

Government of West Bengal
Office of the Deputy Director, West Zone
West Bengal Fire & Emergency Services
430 G.T. Road, Howrah- 1

Memo no- WBFES/DY.DFS-WZ/ FP/ 842 / 16 /HWH/ R.B./ 22 /12

Date 5/2/16

**From : The Director ,
West Bengal Fire & Emergency Services.**

**To : The Authorized Signatory,
ZOOM VANIJYA PVT LTD,
166 B , S.P.Mukherjee Road ,
Kolkata- 26**



Sub: Revised Fire & Life Safety Recommendation. for proposed construction of B + G+ X II storied under group residential building comprising 02 nos Block, Block -2 & 3 and G+ XII storied under group residential building comprising 02 nos Block, Block 1 & 4. at the premises no 40 , Swarnamoyee Road , P.S.- Shibpur , H.M.C.ward no. - 39 , Dist. - Howrah .

This is in reference to your letter No e-rkd / MWF/ fire/jan'16/1 .dated 07/01/16 regarding revised Fire & Life Safety Recommendation . for proposed construction of B + G+ X II storied under group residential building comprising 02 nos Block, Block -2 & 3 and G+ XII storied under group residential building comprising 02 nos Block, Block 1 & 4. at the premises no 40 , Swarnamoyee Road , P.S.- Shibpur , H.M.C.ward no. - 39 , Dist. - Howrah .

The revised plan drawing 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 issuing revised Fire Safety Recommendation in superseding all earlier recommendations which were issued vide this office memo no WBFES/ Dy.DFS - WZ / F.P./651/12 dated 29/02/12 , WBFES/ Dy.DFS - WZ / F.P./588/13 dated 23/07/13 & WBFES/ Dy.DFS - WZ / F.P./1070/13 dated 30/12/13 in favour of the aforesaid building subject to compliance of the following fire safety measures.


Director

West Bengal Fire & Emergency Services

Encl :

1. One set of plan.
2. Recommendation

RECOMMENDATIONS



A. CONSTRUCTION

1. The whole construction of proposed building shall be carried out as per approved plan drawings conforming the relevant building rules of Kolkata Municipal Corporation.
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. specification.
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:

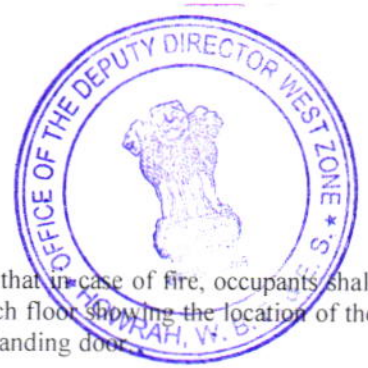
1. The open space surrounding the building shall conform the relevant building rules as well as permit the accessibility and maneuverability of Fire appliances with turning facility.
2. The approach roads shall be sufficiently strong to withstand the load of fire engine weighting upto 45 M.T
- ✓ 3. The approach road and internal drive ways and the circulation space always kept free from any obstructions.
- ✓ 5. The width & Height of the access gates into the premises shall not be less than 5.0 M & 5.0M respecting abutting road.

C. STAIRCASE

1. 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 hrs.
2. The staircase of the building shall have permanent vents at the top and openable sashes at each floor level in the external wall of the building.
3. The width of the staircases shall be made as marked in the plan. Corridors and the exit doors shall conforming the relevant building rules and as well as rules of the cinematograph Act with upto date amendments.
4. All the staircase shall be extended up to terrace of the building and shall be negotiable to each other without entering into any room.
5. Fire and smoked doors at the entrances of all the staircases enclosures as marked in th 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 openable in the direction of escape.
- ✓ 6. Internal staircase shall be made pressured type as marked in the plan drawing of block - 4 only. The mechanism for pressurizing the staircase shaft shall be so installed that the same shall operate automatically on fire alarm system/sprinkler system and be provided with manual operation facilities

D. LIFT

- ✓ 1. Walls of lift enclosures shall have a fire rating of two hours. Lift shafts shall have a vent a the top of area not less than 0.2 sq m.
2. The Lift of the building shall be designed at high speed "FIRE LIFT" and conspicuously indicated at each floor.
- ✓ 3. Lift motor room shall be located preferably on top of the shaft and separated from the shaft by the floor of the room.
- ✓ 4. Landing door in lift enclosures shall have a fire resistance of not less than one hour.
5. The number of lifts in one lift bank shall not exceed four. A wall of two hours fire rating shall separate individual shafts in a bank.
- ✓ 6. Lift car door shall have a fire resistance rating of 1 hour.
7. Collapsible gates shall not be permitted for lifts and solid doors with fire resistance of at least one hour shall be provided.
- ✓ 8. If the lift shaft and lobby is in the core of the building a positive pressure between 25 and 30 pa shall be maintained in the lobby and a possible pressure of 50 pa shall be maintained in the lift shaft. The mechanism for the pressurization shall act automatically with the fire alarm/sprinkler system and it shall be possible to operate this mechanically also.
- ✓ 9. Exit from the lift lobby, if located in the core of the building, shall be through a self-closing fire smoke check door of one-hour fire resistance.
- ✓ 10. Lift shall not normally communicate with the basement. If however, lifts are in communication, the lift lobby of the basement shall be pressurized as per N.B.C. part - IV with self closing door .
- ✓ 11. Grounding switch (es), at ground floor level shall be provided to enable the fire service to ground the lifts.
- ✓ 12. Telephone/talk back communication facilities may be provided in lift cars for communication system and lifts shall be connected to the fire control room of the building.
- ✓ 13. Suitable arrangements such as providing slope in the floor of the lift lobby shall be made to prevent water used during fire fighting, etc at any landing from entering the lift shafts.



- ✓ 14. A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the location of the stairways. Floor marking shall be done at each floor on the wall in front of the lift-landing door.
- ✓ 15. The electric supply shall be on a separate service from electric supply mains in a building and the cables run in a route safe from fire, that is within a lift shaft. Lights and fans in the elevator having wooden paneling or sheet steel construction shall be operated on 24-volt supply. In case of failure of normal electric supply, it shall automatically switch over to the alternate supply.
- ✓ 16. 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 or arrangement of pressurization system for fire lift well, lobby area by dedicated shaft.
- ✓ 17. The speed of the fire lift shall be such that it can reach to the top floor from ground level within one minute.
- ✓ 18. All other requirements shall conform the I.S. specification including communication facility in the lift cars connecting with the Fire Control Room of the building/buildings.

E. BASEMENT

1. The basement shall be adequately 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 starboard lights or pavement lights or by way of shafts. Alternatively a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level.
- ✓ 2. Inlets and extracts may be terminated at ground level with starboard or pavement lights as before. But ducts to convey fresh air to the basement floor level have to be laid. Starboard and pavement lights should be in positions easily accessible to the firemen and clearly marked "SMOKE OUTLET" or "AIR INLET" with an indication of area served at or near the opening.
- ✓ 3. Staircase from the open air as shown/ marked in the drawing shall be constructed conforming relevant I.S. Specification.
- ✓ 4. The staircase of basement shall be of enclosed type having fire resistance of not less than 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 positions that smoke from any fire in the basement shall not obstruct any exit serving the ground and upper stories of the building and shall communicate with basement through a lobby provided with fire resisting self closing door of one hour rating. In case of basement being used as car parking only, the travel distance shall be 45 m.
5. The basement shall be protected with Auto Sprinklers system
6. Mechanical extractor for Smoke Venting system from basement levels shall also be provided. The system shall be of such design as to operate on actuation of heat/smoke sensitive detector or sprinkling. It shall also have an arrangement to start it manually.
7. Mechanical extractors shall have an alternative source of supply.
- ✓ 8. The system shall be of such design as to operate on actuation of smoke, heat sensitive detectors/sprinklers, , and shall have a considerably superior performance compared to the standard units. It shall also have an arrangement to start it manually.
- ✓ 9. 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, only 30 air changes or any other convenient factor can be maintained.
- ✓ 10. Ventilating ducts shall be integrated with the structure and made out of brick masonry or RCC as far as possible and when this duct crosses the transformer area of electrical switchboard, fire dampers shall be provided.
- ✓ 11. Dewatering pump shall be provided in all basements
- ✓ 12. Basement shall never be used other than car parking.

F. FIRE REFUGE AREA:

- ✓ 1. Refuge area is not less than 15sq.m. shall be provided on the external wall with cantilever projection or other suitable means at 22 M & 34 M height of block 2 & 3 on a of 7th & 8th floor level and at 23.85 M & 25.85 M height of block 1 & 4 at the staircase half landing between 11th & 12th floor as Marked in the drawing.



2. The refuge area shall be of Fire resisting construction and protected with closing F.C.D. at the entrance from the staircase lobbies.
3. The position of refuge Areas shall be such that they are negotiable by the Fire service Ladder from the ground.

G. SERVICE DUCTS/SHAFT

1. Service ducts and shafts shall be enclosed by walls of 2 h, and doors of 1 h, fire rating. All such ducts/shafts shall be property sealed and fire stopped at all floor levels.
2. A vent opening at the top of the service shaft shall be provided having between one-fourth and one-half of the area of the shaft

H. MULTI – LAYER AUTOMATED CAR PARKING SYSTEMM.

1. Structural design.
The M.L.C.P. shall be constructed of structural steel construction. Vertical deck separation for MLCP having multi layer parking level. Vertical fire separation between upper deck & lower deck by using non combustible materials (structural steel plate) shall be provided. this is to minimize direct impingement of flame to the car in upper deck & also to prevent dripping of any possible leaking of fuel to the lower deck.
2. proper drainage system shall have to be provided for accidental leaking of fuel from the car and sand bed shall be provided at the ground level.
3. Fire Engine Access way Shall have to be provided for the fire engine to gain access to the car parking entrance & exit.
4. Fire Hydrant
Fire hydrant are to be provided in accordance with Claus- 4.4 of N.B.C. pt.- IV
5. Natural Ventilation
Each Car parking Deck shall be provided with at least 50% external ventilation opening of the perimeter of the wall areas an uniformly distributed.
6. Sprinkler & Detection System
Open Modular type sprinkler along with detection system shall be provided at MLCP areas as per relevant I.S. specification.
7. Both mechanical & manual type operation shall also to be provided

I. FIRE FIGHTING WATER:

1. Underground water reservoir having water capacity at 2,00,000 ltrs and (overhead reservoir of 20,000Lts Capacity) exclusively for Fire fighting purpose with replenishing arrangements @ 1000lts./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.
2. Underground water reservoir should be provided with suitable numbers of manholes to offer facility to Fire engine to insert the Suction Hose to draw water.
3. The static storage water supply required for the above mentioned purpose should entirely be accessible to the fire tenders. The covering slab shall be able to withstand the vehicular load of 45 tones in case of high rise A draw off connection shall be provided.

J. HYDRANT SYSTEM:

1. The building shall be provided with Wet Riser of 150mm 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 a 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 outlet. in both case the running pressure shall not be less than 3.5kgs/ sq.cm . 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. 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 I.S. 3844-1989.
4. Yard Hydrant /Ring Main Hydrant with provision of adequate numbers Hydrant shall be installed surrounding the building in accordance with relevant I.S. Specification.



K. SPRINKLER INSTALLATION:

The automatic Sprinkler installation shall be provided in entire Basement floor & M.B.C.P floor areas of the building as per I.S. 9972. Alarm gang to be incorporated along with the sprinkler system.

L. FIRE PUMP:

Provision of the Fire Pump shall have to be made near each U.G.W.R 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 Stand-by preferably be of diesel driven type.

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 section the system shall be Wet Riser-cum-Down comer with suitable terrace pump with overhead tank.

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 supply sealed at alternative floor level.

3. The electrical installation shall be adequate protected with CO₂/D.C.P. or Medium Velocity / Projector System

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 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 AND SUPPRESSION SYSTEM:

1. Manually operated Electrical Fire Alarm system with adequate 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.

2. Auto Fire detection system with the help of heat 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 the system shall be made in accordance with I.S. 2189-1988.

3. 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.

4. Hooter will be sounded in such a manner so that an operation of a Detector or Manual Call Point Hooters will sounder on the same floor and immediate alternate floor.

5. Public Address System:

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

O. ILLUMINATION OF MEANS OF EXIT

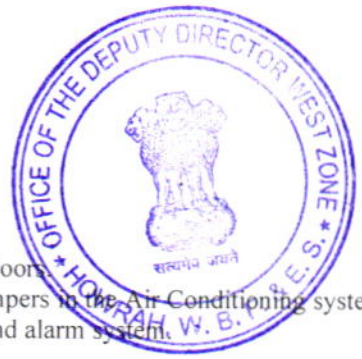
1. The staircase and corridor lighting shall be on separate circuits and shall be independently connected so that it could be operated by one switch installation on the ground floor easily accessible to fire fighting staff at any time irrespective of the position of the individual control of the light points, if any. It should be of miniature circuit breaker type of switch so as to avoid replacement of fuse in case of crisis;

2. Staircase and corridor lighting shall also be connected to alternative supply. The alternative source of supply may be provided by battery continuously trickle charged from the electric mains:

3. Suitable arrangements shall be made by installing double throw switches to ensure that the lighting installed in the staircase and the corridor does not get connected to two sources of supply continuously. Double throw switch shall be installed in the service room for terminating the stand-by supply.

4. Emergency lights shall be provided in the staircase.

5. All wires and other accessories used for emergency light shall have fire retardant property



P. AIR CONDITIONING SYSTEM:

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 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.

Q. FIRST AID FIRE FIGHTING SYSTEM

First Aid Fire fighting arrangement in the style of placing suitable Fire Extinguishers, Fire Buckets etc. in all floors and vulnerable of locations of the premises shall be made in accordance with I.S. 2190-1992.

R. GENERAL RECOMMENDATION:

1. Fire Notice for Fire Fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.
2. Floor numbers and directional sign of escape route shall be displayed prominently.
3. 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.
4. Arrangement shall be made for regular checking, testing and maintenance of all the Fire Safety installation and equipments installed in the building to keep them in perfectly good working conditions at all times.
5. A crew of trained Fireman under the experienced Officer shall be maintained round the clock for safety of the building.
6. Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of building.

On compliance of all 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 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.

Director

West Bengal Fire & Emergency Services