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Government of West Bengal

Office of the Director General

West Bengal Fire & Emergency Services

13D, Mirza Ghalib Street, Kolkata – 16

Memo No.: FSR/221862406300003602 **Date : 18-09-2024**

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

To :
109,506,BARA KHOLA
ARHANT M AGARWAL

Sub: Fire Safety Recommendation for proposed construction of one no. B+G+XVIII storied under group Residential Building at the premises No. – 506, Barakhola, P.S. – Survey Park, Kolkata -700 099.

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Application Reference : KMC (CAF - 2024120149) received on 17-Jun-2024 regarding Fire Safety Recommendation for proposed construction of one no. B+G+XVIII storied under group Residential Building at the premises No. – 506, Barakhola, P.S. – Survey Park, Kolkata -700 099.

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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 Fire Safety Recommendation in favor of the aforesaid building for compliance of the following fire safety measure.

Recommendation :

CONSTRUCTION :
1. The whole construction of the proposed building shall be carried out as per approved plan drawings conforming the relevant buildings rules of KMC.
2. The floor area shall be suitably compartmented by separation walls up to ceiling level having at least two hours Fire resisting capacity as per NBC Part - IV 2016.
3. The interior finish decoration of the building shall be made low flame spread materials conforming I.S. specifications.
4. Arrangements shall have to be made for sealing all the vertical and horizontal ducts, shafts by the

materials of adequate Fire resisting capacity.

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 appliance with turning facility.
2. The approach roads & internal driveway 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 5.0 Mts. and 5.0Mts respecting abutting the road.

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 2 hours.
2. The staircase of the building shall have openable sashes at each floor level on the external wall of the buildings.
3. The width of the staircases shall be made as marked in the plan. Corridors and the exit doors shall conforming the relevant buildings rules with up to date amendment.
4. All the staircases shall be extended up to the terrace of the building and shall be negotiable to each other without entering into any room.
5. Staircases to be pressurized as marked in the plan & pressure difference shall be 50Pa. as per N.B.C. Part – IV 2016.
6. Fire and smoke doors at the entrances of all the staircase enclosures as marked in the plan at each floor level shall be provided. All F.C.D. along with its fittings shall be of at least two hour Fire resisting wire glass window fitted with self-closing type openable in the direction of escape.
7. The firefighting shaft shall necessarily have connectivity directly to exit discharge or through exit passageway (having 120 min fire resistance walls with F.C.D.) to exit discharge.
8. Staircase lobby of a firefighting shaft shall be smoke controlled as marked in the plan.

LIFT :

1. The walls of the lift enclosure shall be at least two hours Fire resisting type. Collapsible gate shall not be permitted.
2. Lift shall be designed as Fire Lift. The word “FIRE LIFT” shall conspicuously written in fluorescent paint on the lift landing doors at each floor level.
3. Fire lift lobby of a firefighting shaft shall be smoke controlled as marked in the plan. Lift lobby of fire fighting shaft at all levels to be pressurized (25-30 Pa)as per N.B.C. Part – IV 2016.
4. Alternate source of power supply shall be provided for all lifts through manually operated change over switch.
5. In case of failure normal electric supply it shall automatically trip over to alter supply.
6. The Speed of the fire lift shall be such that it can reach the top floor from ground level within one minute.
7. Lift communication system shall be provided in the lift and this system shall be connected to fire control room of the buildings.

REFUGE AREA :

1. Refuge area is not less than 15sqm. Shall be provided on the external wall with cantilever projection or other suitable means at 25.028 mtr., 40.278 mtr. and 55.528 mtr. as shown/ marked in the plan.
2. The refuge area 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. Each refuge area shall be ventilated and provided with sprinklers, first aid box, fire extinguishers, public address speaker, fire man talk back, and adequate emergency lighting as well as drinking water facility.
4. The position of Refuge areas shall be such that they are negotiable by the fire service ladder from the ground as marked in the plan.

BASEMENT:

1. The Basements shall be adequately ventilated with aggregate cross sectional area of not less than 2.5% of the total basement floor area.
2. Mechanical extractor for smoke venting system shall be provided for the entire basement areaconforming the I.S. Specification. 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.

3. Mechanical extractors shall have an alternative 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.
5. The staircase of basement shall be of enclosed type having Fire resistance of not less than 2 hrs. and shall be situated at the periphery of the basement to be entered at ground level only from the open air and in such position that smoke from any Fire in the basement shall not obstruct any exit or entry serving the ground and upper floor of the buildings.
6. The exit from the basement shall be from open Air.
7. All fire exit doors as per relevant I.S. specification from the car parking to exits shall be painted green and shall display exit signage.
8. The entire basement shall be protected with Landing valve and Hose Reel Hose System as per relevant I.S. specification.
9. If cut outs are provided from basement to the upper floors or to the atmospheres, all sides cut outs openings in the basements shall be protected by sprinkler head to form a water curtain in the event of a fire.

FIRE FIGHTING WATER :
Underground water reservoir having water capacity of 1,50,000 Ltrs. and overhead reservoir of 10,000 Ltr. capacity on the roof as marked/shown in the plan exclusively for Fire Fighting purpose with replenishing arrangement @ 1000 Ltr./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 :
1. The building shall be provided with Wet Riser of 150 mm internal diameter pipe line with provision of landing valves at the staircase landing/half landings (one wet riser must have to be provided at the fire fighting shaft staircase area) at the rate of one such riser for 1000 Sq.Mt. of floor area. The system shall be so designed that be kept charged with water all the time under pressure and capable to discharge 2280 Ltr./Min. at the ground floor level outlet and minimum 900 Ltr./Min. at the top most outlet. In both cases the running pressure shall not be less than 3.5 Kg./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 of all building conforming the relevant I.S. specification.
3. Yard Hydrant & Ring Main Hydrant with provision of adequate numbers Hydrant alongwith Fire Service inlet shall be installed surrounding the building in accordance with relevant I.S. specification.
SPRINKLER INSTALLATION :
The automatic Sprinkler installation shall be provided in Refuge areas, Ramps and in all floor areas of the building as per I.S. 9972 & NBC PART –IV 2016. Alarm gang to be incorporated along with the sprinkler system.
Sprinkler flow switches shall be monitored by fire alarm panel.

FIRE PUMP :
1. 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 Stand-by of diesel driven type.
2. 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.
3. To avoid high pressure in lower levels of wet riser in the building multi stage, multi -outlets pumps (creating pressure zones) or variable frequency drive pumps or any other suitable arrangement to be provided as per N.B.C. Part – IV 2016.
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 the I.S. specification 1946-1982 and Part 8 ‘Building Services, Section 2 Electrical and Allied Installations’ of the Code.
2. Wiring and cabling are with flame retardant property.

3. Cables for fire alarm and PA system shall be laid in metal conduits or armoured to provide physical segregation from the power cables.
4. High, Medium and low voltage wiring running in shafts, and within false ceiling shall run in metal conduit. Any 230 V wiring for lighting or other services, above false ceiling, shall have 660 V grade insulation.
5. The electric distribution cables/wiring shall be laid in a separate shaft.
6. Use of bus ducts/solid rising mains instead of cables is preferred.
7. All metallic items like steel structural members, etc, shall be bonded properly to the earthing system.
8. Water mains, gas pipes, telephone lines, intercom lines or any other service line shall not be laid in the duct for electrical cables.
9. The ducts shall be supply sealed at every floor with fire stop materials having the same fire resistance as that of the floor.
10. Electrical MV main distribution panel and lift panels shall be provided with C02/inert gas flooding system for all panel compartments with a cylinder located beside the panel.
11. The electrical installation shall be adequately protected with CO2/D.C.P. or Medium Velocity Projector System.
12. The location ofthe panel/ distribution board feeding the fire and life safety system shall be in fire safe zone ensuring supply of power to these systems.
13. Alternative Power Supply--
The generator shall be capable of taking starting current with auto change over facility of all the fire and life safety systems and equipment.
Circuits of such emergency system shall be protected at origin by an automatic circuit breaker with its no-volt coil removed. Master switches controlling essential service circuits shall be clearly labelled.
Arrangements shall have to be made to supply power with help of a generator to operate at least Fire pumps, Pressurization and smoke venting (including its ancillary systems such as dampers and actuators), All lifts, Exit signage lighting, Emergency lighting, Fire alarmsystem, Public address (PA) system (relating to emergency voice evacuation and annunciation), Magnetic door hold open devices, Lighting in fire command centre and security room etc. and also for illuminating the Staircase, Corridors, Passage & Lobby areas, fire refuge areas and other places of assembly of the buildings in case of normal power failure.

DETECTION AND ALARM :
1. Addressable manual call boxes incorporating with sounders & visual strobes/beacons shall be installed in all the floor area of the buildings in such a manner that maximum travel distance shall not be more than 22.5m in order to reach any of the call point.
2. Fire alarm panel shall be installed and all shall also be connected with main panel at the Fire Control Room of the premises.

3. Both way Public address system linked between all floors & fire refuge areas and Control Room shall have to be established
4. In buildings where automatic fire alarm system is provided, the following shall be monitored from fire Alarm panel — Water level in all tanks, Hydrant and sprinkler pressures of respective zones as provided, Pump 'ON/OFF' status, All isolation valves, wherever provided with supervisory switch (non-padlock valves), Other requirements to meet electro - mechanical services interface.
5. All the installation shall also satisfy the relevant I.S. Specification .

AIR CONDITIONING SYSTEM : (if any)
1. The A.H.U. shall be separated for each floor with the system Air Ducts for individual floorsand in no way shall interconnect with the duct of any other floor. Within a floor it would be desirable to have separate air handling unit provided for each compartment.
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. Shafts or ducts, if penetrating multiple floors, shall be of masonry construction with fire damper in connecting ductwork or shall have fire rated ductwork with fire dampers at floor crossing. Alternatively, the

duct and equipment may be installed in room having walls, doors and fire damper in duct exiting/entering the room of 120 min fire resistance rating. Such shafts and ducts shall have all passive fire control meeting 120 min fire resistance rating requirement to meet the objective of isolation ofthe floor from spread of fire to upper and lower floors through shaft/duct work.

6. The air filters of the air handling units shall be made of non-combustible materials.

7. Air ducts serving main floor areas, corridors, etc, shall not pass through the exits/exit passageway/ exit enclosure. Exits and lift lobbies, etc, shall not be used as return air passage.

8. As far as possible, metallic ducts shall be used even for the return air instead of space above the false ceiling.

9. The materials used for insulating the duct system (inside or outside) shall be of non-combustible type. Any such insulating material shall not be wrapped or secured by any material of combustible nature.

10. Inspection panels shall be provided in the ductwork to facilitate the cleaning accumulated dust in ducts and to obtain access for maintenance of fire dampers.

FIRE OR SMOKE DAMPERS :(if any)

Damper shall be of motorized type/fusible link. Damper shall be so installed to provide complete integrity of the compartment with all passive fire protection sealing. Damper should be accessible to maintain, test and also replace, if so required. Damper shall be integrated with Fire Alarm Panel and shall be sequenced to operate as per requirement and have interlocking arrangement for fire safety ofthe building. Manual operation facilities for damper operation shall also be provided.

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. 2190-2010.

SERVICE DUCTS & SHAFTS:

Openings in walls or floors which are necessary to be provided to allow passages of all building services like cables, electrical wirings, telephone cables, plumbing pipes, etc, shall be protected by enclosure in the form of ducts/shafts having a fire resistance not less than 120 min. The inspection door for electrical shafts/ductslow voltage wiring running in shafts/ducts, shall either be armoured type or run through metal conduits.

The space between the electrical cables/conduits and the walls/slabs shall be filled in by a fire stop material having fire resistance rating of not less than 120 min.

For plumbing shafts in the core of the building, with shaft door opening inside the building, the shafts shall have inspection doors having fire resistance rating not less than 30 min.

For plumbing shafts doors which open in wet areas or in naturally ventilated areas or on external wall of the building, the shafts may not require doors having any specified fire rating.

GLAZING & GLASS FAÇADE : (if any)

1. The glazing shall be in accordance with NBC Part 6.The entire glazing assembly shall be rated as per Table 1.

2. The use of glass shall not be permitted for enclousers of exits and exit passageway.

3. For fully sprinklered building having fire separation of 9 m. or more, tempered glass in a non-combustible assembly, with ability to hold the glass in place, shall be provided. Sprinklers to be provided within 600 mm of the glass façade which to be covered full area of the said glass façade.

4. All gaps between floor slabs and façade assembly shall be sealed by approved fire sealing material of equal fire rating of that floor at all floor level.

5. Openable panels shall be provoded on each floor and such openings shall be operable at a height at a height between 1.2mtr. and 1.5 mtr. from the floor, and shall be in the form of openable panels (fire access panels) of size not less than 1000 mm X 1000 mm opening outwards.

6. The wordings, ‘ FIRE OPENABLE PANEL – OPEN IN CASE OF FIRE, DO NOT OBSTRUCT’ of at least 25 mm letter height shall be marked on the internal side.

7. Such panels shall be suitably distributed on each floor based on occupant concentration & also to be located in common areas /corridors to facilitate access by the building occupants and fire personnel for smoke exhaust in times of distress.

GENERAL RECOMMENDATIONS :

1. Fire License shall have to be obtained for proposed storing and processing with L.P.G. and other highly combustible articles.
2. Fire pump room to be provided with adequate ventilation.
3. Lightning protection for building shall be provided as per Part 8 ‘Building Services’, Section 2 Electrical installations.
4. Fire fighting equipments shall be suitably located and clearly marked by luminous sign.
5. Fire Notice for Fire Fighting and evacuation from the buildings shall be prepared and be displayed at all vulnerable places of the building.
6. Floor numbers and directional sign of escape route shall be displayed prominently.
7. The occupants and security staff shall be conversant with installed Fire Fighting equipments of the buildings and to operate in the event of Fire and Testing.
8. 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.
9. A crew of trained Fireman under the experienced Officer shall be maintained round the clock for safety of the building.
10. Mock Fire practice and evacuation drill shall be performed periodically with participation of all occupants of the building.
11. Close circuit T.V. shall have to be provided for the entire floor area of the building.
12. 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 before occupancy of the buildings; 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 building 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.
Name: ABHIJIT PANDEY
Date: 18-Sep-2024 17:06:27
Reason: D-Sign
Location: E-Dist 2.0

Director

West Bengal Fire & Emergency Services