



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

Memo no.:FSR/0225186238701150

Date: 06-12-2023

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

To: MAHENDRA JAIN DIRECTOR OF ARRJAVV BUILDER PRIVATE LIMITED CONSTITUTED ATTORNEY OF SAUMISH CHANDRA ROY
065,2,BRIGHT STREET

Sub: Fire Safety Recommendation of Proposed Construction of G+XXXIV Storied Residential Building in the name and style of 'Mahendra Jain Director Of Arrjavv Builder Private Limited Constituted Attorney Of Saumish Chandra Roy' at Premises No- 2, Bright Street, Ward No.-65, Bourough-VII, Street No.-23, P.S.-Karaya, Kolkata-700019, W.B., u/s 393 A, of KMC ACT 1980 & Complying the new Amendment of Building Rule 2009.

Application Reference : KMC (CAF-2023070226) received on 01-11-2023 regarding the Fire Safety Recommendation of Proposed Construction of G+XXXIV Storied Residential Building in the name and style of 'Mahendra Jain Director Of Arrjavv Builder Private Limited Constituted Attorney Of Saumish Chandra Roy' at Premises No- 2, Bright Street, Ward No.- 65, Bourough-VII, Street No.-23, P.S.-Karaya, Kolkata-700019, W.B., u/s 393 A, of KMC ACT 1980 & Complying the new Amendment of Building Rule 2009.

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:

A.CONSTRUCTION:

- 1.The whole construction of the Proposed building shall be carried out as per approved plan drawings conforming the relevant building rules of Kolkata Municipal Corporation and shall remain same as per approved plan of this department.
- 2.Any deviation with regard to the construction shall be verified by the concerned building sanctioning authority.
- 3.Material for rapid flame spread categories including untreated wood fibred board etc. shall not be used. The doors and windows preferably shall be made of metal.
- 4.The interior finish decoration of the building shall be made low flame spread and low smoke and low toxic gas generating categories materials conforming I.S. specifications.
- 5.All the new construction that to be done for the fulfilment of the fire safety recommendation should be tested for fire rating

test and the test certificate should be submitted to the office.

B.OPEN SPACE AND APPROACH:

- 1.The open spaces surrounding the building shall be kept clear open to sky and shall conform the relevant building rules as well as permit the easy accessibility and manoeuvrability of the Fire Appliance with turning facility.
- 2.The approach roads surrounding the building shall be sufficiently strong to withstand the load of Fire Engine weighting 45M.T.
- 3.The width and height of the access gates into the premises shall be less than 4.5---5 M (as marked in the plan drawing) respecting abutting the 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 hours.
- 2.The staircase of the building shall have permanent vents at the top equal to 5% of the cross sectional area of the staircases enclosures and open able sashes at each floor equal to 15% of the said cross section are shall have to be provided in the external walls of the building.
- 3.The position of the staircase shall be made as shown in the plan. Width of the staircases, Corridors and the exit doors shall conform the relevant Building Rules with up-to-date amendments.
- 4.Fire and smoke doors at the entrances of all the staircase enclosures as shown 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 or at the entrance to lift lobby and stair well..
- 5.The entire staircase shall be extended up to terrace of the building and shall be negotiable to each floor and also to other staircase.
- 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.
- 7.All the stair cases and lobby in each floor shall be mechanically ventilated, if not provided cross natural ventilation, as per the provision of NBC, part IV, 2016 and relevant I.S. Specification.

D. EXIT:

- 1.Exits shall be so arranged that at least two separate exits are available in every floor area. Exit 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.
- 2.Every Exit door way shall open into an horizontal exit of a corridor.

E.SERVICE DUCTS AND SHAFT :

1. 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.
2. The inspection door for electrical shafts/duct low voltage wiring running in shafts/ducts shall either be armoured type or run through metal conduits.
3. 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.

4. 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.
5. 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 required doors having any specified fire rating.
 - a. 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.
 - b. 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.

F. LIFT:

1. The walls of the lift enclosure of the building shall be at least two hours Fire Resisting type. Collapsible gate shall not be permitted.
2. In case of failure of normal electric supply, it shall automatically trip over to alternate supply. The lift shall be so wired that in case of power failure, it comes down at the ground level landing to stand still with door open.
3. Arrangement shall be provided for extraction of smoke from the lift shaft by incorporation smoke venting system 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.
4. 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.
5. At least one no. passenger lift of the building shall be designated as high speed "Fire Lift" and conspicuously indicated at ground floor "FIRE LIFT". The speed of the fire lift 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.
6. All other requirements shall conform the I.S. specification including the communication facility in the lift cars connecting with the Fire Control Room of the building.

G. FIRE REFUSE AREA:

1. Open type Terrace of each Apartment shall be treated as Refuse Balcony. No steps are allowed in the Refuse Area.
2. Refuge area shall not be less than 15.0 SQ. M. and shall be provided on the external wall with cantilever projection or other suitable means at immediately above 24 M, 39 M, and 54 M, 68 M, 82 M., 96 M, 110 M, 124 M, 138 M levels of the building as shown in the plan drawing.
3. The refuge areas shall be of fire resisting construction and protected with self closing F.C.D. at the entrance from the corridors to staircase lobbies.
4. Appropriate signage including dedicated and guided directional measures for each fire refuge areas, from respective stair cases, and necessary Fire and Life Safety installation shall be incorporated for each fire refuge area as per provision of NBC, Part-4, 2016.
5. Subject to space of 9 meter X 15 meter must be kept free for aerial ladder, starting from the edge of each and every Refuge area, below each and every Refuse area.

H. ELECTRICAL INSTALLATION AND DISTRIBUTION:

1. The electrical installation including Transformers (if any), Switch Gear, 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. For every 230V wiring above false ceiling 660 grade insulated cable shall be used. Transformer, Switch Gear, H.T., L.T.

and other electrical rooms shall be at the ground floor level. The other electric rooms shall be at least 4 hrs. Fire resisting capacity. Adequate ventilation arrangement shall have to be made in all the rooms. Dry and explosion proof type transformer shall be installed.

3.The vertical and horizontal electrical supply ducts shall be sealed at each floor level by fire resisting materials.

4.The electrical installation shall be adequately protected with CO2/D.C.P. or Medium Velocity / Projection System Fire Extinguishers conforming I.S. specification.

5.All electrical installation viz. Transformers (if any), Switch Gear, H.T rooms shall be protected with both auto detection and suppression system as per suitability.

6.Electrical distribution system of the building shall be made in the form of concealed wiring or in heavy gauge M.S. conduit continuously bonded to the earth. Cables shall be I.S. marked and preferable be of F.R.L.S. categories. M.C.B. shall be installed in electrical circuit to avoid electrical fire hazards.

7.All electrical cable should run through cable tray only and fire resisting coating should be done to avoid spread of fire.

8.Lightening arrester should be made to avoid natural Hazard.

9. Switch, wire should be of I.S. Approved.

10.Alternative Power Supply :Arrangement for alternative power supply shall have to be made to supply power with the help of a generator to operate at least the Fire Pump, Deep Tube-Well Pump, Fire Alarm System, Fire Lift etc. and also for illuminating the Staircase, Corridors, Lobbies etc. and other places of assembly of the building in case of normal power failure.

11. Generator room will be protected with two numbers of 22.5 Ltrs. Trolley mounted A.F.F.F. extinguisher.

I. FIRE FIGHTING WATER:

1.The Underground water reservoir having water capacity of 200,000 Ltrs. exclusively for fire-fighting purpose And Over headwater reservoir having capacity of 10,000 Ltrs. exclusively for fire fighting purpose shall be provided.

2.Provision of replenishing arrangements at least @1000 Ltrs./Mins. preferably from two different sources of water supply shall be provided.

3. The water reservoirs shall have overflow arrangement with the domestic water reservoir as well as to avert stagnancy of water. The water reservoir shall be kept full at all time.

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

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

6. Provision of Fire Service inlet shall be installed on the entrance of the building.

J. WATER LAYOUT SYSTEM

a. WET RISER & HOSE REELS SYSTEM:-

1.The building shall be provided with Wet Riser cum Down Comer and Hose Reel unit of 200 mm internal diameter pipe line with provision of landing valves/outlets in each floor at the staircase landing/half landing as per suitable shall have to be made in all the areas of the building satisfy the code of IS.-3844-1989.

2.The system shall be so designed that shall be kept charged with water all the time under pressure and capable to discharge 2850 Ltrs./min at the ground floor level outlet. In both cases the running pressure shall not be less than 3.5 Kgs/cm². All other requirements shall conform I.S. 3844-1989.

3.The Wet Riser installation shall be made in reference to the height of the building in stage wise distributions.

1st Stage Ground Floor to 20th Floor 200 mm. dia. Twin/Single Hydrant outlet.

2nd Stage 21th Floor to Top Floor 150 mm. dia. Twin/Single Hydrant outlet.

4. Provision of Hose Reel unit on swivelling drum in conjunction with wet Riser near each landing valves of each floor level of the building shall be made conforming the relevant I.S. Specifications 3844-1989.

5. All other requirements of the water base fire protection system shall made as per I.S. specification 3844-1989.

b. AUTOMATIC SPRINKLER INSTALLATION:

i. All floors of the building area shall be suitable protected by automatic Sprinkler installation conforming the grade as per I.S. Specification 9972. Alarm gang to be incorporated along with the sprinkler system.

ii. The Sprinkler arrangement shall be laid out in Zone wise distribution.

Zone 1-Ground floor to 20th Floor

Zone 2-21th Floor to Top Floor.

K. FIRE PUMP :

1. The provision of Fire Pump shall have to be made to supply water should not be less than 2850 LTRS./MIN. giving a pressure not less than 0.3 N/m². The pump provided will be of multi stage type with suction and delivery size not less than 15 cm. dia with low level riser up to sixteen storied and high level riser delivery for upper floors upto Top floor. A set ball valves to supply the tank with at least 2850 Ltrs. Min. from the fire pump.

A multistage, multioutlet pump may be installed to avoid high pressure in lower levels of wets riser in high rise building (creating pressure zones) or variable frequency drive pumps or any other suitable arrangement to be provided as per the NBC PART-IV 2016.

2. A Separate Sprinkler Pump of equal capacity shall be provided for the total Sprinkler Installation of the building.

3. A Standby Pump of equal capacity shall be provided on alternative source of supply preferable be of diesel driven type.

4. Provision of jockey pump shall also have to be made to keep up the water based system under pressurized condition at all the time. The running pressure shall not be less than 3.5 Kgs/Sq.cm². All other requirements shall conform I.S. Specification 3844-1989.

5. All the pumps shall be incorporated with both manual and auto starting facility with alternate power supply.

6. Fire Pump room shall be provided in the place/basement as shown in the plan drawing or suitable place in the basement without obstructing driveways. The provision of Fire Suppression and Ventilation arrangement of fire pump room shall be as per provision of NBC, Part-4, 2016 and relevant I.S. Specification.

7. The suction of pump shall be preferably of positive type or in case of negative suction the system shall be wet riser-cum-Down comer with suitable terrace level booster pump attached via NRV with overhead tank.

L. MANUAL AND AUTO DETECTION & ALARM /SUPPRESSION / INTELLIGENCEY ANALOGUE SYSTEM:

1. 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.

2. Auto fire detection system with the help of heat and smoke detector shall be installed in all places of below and preferable above ceiling of the building. The system shall also be made in places of rooms where valuable articles have been kept.

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

4. Auto Fire Alarm System with analogue addressable smoke/heat detectors as per suitability shall be installed in all floor

area of the building (including basement if any), for early detection and suppression of Fire except Car parking Area.

5.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.

M. AIR CONDITIONING SYSTEM :(IN CASE OF CENTRALIZED AIR CONDITIONING SYSTEM)

1.The A.H.U. shall be separated for each floor areas of the Building with the system Air Ducts for individual floors.

2.All the air conditioning system should be operated by auto stopping facility with detection system.

3.Arrangement shall be made for isolation at the strategic locations by incorporating auto dampers in the Air Conditioning system.

4.The system of auto shut down of A.H.U. shall be incorporated with the auto detection And alarm system.

5.The Air handling unit room shall not be used for storage of any combustible materials.

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

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

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

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

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

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

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

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

14.No combustible materials shall be fixed nearer than 15cm to any duct unless such duct properly enclosed and protected with non combustible material (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.

15.The A.H.U. shall be separated for each floor, and the system Air Ducts for every floor shall be separated and in no way inter-connected with the ducting of any other floor is allowed.

16.If the Air handling units serve more than 1st Floor, the recommendation given above shall be complied with in addition to the conditions given below:-

17.Proper arrangement by way of automatic Fire dampers working on fuseable link for isolating all ducting at every floor from the main riser shall be made.

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

N. FIRE DAMPER :

1.Fire Damper shall be located in conditional air ducts and return air duct/passages at the following points.

a.At the fire separation wall

b.Their ducts/passage enter the central vertical shaft.

c.Where the ducts pass through floors.

d.At the inlet of supply Air Duct and the return air duct of each compartment on every floor.

e.The dampers shall operate automatically and shall simultaneously switch off the air handling fans. Manual operation facilities shall also be provided.

f.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.

O. FIRST AID FIRE FIGHTING SYSTEM:

- 1.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.
- 2.Special rescue equipment like smoke Hood, SCBA set, Portable lights at least two pairs (4 sets) shall be made available in the main Fire Control Room of the premises.

P.L. P. GAS BANK AND KITCHEN:

- 1.L.P.G. (Liquefied Petroleum Gas) Bank shall be constructed as per Gas Cylinder Rules-2004 and I.S. 6044 maintaining adequate safety distance between an installation of same and any building, public place, roadways and other surroundings. Anti static mastic bituminized flooring shall be made inside the L.P.G. bank.
- 2.Cross ventilation shall be provided at ground level and at the top and the ventilators shall be covered by two layers of non-corrugible metal wire mesh.
- 3.L.P.G. Bank shall never be used as store room of other articles.
- 4.Gas Sensor shall be installed inside the L.P.G. Bank while the isolation valve or regulating devices shall be retained outside the Bank for easy operation on any operation.
- 5.No electrical connection, wirings, fittings shall be installed inside the L.P.G. Bank
- 6.The L.P.G. Bank shall be Fire protected either by Auto Modular (D.C.P. Type) or by portable D.C.P. fire extinguisher of adequate capacity and sand buckets with dry sand, or other fire protection arrangement confirming I.S. 6044.
- 7.L.P.G. Bank shall be constructed of brick wall and R.C.C. Asbestos roofing having three sides closed and one side provided with open able C.I/Steel double leaf door which will open outwardly.
- 8.Checking, testing and proper maintenance of L.P.G. installation, L.P.G. manifold. Pipe lines shall be checked by expert (authorized) agency and a certificate of safety to that effect to be endorsed to this department in due course.
- 9.The Kitchen room should have at least 2 (two) doors for safety point of view as remote as possible from one to another. The food process zone (kitchen) shall never be allowed at other occupied area or never near the exits. No other L.P.G. oven with separately loose, L.P.G. cylinder will be used inside the kitchen where L.P.G. supply is being maintained from L.P.G. Bank through L.P.G. manifold.

Q.SWIMMING POOL:- (If Any)

- 1.There should be a fence at least four feet high around all sides of the pool with a locked gate and the fence should be constructed so it is difficult to climb. Avoid using a side of the house in place of fencing to keep toddlers or pets from wandering into the pool area through an open door or window.
- 2.Check the pool and equipment periodically for cleanliness and good maintenance. Cover all sharp edges and protruding bolts; repair rickety or broken ladders and railings. Replace non-slip materials when they water out.
- 3.Mark water depth conspicuously and use a safety float line where the bottom slope deepens.
- 4.Non-Slippery materials shall be use on the pool deck, diving board and ladders.
- 5.The steps of the pool ladder should be at least three (3") wide and the ladder should have handrails on both sides small enough for a child to grasp. There shall be a ladder at the both end of the pool.

R. 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. Natural ventilation of each room of each department shall have to be provided by projecting window.
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. The occupants, employees and security staffs shall be conversant with installed Fire Fighting Equipments of the building and to operate in the event of Fire and Testing.
5. A crew of trained Fireman under a qualified and experience officer shall be maintained round the clock for the safety of the building.
6. Mock Fire practice and Evacuation Drill shall be performed periodically with participation of all occupants of the building including the floating occupants in accordance with ANNEX D (Clause 4.11) of NBC-2016 and necessary records shall be preserved in a separate register.
7. There should be a centralized control room in the entrance of the Residential Building with audio visual fire alarm control panel linked with all fire detection and alarm system, public address and communication system.
8. Periodical testing of the electrical installation shall be conducted and a certificate in this regard shall be obtained from the authorised person.
9. The Department of Fire and Emergency Services, Government of West Bengal shall not take any responsibility in respect of any legal dispute if pending or arises about the title of land/property.

On compliance of all the above Life and Fire Safety Recommendation, the Director General, West Bengal Fire & Emergency Services shall be approached for necessary inspection and testing of all 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