLCP (PODIUM) under group residential Building Namely " USSHAR" by " RIVERBANK DEVELOPERS PVT LTD" Within calcutta Riverside project at the Premises No. 1, NEW BATA ROAD, BATANAGAR,WARD NO- 27 & 28, UNDER MAHESHTALA MUNICIPALITY, KOLKATA -700140.

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:

CONSTRUCTION:

- The whole construction of the proposed buildings shall be carried out as per approved plan drawings conforming the relevant building rules of local Municipal Body.
- The floor area exceeds 750m² shall be suitably compartmented by separation walls up to ceiling level having at least two hours Fire resisting capacity.
- The interior finish decoration of the building shall be made low flame spread materials conforming I.S. specifications.
- Provision of ventilation at the crown of the central core-duct of the building shall be provided.
- Arrangements shall have to be made for sealing all the vertical ducts by the materials of adequate Fire resisting capacity.

OPEN SPACE & APPROACH:

- The open space surrounding the building shall conform the relevant building rules as well as permit the accessibility and

maneuverability of Fire appliance with turning facility.

- 2.The approach roads shall be sufficiently strong to withstand the load of Fire Engine weighting up to 45 M.T.
- The width and height of the access gates into the premises shall not be less than 4.5M and 5 M respecting abutting the road.
- Drive way shall be free from any obstruction. No parking will be allowed on the Drive Way.

STAIRCASE:

- Pressurized Staircase from Ground to top Floor level shall be pressurized as marked or approved in the plan drawing. A positive pressure of 25-30 Pa shall be maintained in the Staircase. Pressurization shall be maintained round the Clock.
- The staircase of the building shall be enclosed type. Entire construction shall be made of bricks/R.C.C. type having Fire resisting capacity not less than 4 hours.
- The staircase of the building shall have permanent vents at the top equal to 5% of the Cross Sectional Area of the Staircase enclosure and openable sashes at each floor level equal to 15% of the said cross sectional area shall have to be provided in the external wall of the building and open able sashes will be in the external wall of the building
- The width of the staircases shall be made as marked/approved in the plan. Corridors and the exit Doors shall conforming the relevant Building Rules as well as rules of the Cinematograph Act. With up-to- date amendments.
- The entire staircase shall be extended up to terrace of the building and shall be negotiable to each floor level without entering into any room. The roof of the Stair wall shall be Min. 1 M above the surrounding roof Area.
- Fire and Smoke doors at the entrances of all the Staircase enclosures as marked/approved in the plan at each floor level shall be provided. The F.C.D. shall be of at least one 02 hours Fire resisting wire glass window fitted with self closing type open able in the direction of escape.
- Considering the staircase are only means of evacuation, Emergency Lighting Arrangement, Directional & Exit signage Etc. shall be made conforming the relevant I.S. Code in this regard

LIFT:

- The walls of the Lift Enclosure of the building shall be at least two hours Fire Resisting Type respectively marked/as approved in the plan drawing with the vent at top of area not less than 0.2 Sq M.
- The Lift of the Building shall be designed at high speed FIRE LIFT and conspicuously indication to be pasted.
- One of the lift car of the Building shall be large enough to accommodate standard Ambulance Stretcher and Medical Attendants.
- In case of Failure of Normal Electric Supply, it shall automatically trip over to alternate supply. Alternatively , the lift shall be so wired that in case of power failure , it comes down at the ground floor level land stand still with door open.
- Arrangement shall be provided for extraction of smoke in all the lift shaft by incorporating smoke venting system designed to permit 12 ACPH in case of fire and shall be of such designed to operate on actuation of sprinkler and/or Fire Alarm. In case of failure of normal electric supply. It shall automatically trip to alternate supply.
- Exit from Lift Lobby shall if located in the core of the building shall be through Self-Closing FCD of two hours Fire Resisting.
- The speed of the fire lift car in the building shall be such that it can reach the top from the ground within one Minute and visual indication of floor numbers shall be incorporated in the lift Car.
- All other requirements shall conform the I.S. Specification including the communication facility in the lift cars connecting to the Fire Control Rooms of the Building.
- The walls of the lift enclosure shall be at least two hours Fire resisting type. Collapsible gate shall not be permitted.

Refuge Area :

- Refuge Area shall not be less than 15 Sq M on the external wall with cantilever projection at the designated height as per NBC Part-IV 2016
- The refuge area shall be of Fire Resisting Construction and protected with Self Closing FCD at the entrance from the Staircase shaft.
- The projected refuge area shall be surrounded by 1 M high wall and opening to the refuge area from utility or any utility

shall not be allowed.

- There shall be marked an area 9*12 below each refuge platform.

Basement :-

- Mechanical Extractor shall have alternate source of supply.
- Mechanical Extractor shall have inter-locking Arrangement so that extracting shall continue to operate and supply fans shall stop automatically with the Actuation of Fire Detector(s).
- Mechanical Extractor shall be designed to permit 12 ACPH in case of Fire or distress call.

FIRE FIGHTING WATER:

- Under Ground Water reservoir Having Water Capacity at 500000 Lts & Overhead reservoir of 25000Lts. Capacity exclusively for Firefighting purpose with replenishing arrangements @ 2000 Lts. /min. preferably from two different sources of water supply shall be provided. The Fire water Reservoir shall have overflow arrangement with the domestic water Reservoir as well as to avoid stagnancy of water. The water reservoir shall be kept full at all time.

HYDRANT SYSTEM:

- The building shall be provided with Wet Riser of 200 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 lts/min at the ground floor level outlet and minimum 900 Lts/min at the top most outlets. In both cases the running pressure shall not be less than 3.5 Kgs/Cm². All other requirements shall conform I.S. 3844-1989.
- Provision for Hose Reel in conjunction with Wet Riser shall be made at each floor level. Conforming the relevant I.S. Specifications.
- Provision of standard Hose Reel Hose supplied from the overhead reservoir through Booster Pump shall have to be made in all the floor of the building satisfy the code of I.S. 3844-1989.
- Yard Hydrant / Ring Main Hydrant (200 MM dia piping) with provision of Adequate Hydrant shall be installed surrounding the building in accordance with relevant I.S. Specification.
- The Wet Riser installation shall be made in reference to the height of the building in stage wise distributions.

- First Stage Basement to 10th floor 200 mm Dia twin hydrant outlet and second stage 11th floor to 20th and third stage from 21st to top floor 150 MM dia twin hydrant Opt.

- Nos. of Fire Pumps and capacity of Fire Water Reservoir shall be according to Table -7 and see note 10, 11 23 and 24

SPRINKLER INSTALLATION:

- The automatic Sprinkler installation shall be provided at all floor areas of the building as per I.S.9972. Alarm gang to be incorporated along with the sprinkler system.

- Separate Wet Riser are preferable to be provided with other accessories at all floor level in order to maintain designated pressure.

- The sprinkler arrangement shall be laid out in separate riser 100 mm dia and zone-wise distribution

FIRE PUMP:-

- There shall have to provide two series of fire pumps.
- 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 building. One such pump shall always be kept on Standby preferably be

of diesel driven type.

- A Separate Fire Pump shall be made for the total Sprinkler Installation of the building. Provision of Jockey Pump shall also have to be made to keep the Water based 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.

DETECTION, ALARM AND SUPPRESSION SYSTEM:-

- Manually operated Electrical Fire Alarm system with at least three numbers of break glass type call boxes fitted with Hooters along with public address system, talk back system at each floor connecting with audio-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.
- Auto Fire Detection System (Analogue Addressable) with the help of Flint and smoke detector 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 system shall be made in accordance with I.S 2189-1988.
- The Suppression system shall be made with Fire Extinguishers and total flooding system with CO2/F.M.-200 particularly in computer and Electrical processing and data room and in a room of irreplaceable articles.
- Hotter 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.

INTELLIGENCE ANALOGUE SYSTEM:

- Auto Fire Alarm System with Analogue addressable smoke/heat detector as per suitability shall be installed in each floor.
- 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.
- 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.
- 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.
- All the installations shall also be satisfy the I.S. Specifications 2189 (as amended) and the code of practice as laid down in the N.B.C. Part-IV.

Public Address System:

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

ELECTRICAL INSTALLATION & DISTRIBUTION:

- 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.
- The vertical ducts shall be supply sealed at alternative floor level.
- The electrical installation shall be adequately protected with CO2/D.C.P. or Medium Velocity / Projector system.
- 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, 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.

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.

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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 I.S. 2190-1992.

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

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.

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.

Public Address System :-

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

FIRSTAID FIRE FIGHTING SYSTEM:

o 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. 2190-92.

(N) GENERAL RECOMMENDATIONS:

- Fire License shall have to be obtained for proposed storing and processing with L.P.G. and other highly combustible articles.
- Fire Notice for Fire fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.
- Floor numbers and directional sign of escape route shall be displayed prominently.
- The employees and security staff shall be conversant with installed Fire Fighting equipments of the building and to operate in the event of Fire and Testing.
- 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.
- Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of building.

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 installations 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, F. S. C. 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 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.

Memo No.:FSR/0125186201202388

Director
West Bengal Fire & Emergency Services