



ODISHA FIRE & EMERGENCY SERVICE
FIRE SAFETY RECOMMENDATION

FORM-II

[Under Rule-12 (5)]



RECOMMENDATION No:	RECOMM1204130012023001361	APPLICATION No:	FSR12041300120230000059
Date of Issue:	01-08-2023	Date of Receipt of Application:	29-07-2023

1.	Name & Address of the proposed Building/Premises:	Proposed B+S+10 floors (MIG Category) Residential Apartment Building owned by JB Assets Pvt. Ltd., over plot no. 404/973 and other, Khata No. 238/3003, and others Bijipur, Bhubaneswar, Khordha.
2.	Name and Address of the Applicant(s):	Jyoti Ranjan Behuria, S/o Bharat Ch. Behuria Plot No.-K-4/145/4, Kalingavihar, Patrapada, Khordha
3.	Proposed Occupancy (Type of Building):	As per the plan B+S+10 floors MIG Residential Apartment Buildings is coming under "Residential Occupancy" as per Odisha Development Authorities (Planning and Building Standards) Rules, 2020 and "Residential" Group-A, Sub-Division A-4 as per NBCI-2016.
4.	Area with Plot Number and Khata Number:	Total Plot Area (as per document) – 2346.68 sqm. (Ac. 0.58Acr.) Plot No. 404/972, Khata No. 238/89
5.	Date of Inspection:	01-08-2023

6. Recommendation:



The Fire Safety Recommendation for the following building(s) is/are as follows: -

A.	Structural and construction site requirements:	
i.	Details of the building(s) like height, no. of floors, area on each floor, built up area, etc	<p>B+S+10 floors MIG Residential Apartment</p> <ol style="list-style-type: none"> 1) Basement floor – 1590.32 sqm.-Parking, EV Charging Point 2) Stilt floor – 826.79 sqm.-Parking, Fire Control Room 3) 1st, to 9th floor – 847.87sqm.(each)- Residential dwellings 4) 10th floor - 847.87 sqm. – Residential dwellings, Society Room, Isolation Room 4) Terrace Floor-Swimming pool, Solar Water Heater <p>The height of the proposed B+S+10 floors MIG Residential Apartment building shall be 36.73mtrs. Including basement height i.e. 1.2 mtrs. Besides, as per Rule- 39 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020, the height of stilt floor and basement floor shall not be included in the height of the aforesaid building, if the height of the ceiling of the stilt floor/ basement roof is not exceeding 2.4 meters and 1.5 mtrs respectively.</p>
ii.	Parking	<p>Provision of parking area at basement & stilt floors have been shown in the proposed plan. The off-street parking space to be provided shall be in addition to the minimum open space (setbacks) as required under Rule- 33 (1) Table-6 of ODA (P& BS) Rules, 2020.</p> <p>Provision of parking shall be made in accordance to Rule-37 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p>
iii.	Access To The Building	<p>As per the plan, the proposed building abuts on a road of width 12.19 mtrs. at front side, which shall be made as per Rule-31 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <p>As per Odisha Development Authorities (Planning and Building Standards) Rules, 2020, the main entrance to the premises shall not be less than 06 (six) meters in width in order to allow easy access to fire engine and the gate shall fold back against the compound wall of the premises, thus leaving the exterior access way, within the plot, free for the movement of fire service vehicles. If archway is provided over the main entrances, the height of the archway shall not be less than 5 (five) meters. Besides, there is provision of two entry/exit gate of width 6mtr each which shall be made as per Rule-71 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p>
iv.	Open spaces / Setbacks (In Mtrs.)	<p>Provision of following open space/setbacks has been shown in the plan which satisfies the requirement as per Rule-33 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <p>Front-6.09 to 8.03 mtrs., Rear-6 to 7.53 mtrs., Left-6.00 to 6.15mtrs & Right-7.62 to 7.74 mtrs</p> <p>The space set apart for providing access within the premises shall not be used as parking space or spaces for other amenities required for the building. The entire setback / driveway shall be kept unbuilt. It shall be constructed of hard surface capable of taking load of fire engine weighing up to 45 tonnes.</p> <p>As per Rule-30 & 33 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020, driveway around the aforesaid building shall be provided and load bearing capacity certificate from the competent authority shall be obtained to that effect.</p>
v.	Exits (Type, Number, Dimension & Ramp Arrangement)	<p>As shown in the plan there is provision of 02 nos. main staircases continuing from basement floor to top floor.</p> <p>However, the provision of number of staircases should be based on occupancy load within the purview of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <p>As per Rule-2 (iii & iv) of Annexure-IX and Clause No. 4.4.2.4.3.2 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020, the minimum width of stairway for residential buildings shall be 1.25 mtrs., the width of tread shall be 250 mm and the maximum height of riser shall be 190 mm. In case of Assembly, the minimum width of stairway shall be 2 mtrs., the width of tread shall be 300 mm and the maximum height of riser shall be 150 mm. As per plan the width of staircases is mentioned as 1.5 mtr each as society hall and swimming pool is at top floor of the building the width may be remain same. The staircases are in front of each</p>



other; hence, the provision of staircase (exit) to be satisfied the provision of dead-end corridor. As per Rule-72 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020, exits shall be so arranged as to provide continuous means of access to the exterior of a building or exterior open space leading to a street without passing through any occupied unit. Besides, other provisions i.e. permissible travel distance, dead end corridor length in exit access, connectivity, positioning etc. shall be made as per Rule-72 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.

As per Rule-1 (Annexure-IX) and Clause-4.4.2.4.1 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020, no exit doorway shall be less than 01 meter in width. Doorways shall be not less than 02 meter in height. In case of assembly hall at ground floor Doorways shall not be less than 2 mtrs. Doorways for bathrooms, water closet and stores shall be not less than 0.75 meter in width.

1) The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors shall be provided and where the staircase is continuous in the case of buildings served by more than one staircase, the same shall be of enclosed type serving as a fire separation from the basement floor and higher floor.

2) The escape routes should be well ventilated and provided with safety lighting and free from obstructions.

3) Exits must be clearly visible and all routes to reach the exit have to be clearly marked and sign posted to guide the population of the floor concerned. Signages required to be illuminated and wired to an independent electrical circuit on an alternative source of supply.

4) Access to the staircases be gained through automatic closing fire check doors of 02 hrs rating.

5) The internal staircases not with external wall of the building shall be pressurized and the internal staircases constructed with external wall shall be cross ventilated or pressurized. Wherever pressurized staircase is to be connected to unpressurized area, the two areas shall be segregated by 120 min fire resistant wall. Pressurization of the staircases shall be done as per Clause-4.4.2.5, 4.6, 6.1.1.3 & Annexure-E of Part-4, NBCI-2016.

In addition to above all other provisions for exits / doorways / stairways, means of escape and exit shall be made as per Rule-72 and Annexure- IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.

vi.	Firefighting Shaft	<p>1) Firefighting shaft (fire tower) shall be made in aforesaid building as per Clause-2.24 of Part-IV, NBCI-2016.</p> <p>2) The protected area of the firefighting shaft shall have 120 min. Fire resistance rating & comprising of protected lobby, staircase & fireman's lift.</p> <p>3) It shall have connectivity directly to exit discharge or through exit passageway with 120 min fire resistance walls at the level of exit discharge to exit discharge.</p> <p>4) Besides, it shall have provision of fireman talk back, wet riser & landing valve in its lobby. Staircase & fire lift lobby of firefighting shaft shall be smoke controlled.</p> <p>5) Hence, the provision of firefighting shaft in the building shall be made satisfying all the provisions of NBCI-2016.</p>
vii.	Lifts	<p>As shown in the plan there is provision of 04 Nos. of lifts continuing from basement floor to top floor. However, the provision of number of lifts should be based on occupancy load within the purview of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <p>1) Provision of firemen lift shall be made in aforesaid building as per Clause 4.4.2.5 of part-4 and 'Building Services, Section 5 Installation of Lifts, Escalators and Moving Walks, Sub-Section 5 A Lifts of Part-8 of National Building Code of India, 2016.</p> <p>2) The Lifts shall not open in staircase landing. Grounding switch (es) at ground floor level shall be provided to enable the fire service to ground the lifts. Besides, telephone / talk back communication facilities shall be provided. Collapsible gates shall not be permitted for lifts and shall have solid doors with fire resistance of at least 1 hour.</p> <p>3) Lift lobby shall be cross ventilated or pressurized as per Clause-4.4.2.5 of Part-IV, NBCI-2016. The mechanism for pressurization shall act automatically with the fire alarm; it shall also be possible to operate this mechanically. The lift lobbies at basement floor shall be pressurized with self-closing fire rated doors. Telephone or other communication facilities shall be provided in lift cars and to be connected to fire control room for the building.</p> <p>4) Construction and provisions of fire and life safety measures of lifts shall be in accordance with Annexure – IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020 and Clause 4.4.2.5 of Part-4 and 'Building Services, Section 5 Installation of Lifts, Escalators and Moving Walks, Sub-Section 5 A Lifts of Part-8 of National Building Code of India, 2016.</p>
viii.	Building Services	



Electrical Service	<p>Electrical Services: - Electrical Installations in the building must be comply to the provisions given in Annexure-IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <ol style="list-style-type: none"> 1) An independent, ventilated or air conditioned MV panel room must be provided on the ground level. This room required to be provided with access from outside. The MV panel room must be provided with fire resistant walls and doors of fire resistance of not less than 120 min. 2) A substation or a switch station with oil filled equipment must not be allowed to be functional inside the building. 3) All transformers must be protected by high velocity water spray systems or nitrogen injection system. As per the plan the placement of transformer has not been clearly shown. 4) A stand-by electric generator must be installed to supply power to staircase and corridor lighting circuits, fire lifts, the stand-by fire pumps, pressurization fans and blowers, smoke extraction and damper system in case of failure of normal electric supply. 5) The staircase and corridor lighting must be on separate service and must be independently connected so as it could be operated by one switch installation on the ground floor, easily accessible to firefighting staff at any time irrespective of the position of the individual control of the light points, if any. 6) Staircase and corridor lighting required to be connected to alternate supply from parallel high-tension supply or to the supply from the stand-by generator. All wires and other accessories used for emergency light must have fire retardant property. 7) The electric distribution cables or wiring shall be laid in separate duct which shall be sealed at every floor with non-combustible materials having the same fire resistance as that of the duct. Low and medium voltage wiring running in shaft and in false ceiling run in separate conduits. Water mains, telephone cables, intercom cables, gas pipes or any other service line need not be laid in the duct for electric cables. 8) All the transformers shall be protected with high velocity water spray system / Nitrogen Injection System Carbon Dioxide total flooding system in case of oil filled transformer if the capacity exceeds 10 MVA. 9) Electric substation transformer shall have clearance on all sides as per BBL/relevant electric rules. 10) The electric substation shall have electric supply from alternate source for operation of vent System lighting arrangements. 11) Cable trenches shall be filled with sand. 12) Party walls shall be provided between two transformers as per the rules. 13) Electric control panels shall be segregated.
Air Conditioning	<p>Air Conditioning: -Air Conditioning & mechanical ventilation requirements of different rooms or areas of the building must be as per the provisions given in Annexure-IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020.</p> <ol style="list-style-type: none"> 1) Air conditioning systems circulating air to more than one floor area should be provided with dampers designed to close automatically in case of fire and thereby prevent spread of fire or smoke. 2) Escape routes like staircases, common corridors, lift lobbies must not be used as return air passage. 3) Air ducts serving main floor areas, corridors, must not pass through the staircase enclosure. 4) The air-handling units must be separate for each floor and air ducts for every floor must be separated and in no way inter-connected with the ducting of any other floor. 5) Wherever the ducts pass through fire walls or floors, the opening around the ducts must be sealed with materials having fire resistance rating of the compartment. Such duct required to be provided with fire dampers at all fire walls and floors unless such ducts are required to perform for fire safety operation. 6) The Air Conditioning required to be coupled with fire detection and alarm system. 7) Metallic ducts must be used even for the return air instead of space above the false ceiling. 8) The materials used for insulating the duct system (inside or outside) must be of non-combustible material.
Gas supply	<p>Gas Pipe Line:- If centrally gas pipe line will be provided, construction and provision of fire safety and firefighting measures shall be as per relevant BIS and Annexure-IX Clause-7 (VIII) of ODA (P & BS) Rules, 2020.</p>
Service Ducts & Shafts, Standby source of power supply, Lighting Protection, Drainage System	<p>Service Ducts and Shafts: - Openings in walls or floors which are necessary to be provided to allow passages of aforementioned building services like cables, electrical wirings, telephone cables, plumbing pipes, etc. Must be protected by enclosure in the form of ducts /shafts and such shaft and inspection doors fitted thereto must have fire resistance rating not less than as specified in Annexure-IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020. Stand-By Source of Power Supply: -</p>



		<p>There shall be provision for dedicated emergency power supply to fire pumps, lifts, fire alarm system, pressurization system, emergency lighting, escape route lighting, exit signage, public address system, lighting in fire command centre, magnetic door hold open devices, etc. as per Annexure-IX of Odisha Development Authorities (Planning and Building Standards) Rules, 2020. The power supply to the panel /distribution board of these fire and life safety systems shall be through fire proof enclosures or circuit integrity cables or through alternate route in the adjoining fire compartment to ensure supply of power is reliable to these systems and equipment. Cables for fire alarm and PA system shall be laid in metal conduits or armoured to provide physical segregation from the power cables.</p> <p>Lightning Protection: - Provision for lightning protection shall be made in the proposed building as per NBCI-2016 and in accordance to relevant BIS specifications. Routing down of conductors (Insulated or Un-Insulated) of lightning protection shall not be made through electrical or other service shafts.</p> <p>Drainage System:- Provision of drainage system shall be made for the aforesaid blocks as per norms.</p>
ix.	Fire Command Centre	<p>1) There shall be a Fire Command Centre on entrance floor of the building having direct access. The Fire Command Centre must have the main fire alarm panel with communication system (suitable public-address system). All controls and monitoring of fire alarm systems, Detection system, pressurization systems, smoke management systems must be operated from this room. Integrated building management system must be provided for Fire Command Centre.</p> <p>2) Fire Command Centre must have provisions in accordance with Clause-3.4.12 of Part-4, NBCI-2016.</p> <p>3) The owner/occupier shall provide any additional fire requirements in future if the recommendation is issued by this department.</p> <p>4) The site is suitable for construction of above proposed structure subject to condition that the owner/occupier shall provide any additional fire requirements in future if the recommendation is issued by this department.</p>
x.	Basement, Refuge Area, Construction & Compartmentation	<p>Basement: - As shown in the plan there is provision of 01 no. two-way ramp of width 6.70 mtrs provided in the basement floor and another two nos of ramp having width 3.00 mtr and 3.60 mtrs provided in still floor for entry and exit floor.</p> <p>1) Basement shall be separately 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 stall board lights or pavement lights or by way of shafts. Alternatively, a system of mechanical ventilation shall be provided so as to permit 12 air changes per hour in case of fire or distress call. Ventilation system shall start automatically on actuation of detector provided in the basement area in addition to provision of manual control. Doors provided in such exit passageway shall be fire rated doors of 2 hrs rating. Smoke exhaust and pressurization of areas shall be done as per the provisions given in Clause- 4.6 of Part-4, NBCI-2016.</p> <p>2) The basement shall be used for designated purpose only. Adequate provision of exits and ramps shall be made in the basements as per Odisha Development Authorities (Planning and Building Standards) Rules, 2020 and NBCI-2016. The ramp providing access to basement shall be constructed leaving required open space around the building. Door openings leading from upper floors to basement shall need to be protected with fire doors with 120 min. Fire rating except for exit discharge doors from the basements. Adequate arrangement shall be made, so that surface drainage does not enter the basement. The wall and floors of the basement shall be water-tight and be so designed that the effect of the surrounding soil and moisture, if any, are taken in to account in design and adequate damp proofing treatment is given.</p> <p>3) The use and construction of the basement shall confirm to the provisions given in Rule-41 of Odisha Development Authorities (Planning and Building Standards) Rules, 2020 and Clause – 12.9 of Part-III and Clause –4.5 & 4.6 of Part-IV, NBCI – 2016.</p> <p>Refuge Area: - 1) Refuge area shall be provided for the aforesaid building of height more than 24 meters. Refuge area shall be approachable from the space they serve by an accessible means of egress. Refuge area (s) shall be provided at/or immediately above 24 mtrs. and thereafter at every 15 mtrs or so. The refuge area shall always be kept clear. No storage of combustible products and materials, electrical and mechanical equipment, etc. shall be allowed in such areas. High rise apartment buildings having balconies, refuge areashall be provided of heights above 60 mtrs and thereafter every 30 mtrs. However, apartment buildings without balcony shall provide refuge area as mentioned in Annexure-E (E-4) as per NBCI, 2016.</p> <p>2) Refuge area shall be made as per Annexure-E-4 of Part-IV, NBCI-2016.</p> <p>Construction: - The minimum fire resistance rating of structural and non-structural members shall be as given in Table-1 and Annexure-C of Part-IV, NBCI-2016. The false ceiling, including all fixtures used for its suspension shall be of non-combustible material and shall provide adequate fire resistant to the ceiling in order to prevent spread of fire across ceiling. The structural safety design and construction of the building shall be done as per Clause-3.3 & 3.4, Table-25 & 26 of Part-IV,</p>



NBCI-2016 and Rule-73 of Odisha Development Authorities (Planning & Building Standards) Rules, 2020. For construction of habitable rooms, kitchen, bathrooms, loft, mezzanine floor, store room & garage shall be constructed in accordance to Clause-12 of Part-III, NBCI-2016. Refuse chutes, if any provided in the blocks shall have opening of at least 01 Mtr. above roof level for venting purpose and they shall not be located within the staircase enclosure wall of non-combustible material with fire resistance of not less than 120 min. Refuge chutes shall be made as per Clause 3.4.5.5 of Part-IV, NBCI-2016.

Compartmentation: -

a) Compartmentation shall be made in aforesaid building as per Clause-4.5 of Part-4 (Fire and Life Safety), NBCI-2016.

b) Exit access corridors from a compartment to another compartment shall be divided at the compartment intersection by a fire door of 120 min fire rating in the fire compartment wall.

B.	Fixed Fire Fighting Installations :	
i.	Fire Extinguisher	1) Fire Extinguisher:- Provision of fire extinguishers shall be made in all floors of aforesaid building as per BIS:2190:2010.
ii.	First- Aid Hose Reel	2) First-aid Hose Reel: - First-aid hose reel shall be provided on each floor of aforesaid building in accordance with BIS 884:1985 & BIS 3844:1989. Adequate Hose reels so that Hose reel Hose available within 30 mtrs. from any point at each floor level and the horizontal distance between any two adjacent points need not exceed 50 mtrs on each floor and Hose reels hose must be directly connected to Wet riser.
iii.	Wet Riser	3) Wet Riser: - The aforesaid building is required to be provided with risers adequately so that available within 30 mtrs. from any point at each floor level and horizontal distance between any two adjacent risers shall not exceed 50 mtr. Provision of wet riser shall be made conforming to BIS standards. (IS-3844:1989, 884:1985 and 9668:1990).
iv.	Automatic Sprinkler System	4) Automatic Sprinkler System: - Automatic water sprinkler system with sprinkler heads shall be provided in basement floor of aforesaid building. Sprinkler shall be fed water from both underground static water storage tank and terrace tank. (IS-9972:2002 & 15105:2002).
v.	Manually Operated Electronic Fire Alarm System	5) Manually Operated Electronic Fire Alarm System: - Manually operated electronic fire alarm system at conspicuous places in each floor of aforesaid building including basement floor shall be provided. (IS/ISO 7240-11:2011).
vi.	Underground Static Water Storage Tank	6) Under Ground Static Water Storage Tank: -Underground Static water storage tank capacity of 75,000 ltrs. shall be made for aforesaid building. All static tanks must entirely be accessible to fire appliances of the local Fire Service. Provision of suitable manhole shall be made available for inspection, repair and insertion of suction hose etc. Static Underground tank shall be constructed in accordance to Clause-5.1.2.1 of Part-IV, NBCI-2016.
vii.	Terrace Tank	7) Terrace Tank: - Terrace tank of 5,000 ltrs. capacity shall be provided at the top of the building for firefighting purpose. It should be ensured that water in the tank is not utilized for any other purpose other than firefighting.
viii.	Pump Near Underground Static Water Storage Tank	8) Fire Pumps: - Pump house should preferably be installed at ground level. It shall be situated so as to be directly accessible from the surrounding ground level. Required number of sets of pumps each consisting of one Electric & one Diesel pumps (Stand by) of capacity 2280 LPM & one electric pump of capacity 180 LPM shall be provided for entire building. One set of pumps shall be provided for each 100 hydrants or part thereof with a maximum of two sets. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers. Alternative to provisions of additional set of pumps, the objective can be met by providing additional diesel pump of the same capacity and doubling the water tank capacity as required for one set of pumps. Lower levels in these high-rise towers are likely to experience high pressure and therefore, it is recommended to consider multi-stage, multi-outlet pumps (creating pressure zones) of variable frequency drive pumps or any other equivalent arrangement. Further, in addition to above provision of independent electric pump (s) of adequate capacity shall be made, if water curtain is used for compartmentation of basement floors. The pumps are to be automatic in action. Installation of pumps shall be made in accordance to Clause-5.1.2.2 of Part-IV, NBCI-2016.



C.	Opinion :	<p>After completion of the construction work including installation of fixed firefighting measures as suggested, the applicant shall be required to apply for Fire Safety Certificate as per Rule-13 (1) of Odisha Fire Prevention and Fire Safety Rules, 2017 along with following documents: -</p> <p>i. The applicant shall produce a certificate to be issued by the office/person concerned to the effect that all the provisions of Bye-laws / Regulations of Odisha Development Authority and Recommendations issued from Chief Fire Officer (SAG), Fire Prevention Wing, Cuttack have been incorporated in the building.</p> <p>ii. The applicant shall produce a certificate of the Competent Authority concerned to the effect that electrical installations have been done as recommended and as per provisions given in Part-8 "Building Services, Section-2 Electrical and allied installations" of NBCI-2016 and Section-7 of National Electrical Code, 2011.</p> <p>iii. The Applicant shall produce a certificate of the agency concerned to the effect that installation of firefighting measures has been done as recommended and as per provisions given in Part-4 of National Building Code of India-2016 and relevant BIS specifications.</p>
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Chief Fire Officer (SAG) FPW,
Odisha

NOTE

- (i) It is a digitally signed electronically generated certificate and therefore needs no ink-signed signature.
- (ii) This Certificate is issued as per section 4, 5, & 6 of Information Technology Act 2000 and its subsequent amendments in 2008.
- (iii) For any Query or Verification, Agency / Department / Office may visit <http://agnishamaseva.odisha.gov.in>



(iv) Tampering of this Certificate will attract penal action.

