



Government of Goa
Directorate of Fire & Emergency Services
(ISO 9001:2015 & 45001:2018 Certified)

St. Inez, Panaji,
Goa – 403 001 – India



File No.: DFES/FP/HB/325/24-25/261

Date : 27.01.2025

Sub:- Provision of Fire Safety Measures for the Existing Residential Building Block – A and Block B and Existing Hotel Building Block C “**Mannat Lavicas Residency**” for M/s.Mannat Infra Developer and Contractors on Plot Bearing Survey No. 25/1, 25/1-A of Morambi-O-Grande, Village of Tiswadi, Goa.

Ref:- Your Online application No.FES2500241, dated; 13.01.2025.

With reference to the above, the Architectural Plans and Fire Protection Plans for Existing Residential Building Block – A and Block B and Existing Hotel Building Block C “**Mannat Lavicas Residency**” for M/s.Mannat Infra Developer and Contractors on Plot Bearing Survey No. 25/1, 25/1-A of Morambi-O-Grande, Village of Tiswadi, Goa, has been vetted by this office for the in-built fire protection arrangements as per National Building Code of India (Part 4 – Fire & Life Safety) as amended in 2016. Since the buildings comes under the category **Group A – Residential Building, and Hotel Building respectively** necessary Active and Passive Fire Protection Measures have to be incorporated in the building as stipulated in the **Annexure ‘A’**.

In terms of section 15.2.2(d) of the Goa Land Development and Building Construction Regulations, 2010, you shall furnish an undertaking on Rs. 50/- stamp paper to abide by Fire Prevention and Fire Protection Measures recommended herewith in Annexure ‘A’ as amended from time to time.



(NITIN V. RAIKER)
DIRECTOR
FIRE & EMERGENCY SERVICES

Encl:- Annexure “A” & “B”

To,

M/s Mannat Infra Developers and Contractors,
Gera Imperium II, EDC Patto Plaza,
Panjim, Goa.

SA/-

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ANNEXURE "A"

I. **APPROACH FOR FIRE APPLIANCE**:-The main entrance of the plot shall be of adequate width to allow easy access to the fire service vehicles and in no case it shall measures less than 6 meters. The entrance gate shall fold back against the compound wall of the premises, thus leaving the exterior access way within the plot free for movement of fire service vehicle. If the main entrance at the boundary wall is built over, the minimum clearance shall be 5 meters.

The width of the main street on which the building abuts shall not be less than 10 meters as per the requirements of Clause 15.1.2(a) of Goa Land Development and Building Construction (Amendment) Regulations, 2024

II. **SET BACKS**:-The open space around the building Block A, B, & C shall be kept free of obstructions and shall be motorable, no projections shall be allowed in the open space. The approach and side setbacks to be provided for proposed building shall fulfill the requirements of **Clause 15.1.2(b) of Goa Land Development and Building Construction (Amendment) Regulations, 2024.**

III. **EXIT STAIRCASE**:-

a) The Existing Residential Building **Block A & Block B** and Hotel Building **Block C** shall be provided with Exit Staircases with adequate landing on every floor to the normal staircase as shown in the Architectural plan submitted to this office vide letter dated; 06.01.2025.

b) **The Exit Staircase indicated in the Architectural Plan submitted to this office shall be as per requirements of Clause 4.4.2.4.3, Sub Clause 4.4.2.4.3.2 of National Building Code of India, Part 4, Fire & Life Safety, 2016.**

i) The Exit Staircase shall be constructed of non-combustible material and the doorway leading to it shall have Fire Resistant Door (FRD) with Panic Bar of 2 hours fire resistance to prevent spread of fire and smoke. The Exit Staircase shall terminate on the Ground Floor.

ii) The Exit Staircases shall be placed remote from each other and shall be arranged to provide direct access in separate directions from any floor.

iii) The Exit Staircase shall have flight not less than 125 cms. wide with 25 cms. Treads and Risers not more than 19 cms. and should be limited to 12 per flight.



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iv) The floor indication board of size not less than 300 mm x 200 mm, indicating the location/ designated number of staircase, respective floor number and direction to exit discharge shall be placed inside the staircase, on the wall nearest to the fire door. Individual floors shall be prominently indicated on the wall outside the staircase and facing it.

IV. **DOORWAYS:-** All Exit Doorways in the Highrise Residential Building **Block A & Block B** and Hotel Building **Block C** shall conform to the requirements of Clause 4.4.2.4.1 of National Building Code of India 2016, Fire & Life Safety (Part 4).

V. **ROOM ENTRANCE:-** The Room entrance and kitchen doors shall be of solid core with **fire resistance of not less than half hour** (solid wood of 35 mm Shutter) finished thickness and the same shall be of self closing type.

VI. **LIFTS:-**

- a) The lifts in the Residential Building **Block A & Block B** and Hotel Building **Block C** shall be provided with a minimum capacity for **Eight (8) Passengers** fully automated with emergency Switch on ground level and shall be equipped with inter communication equipments.
- b) Wall enclosing lift shall have fire resistance of not less than 2 hours.
- c) Shaft shall have permanent vents of not less than 0.2 sq. mtrs. in clear area immediately under machine room.
- d) Landing doors and lift car doors of the **lift shall be of steel shutters of fire resistance of one hour**. No collapsible shutters / gates shall be permitted.
- e) Grounding switch(es), at ground floor level, shall be provided on all the lifts to enable the fire service to ground the lifts. In case of emergencies the lift should cease at the ground floor.
- f) 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'**.
- g) All the requirements of the Lifts shall comply with Part 8 'Building Services, Section 5 Installation of Lifts, Escalator and Moving Walks, Subsection 5A Lifts of National Building Code of India, 2016, Fire & Life Safety (Part-4).

VII. **ELECTRICAL CABLE SHAFT AND ELECTRICAL METER ROOM:-**

- a) The Electrical cable shafts in shall be exclusively used for electrical cables and should not open in the staircase enclosures.



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- b) The Inspection doors for the shaft if provided shall have **two hours fire resistance**.
- c) The Electrical shaft shall be sealed at each floor level with non-combustible material having **fire resistance rating of not less than 1 hour**.
- d) The Opening in walls or floors which are provided for the passage of all building services like cables, electrical wiring etc. shall be protected by enclosures in the form of Duct/Shaft with **fire resistance of not less than 2 hours. The door of the Shaft shall be of 2 hours fire rating**.
- e) The Electrical meter rooms shall be provided at ground floor level and they shall be adequately ventilated.
- f) The electrical installation should conform **BIS:1646:1997 Code of Practice for Fire Safety of Buildings (General) - Electrical Installation**.

VIII. SERVICE DUCTS AND SHAFTS:- All Openings in Separating Walls and Floors shall conform to the requirements of Clause 3.4.5.4 & 3.4.5.6 of National Building Code of India, 2016, Fire & Life Safety (Part-4).

IX. ESCAPE ROUTE LIGHTING:- Escape route lighting and Illumination of Means of Exit (Staircase and Corridor light) in the building shall be as per Clause 3.4.7 to 3.4.7.2 of National Building Code of India 2016, Fire & Life Safety (Part-4). The exit arrangements shall comply with IS:1644/1989 Code of Practice for 'Fire Safety of Building (General), Exit Requirements and Personal Hazard'.

X. LIGHTNING PROTECTION OF BUILDING: The Residential Building **Block A & Block B** and Hotel Building **Block C** shall be protected from lightning as per Part 8 'Building Services, Section 2 Electrical and Allied Installations' Clause 11 of National Building Code of India 2016 and same shall conform to IS: 2309/1989.

XI. FIRE FIGHTING REQUIREMENTS:-

- a) The Fire Protection Measures shall be provided in the building as incorporated in the fire fighting **drawing No. TC /FF 01, TC /FF 02, TC /FF 03, TC /FF 04, TC /FF 05, TC /FF 06, TC /FF 07, TC /FF 08 & TC /FF 09** submitted to this office, vide your letter **dated 15.10.2024**.



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- b) **UNDERGROUND STATIC WATER STORAGE TANK:** - A RCC underground Static Water Storage tank of 50,000 liters' capacity shall be provided at ground level near Block C at the location marked on the plan as per design specified in the rules with baffled wall and shall exclusively used for Fire Fighting purpose as shown in per fire fighting drawing No MT-FF-02 & MT-FF-01.
- c) **OVERHEAD (TERRACE WATER STORAGE TANK):** RCC tank of 25,000liters' capacity shall be provided on top of the terrace level of the Residential Building **Block A & Block B** exclusively for fire fighting. The tank shall be connected to the Down Comer all through by a booster pump through a non-return valve and a gate valve.as per Fire Fighting Drawing No. DRG.NO. 01, DRG.NO.07 and DRG.NO.12
- d) **DOWN COMER:** -Down Comer shall be installed in the Residential Building **Block A and Block B** of internal diameter of 10 cms. of GI 'C' class pipe shall be provided in the duct of the building on every floor with landing valve on each floors along with Hose Boxes and 2 Nos. of **Elastomeric Coated Delivery Hoses** of 70 mm diameter having a length of 15 mtrs. each with hand controlled Branch pipe and Hose Reel Hose of 30 mts length conforming to type 'A' 884-1985 on each floor in such a way as not to reduce the width of the corridor and no part of the floor is more than 6 mtrs. away from the nozzle when fully extended as per Fire Fighting Drawing No. DRG.NO.01, DRG.NO.02, DRG.NO.03, DRG.NO.04, DRG.NO.05, DRG.NO.06, DRG.NO.07, DRG.NO.08, DRG.NO.09, DRG.NO.10, DRG.NO.11, DRG.NO.12.
- e) **WET RISER :** - Wet Riser of internal diameter of 10 cms. of GI 'C' class pipe shall be provided in the duct of the Hotel building **Block C** on every floor with landing valve on each floors alongwith Hose Boxes and 2 Nos. of **Elastomeric Coated Delivery Hoses** of 70 mm diameter having a length of 15 mtrs. each with hand controlled Branch pipe and Hose Reel Hose of 30 mts length conforming to type 'A' 884-1985 on each floor in such a way as not to reduce the width of the corridor and no part of the floor is more than 6 mtrs. away from the nozzle when fully extended. As per fire fighting drawing **No. MT-FF-01, MT-FF-02, MT-FF-03 and MT-FF-04.**
- f) **FIRE SERVICE INLET CONNECTION:-** 01 No of Two way Fire Service Inlet Connection of 63 mm diameter standard coupling each shall be provided at



the ground floor in the premises of Block A & B and Block C to connect the mobile pump of the fire service to the Wet Riser cum Down Comer of Block A & B and Block C respectively as per fire fighting drawing No. MT-FF-01 and MT-FF-02.

- g) **COURTYARD HYDRANT**:- 07 Nos. Courtyard Hydrants shall be located in the courtyard of Block A & B and Block C with a minimum size of the main being not less than 150 mm. which shall be pillar post type with 63 mm single outlet conforming to BIS:908 as per fire fighting drawing No. MT-FF-01 and MT-FF-02.
- h) **SPRINKLER SYSTEM**: - Automatic Sprinkler System confirming to Bureau of Indian Standard should be installed on First, Second, Third, Forth & Fifth Floor of **Block C**.
- i) **FIRE PUMP (Hotel Building Block C)**: -
- i) The Wet Riser shall be connected to an electric fire pump capable of delivering 1200 LPM of water at ground level at a pressure of not less than 3.5 Kg/cm². at the topmost internal hydrant.
 - ii) Another Electric pump of capacity 180 LPM shall be provided as Jockey Pump
 - iii) The Electric supply to these pumps shall be on independent circuit.
 - iv) The Fire Fighting Pump House shall confirm to the following requirement of Clause 5.1.2.2 of National Building Code of India 2016, Fire & Life Safety (Part-4).
 - i. The Pump house shall be situated so as to be directly accessible from the surrounding ground level.
 - ii. The Pump house shall be separated by fire walls all around.
 - iii. The Pump house shall be well ventilated and due care shall be taken to avoid water stagnation.
 - iv. No other utility equipment shall be installed inside fire pump room.
 - v. Insertions like flexible couplings, bellows, pressure guage etc. in the suction and delivery piping shall be suitably planned and installed.
 - vi. The Fire pumps shall be provided with soft starter or variable frequency drive starter.



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j) **FIRE PUMP (Residential Building Block A and Block B):-**

- i) The Electric Fire Pump of 900 LPM each giving a pressure of not less than 3.5 kg/cm² at the top most hydrant outlet of the Down Comer shall be provided at terrace level of Block A & B and Block C.
- ii. The Electric supply to these pumps shall be on independent circuit.
- iii. The Electric Main of the Terrace Pump shall be provided on the Ground Floor.

k) **FIRE DETECTION AND ALARM SYSTEM: -**

- i) **MANUALLY OPERATED ELECTRIC FIRE ALARM SYSTEM:** The Residential Building **Block A & Block B** and Hotel Building **Block C** shall be provided with the above system conforming to BIS:2189/1999 with the main control panel at ground floor and pill boxes, hooters at each side of the upper floors. The Layout shall be in accordance with Indian Standard Specification.
 - ii) **SMOKE DETECTORS:-** Smoke Detectors of Optical type as per Indian Standard Specification should be installed **on First, Second, Third, Forth & Fifth Floor of Hotel Building Block C.**
 - iii) **HEAT DETECTORS (Hotel Building Block C):-** Rate of Rise type Heat Detectors as per Indian Standard Specification should be provided in the Kitchen.
 - iv) The entire building shall be provided with Analogue addressable type Automatic Fire Alarm system conforming to BIS:2189/1999.
 - v) The Fire Detection & Alarm System shall be integrated with the Voice Evacuation System having Hindi, English and Vernacular languages using pre-recorded messages for alerting the zone of life.
 - vi) Visual Warning Arrangement through Visual Strobes/Beacons shall be installed in the building to ensure visual as well as alarm for persons with hearing impairment.
- l) **KITCHEN FIRE PROTECTION (Hotel Building Block C):-** The kitchen hoods installed in the kitchens shall be suitably protected with Automatic Fire Detection cum Suppression system. The L.P.G installation shall be constructed outside the kitchen/ building and the construction should conform to IS:6044 (Part-I). The L.P.G manifold and pipeline should be tested as per the standards. The L.P.G bank and Kitchen shall be provided with L.P.G leak detectors.



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- m) **GAS BASED DETECTION CUM SUPPRESSION SYSTEM:** All the Electrical Panels, Server Room and UPS Battery Room shall be provided with Gas Based Detection cum Suppression System.
- n) **ALTERNATE SOURCE OF POWER SUPPLY:** - Independent Secondary Circuit fed by Secondary source of Power supply with appropriate change over switch shall be provided for the Fire Protection Systems viz. Corridor Lighting, Smoke Venting System, Fire Alarm system, Fire Pumps, Lift in the building.
- The installation of Alternate Source of Power Supply in the Premises shall conform to the requirements of Clause 3.4.6.4 of National Building Code of India 2016, Fire & Life Safety (Part-4).
- o) **PORTABLE FIRE EXTINGUISHERS:** - The type/distribution of Fire Extinguishers shall be in accordance with BIS:2190/2010 in the building. All Fire Extinguishers shall conform to IS:15683/2006.
- p) **DIRECTIONAL EXIT & FIRE SAFETY, BARRIER FREE ACCESS SIGNAGES:** - The Directional Exit, Fire Safety & Person with disability Signages shall be installed at appropriate places on all the floors of the building the Signages shall correspond to the specimen and size enclosed in Annexure "B".









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ANNEXURE "B"

The colour of the Directional and Fire Safety signages shall be **RED** with Graphic symbol in **WHITE** colour and the colour of the Emergency escape signages shall be **GREEN** with Graphic symbol in **WHITE** colour as per IS 9457:2005.

Sr. No.	D E S C R I P T I O N	S I Z E (mm)	I M A G E S
	Emergency Exit Signages (Photoluminescent)		
1	Exit Signage	100 X 300	
2	Staircase Identification Signage (Photoluminescent)	100 X 300	
3	Staircase Identification Signage (Photoluminescent)	100 X 300	
4	Fire Alarm Signage	200 X 250	
5	Fire Extinguisher Signage	200 X 250	
6	Hose Reel Hose Signage	200 X 250	
7	Assembly Point Signage	600 X 600	

The colour of the Signages will be **BLUE** with Graphic symbol in **WHITE** colour as per IS 9457:2005.

Sr. No.	D E S C R I P T I O N	S I Z E (mm)	I M A G E S
	Signages (Photoluminescent)		
1	Access symbol	200 X 200	
2	Ramp	200 X 200	
3	Lift	200 X 200	
4	Parking	200 X 200	
5	Directional Signs	200 X 200	



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