

**Office of the Director
General of Police**

Commandant General, Home
Guards & Director of Civil Defence
and Director General Karnataka
State Fire & Emergency Services
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KARNATAKA STATE FIRE & EMERGENCY SERVICES
NO OBJECTION CERTIFICATE

No. KSFE5/GBC(1)/373

Docket No. KSFE5/NOC/336/2022

Dated : 12/10/2022 16:33

To,

Commissioner,
Hoskote Planning Authority,
Mission Hospital Road, 1st Cross
Sri Venkatadri Block,
Bengaluru Rural -562114.

Sir

Sub : Issue of No Objection Certificate for the construction of Residential building at Plot No - 2, Sy No. 29, 30, 31, 32, 33, 37, 38, 39, 40/1, 40/2, 40/3, 42/2, 42/2A & 42/2C of Huskur Village, Bidarahalli Hobli, Bangalore East, BANGALORE - 560049

Ref:

1. Letter dated 19/08/2022 of the Authorized Signatory, M/s. UNITED PROJECTS Repr by its Managing Partners, Sri. M. Panchaksharaiah Hiremath & Sri. Balakrishna Gorripate, Bangalore East, BANGALORE - 560049

With reference to the letter of the M/s. UNITED PROJECTS Repr by its Managing Partners, Sri. M. Panchaksharaiah Hiremath & Sri. Balakrishna Gorripate, Bangalore East, BANGALORE - 560049 cited above, the Regional Fire Officer, CFO - Bangalore East Zone of this department has inspected the site of proposed Residential buildings at Sy No. 29, 30, 31, 32, 33, 37, 38, 39, 40/1, 40/2, 40/3, 42/2, 42/2A & 42/2C of Huskur Village, Bidarahalli Hobli, Bangalore East, BANGALORE - 560049 on 08/09/2022 12:00 with reference to the drawings furnished by the builder and the details are as follows:

Part-A: General Building requirements.	
1 Address of Applicant	The Authorised Signatory, "M/s. United Projects.", Plot No - 02, Karnataka Housing Board in Sy nos - 29, 30, 31, 32, 33, 37, 38, 39, 40/1, 40/2, 40/3, 42/2, 42/2A & 42/2C, Huskur Village, Bidarahalli Hobli,

U.G sumps.

Block - A (Wing - 1, 2, 3 & 4 - joined together) :

Ground floor

For parking 146 Cars, Fire Control room & Electrical room.

Wing - 1

1st floor to 12th floor

07 flats on each floor x 12 floors = 84 flats.

13th floor

07 Duplex flats.

14th floor

Upper portion of Duplex flats,

Terrace floor

Lift machine rooms, Staircase head rooms & Domestic and fire terrace tanks.

Wing - 2

1st floor to 12th floor

07 flats on each floor x 12 floors = 84 flats.

13th floor

06 Duplex flats & 1 regular flat.

14th floor

Upper portion of Duplex flats & 1 regular flat.

Terrace floor

Lift machine rooms, Staircase head rooms & Domestic and fire terrace tanks.

Wing - 3

1st floor to 12th floor

10 flats on each floor x 12 floors = 120 flats.

13th floor

08 Duplex flats & 2 regular flats.

14th floor

Upper portion of Duplex flats & 2 regular flats.

Terrace floor

Lift machine rooms, Staircase head rooms & Domestic and fire terrace tanks.

Basement

Parking & services. (details to be provided)

7	THE CHIMNEY OR IS MEASURED BY THE VERTICAL TO THE FINISH OF THE LAST INHABITABLE FLOOR OF THE BUILDING ADJACENT TO THE EXTERNAL WALL; AND IN THE CASE OF PITCHED ROOFS, UP TO THE POINT WHERE THE EXTERNAL SURFACE OF THE OUTER WALL INTERSECTS THE FINISHED SURFACE OF THE SLOPING ROOF; AND IN THE CASE OF GABLES FACING THE ROAD, THE MID-POINT BETWEEN THE EAVES LEVEL AND THE RIDGE. ARCHITECTURAL FEATURES SERVING NO OTHER FUNCTION EXCEPT THAT OF DECORATION SHALL BE EXCLUDED FOR THE PURPOSE OF MEASURING HEIGHTS.	14.54 mtrs.
8	Site Area (In Sq.Mtrs) As per Part 3 Development Control Rules and General Building Requirements clause 2.75 of NBC	19,008.38Sq. mtrs.
9	Built up area of each floor. (Block wise)(In Sq.Mtrs)	Block – A (Wing – 1, 2, 3 & 4 – joined together) & Block – B (Club house) Common Basement 8,816.01 sq. Mtrs. Block – A (Wing – 1, 2, 3 & 4 – joined together) Ground floor 4,640.96 Sq.mtrs. 1st floor 3,669.63 Sq. Mtrs. 2nd floor to 12th floor 40,372.64 Sq. Mtrs. (3,670.24 Sq. Mtrs. On each floor X 11 floors) 13th floor 3,822.32 Sq mtrs. 14th floor 2,719.20Sq. Mtrs. Terrace floor 290.20 Sq. Mtrs. Block – B (Club house) : Ground floor 252.62 Sq. Mtrs. 1st floor 239.31 Sq. Mtrs. 2nd floor 239.31 Sq. Mtrs. 3rd floor 239.31 Sq. Mtrs. Terrace floor

2

the minimum clearance shall be 4.5 m.

As per Part 3 Development Control Rules and General Building Requirements clause 4.6 of NBC 2016

a) The width of the main street on which the building abuts shall not be less than 12 m and one end of this street shall join another street not less than 12 m in width.

b) The road shall not terminate in a dead end, except in the case of residential building, up to a height of 30 m.

a. Main entrance width (mtrs)

b. Is Entrance gate provisioned

c. Is any Parabola planned

page.

Is Entrance gate provisioned :

Yes

Is any Pergola planned : NO

Width of open space (Setbacks)

Width of open space (Setbacks) 24

As per Part 3 Development Control Rules and General Building Requirements of NBC 2016

Clause 2.57 Open Space: — An area, forming an integral part of the plot, left open to the sky. NOTE — The open space shall be the minimum distance measured between the front, rear and side of the building and the respective plot boundaries.

2.58 Open Space, Front — An open space across the front of a plot between the building line and front boundary of the plot.

2.59 Open Space, Rear — An open space across the rear of a plot between the rear of the building and the rear boundary of the plot.

2.60 Open Space, Side — An open space across the side of the plot between the side of the building and the side boundary of the plot.

As per Part 3 Development Control Rules and General Building Requirements clause of NBC 2016
Table 4 Side and Rear Open spaces to be left around the Building (Clause 8.2.3.1)

Sl No.	Height of the Building	Side and rear open spaces to be left around the building
1.	10	3
2.	15	5
3.	18	6
4.	21	7
5.	24	8
6.	27	9

Height of the Block - A (Wing - 1, 2, 3 & 4 - joined together) is

Width of means of access

As per Part 3 Development Control Rules and General Building Requirements of NBC 2016

Clause 4.3 Width of Means of Access

The residential plots shall abut on a public means of access like street/road which is 12mtrs wide.

Plots which do not abut on a street/road shall abut/front on a means of access, the width and other requirements of which shall be as given in Table 1.

Table 1 Width and Length of Means of Access (Clause 4.3)

Sl no.	Width of means of access	Length of means of access
(I)	(2)	(3)
i.	6.0	75
ii.	7.5	150
iii.	9.0	250
iv.	12.0	400
v.	18.0	1000
vi.	24.0	Above 1000

Note: If the development is only on one side of the means of access, the prescribed widths may be reduced by 1 m in each case.

In no case, development on plots shall be permitted unless it is accessible by a public street of width not less than 6 m.

Street/ Road width (mtrs)

Street/ Road width:-The building are directly abutting to 60.00 mtrs. wide Bangalore – Hoskote NH – 4 road, located on the southern side.

Arrangement for parking the cars and ramps.

Arrangement for parking the cars and ramps. 26

As per Part 3 Development Control Rules and General Building Requirements of NBC 2016

Clause 2.63: Parking Space — An area enclosed or unenclosed, covered or open, sufficient in size to park vehicles, together with a drive-way connecting the parking space with a street or alley and permitting ingress and egress of the vehicles.

Arrangement for parking the cars and ramps and conditions for buildings on podium.

4.6.1 Buildings on Podium

4.6.1.1 Podium is a horizontal projection (platform) extending beyond the building footprint on one or more sides, and may consist of one or more levels (see Fig. 8A).

4.6.1.2 Uses permitted Podium may be used for the

maximum slope of 1 in 10,

e) Podium shall not be permitted in required minimum front open space.

f) Podium, if accessible to fire tender, shall be so designed so as to take the load of fire tender weighing up to 45 t minimum or as per the requirement laid down by the Fire Department.

g) Requirement of accessibility for elders and persons with disabilities shall be ensured in compliance with the provisions of Annex B which may require providing ramps with specified gradient or accessible lifts for access to different levels.

4.6.1.4 Requirements for fire tender movement

a) Buildings having height more than 15 m above ground level shall necessarily be accessible by fire tender, as follows (see Fig. 9A):

1) For buildings having floor area less than 10 000 m², fire tenders shall have access to at least one-third of the perimeter of building which shall be minimum 6.0 m wide and having 9.0 m turning radius.

2) For buildings having floor area more than 10 000 m², fire engine shall have an access to at least to half of the perimeter of building which shall be minimum 6.0 m wide and having 9.0 m turning radius.

b) If podium is not accessible by fire tender, the podium may be such that it is not extended beyond the building footprint to an extent more than 11.0 m on the side where fire tender access is provided (see Fig. 9B and Fig. 9C). Such restriction shall not apply in case podium is accessible by fire engine (see Fig. 9D).

c) Minimum 6.0 m driveway width and 9.0 m width at turning shall be available for fire tender movement all around the podium. NOTE: The width and turning radius of ramp for fire tender access, and requirements of motorable open space for fire tender movement given above pertain to fire tender weighing up to 45 t and its operability. For heavier fire tenders, these shall be as per the requirement laid down by the Fire Department (see also 4.6 (c)).

4.7 Cul-de-sacs giving access to plots and extending from 150 m to 275 m in length with an additional turning space at 150 m will be allowed only in residential areas, provided cul-de-sacs would be permissible only on straight roads and further provided the end of cul-de-sacs shall be higher in level than the level of the starting point of such dead end road. The turning space, in this case shall be not less than 81 m² in area, with no dimension less than 9 m.

a. No. of ramps

b. Width of Ramp (mtr)

side & eastern.

following:

6

- 1) The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2 m
- 2) Access to exit staircase shall be through a fire door of a minimum 120 min fire resistance rating.
- 3) No living space, store or other fire risk shall open directly into staircases.
- 4) The exit (including staircases) shall be continuous from refuge floors or terrace level, as applicable, to the level of exit discharge.
- 5) No electrical shafts/air conditioning ducts or gas pipes, etc. shall pass through or open in the staircases.
- 6) Lifts shall not open in staircase.
- 7) No combustible material shall be used for decoration/wall paneling in the staircase.
- 8) Beams/columns and other building features shall not reduce the head room/width of the staircase.
- 9) The floor indication board, 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. It shall be of size not less than 300 mm x 200 mm (see Fig. 9).

10) Individual floors shall be prominently indicated on the wall outside the staircase and facing it.

11) All staircases shall terminate at the level of exit discharge. The access to the basement shall be by a separate staircase.

12) Scissors type staircases shall not be treated as part of exit.

a. No. of Staircases in Blocks/Wings

b. Floor area (sqm)

c. Area of Basement (sqm)

d. No. of Basement

e. Threadwidth (mm)

f. No. of Doors (nos)

g. Fire Rating (min)

h. Stairs around Lift : YES/NO

i. Stairs are clear from any other service routings : YES/NO

j. No other services is taken inside the stairs : YES/NO

k. Staircase width : (mtrs)

l. Staircase head room: (mtrs)

Maximum 239.31 Sq. Mtrs. per floor.

Area of Common Basement

Maximum 8,816.01 Sq. Mtrs.

No. of Basement: 1 Basement.

Fire Rating : 120 min

Stairs around Lift : NO

Stairs are clear from any other service routings : YES

No other services is taken inside the stairs : NO

Fire door rating : 120 min.

Fire Signage board : YES

Staircase terminated at Ground level :

All staircases are terminated at ground floor & 10 separate staircases have been proposed to reach common Basement parking area from the ground floor.

	b. Width of treads <i>As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016:</i> The minimum width of tread without nosing shall be 250 mm for staircase of residential buildings.	300 mm
	c. Height of riser <i>As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016:</i> The maximum height of riser shall be 150 mm for staircase of residential buildings.	150 mm
	d. Number of risers in a flight <i>As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016:</i> The number of risers shall be limited to 12 per flight.	10 risers per flight.
	e. Height of hand rails <i>As per clause 4.4.2.4.3.2 (f) of Part 4 Fire and Life Safety of NBC 2016:</i> Handrails shall be provided at a height of 1 000 mm to be measured from the base of the middle of the treads to the top of the handrails. Balusters/railing shall be provided such that the width of staircase does not reduce.	1.00 mtr.
	f. Head room clearance <i>As per Part 3 Development Control Rules and General Building Requirements: clause 2.79 of NBC 2016</i> <i>As per clause 4.4.2.4.3.2 (h) (1) of Part 4 Fire and Life Safety of NBC 2016:</i> The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2 m.	2.40 mtrs.
9	Fire Tower <i>As per Part-4, NBC 2016, 2.24 Firefighting Shaft (Fire Tower) -</i>An enclosed shaft having protected area of 120 min fire resistance rating comprising protected lobby, staircase and fireman's lift, connected directly to exit discharge or through exit passageway with 120 min fire resistant wall at the level of exit discharge to exit discharge. These shall also serve the purpose of exit requirement/strategy for the occupants. The respective floors shall be approachable from fire-fighting shaft enabling the fire fighters to access the floor and also enabling the fire fighters to assist in evacuation through fireman's lift. The firefighting shaft shall be equipped with 120 min fire doors. The firefighting shaft shall be equipped with firemen talk back, wet riser and landing valve in its lobby, to fight fire by fire fighters (see Fig. 2 for a typical fire fighting shaft).	Proposed to provide 4 Fire Towers at Block-A (1 in each Wing) as per Part-4, NBC 2016, 2.24 Fire fighting Shaft (Fire Tower)

Fire Lifts — Following details shall apply for a fire lift:

1) To enable fire services personnel to reach the upper floors with the minimum delay, one fire lift per 1 200 m² of floor area shall be provided and shall be available for the exclusive use of the firemen in an emergency.

2) The lift shall have a floor area of not less than 1.4 m². It shall have loading capacity of not less than 545 kg (8 persons lift) with automatic closing doors of minimum 0.8 m width.

3) 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 the lift shaft. Lights and fans in the elevators having wooden paneling or sheet steel construction shall be operated on 24 V supply.

4) *Fire fighting lift should be provided with a ceiling hatch for use in case of emergency, so that when the car gets stuck up, it shall be easily openable.*

5) *In case of failure of normal electric supply, it shall automatically trip over to alternate supply. For apartment houses, this changeover of supply could be done through manually operated changeover switch. Alternatively, the lift shall be so wired that in case of power failure, it comes down at the ground level and comes to stand-still with door open.*

6) The operation of a fire lift is by a simple toggle or two-button switch situated in a glass-fronted box adjacent to the lift at the entrance level. When the switch is on, landing call-points will become inoperative and the lift will be on car control only or on a priority control device. When the switch is off, the lift will return to normal working. This lift can be used by the occupants in normal times.

7) The words "Fire Lift" shall be conspicuously displayed in fluorescent paint on the lift landing doors at each floor level.

8) The speed of the fire lift shall be such that it can reach the top floor from ground level within 1 min.

Specification of lifts:

C-1.5 Lifts

General requirements of lifts shall be as follows:

11. a) Walls of lift enclosures shall have a fire rating of 2 h. Lift shafts shall have a vent at the top of area not less than 0.2 m².
- b) Lift motor room shall be located preferably on top of the shaft and separated from the shaft by the floor of the room.
- c) Landing doors in lift enclosures shall have a fire resistance of not less than 1 h.
- d) The number of lifts in one row for a lift bank shall not

Block - A

Wing - 1 : 01 Passenger lift of 10 persons capacity and 01 Fireman lift of 8 persons capacity (total 2 lifts).

Wing - 2 : 01 Passenger lift of 10 persons capacity and 01 Fireman lift of 8 persons capacity (total 2 lifts).

Wing - 3 : 01 Passenger lift of 10 persons capacity, 01 Fireman lift of 8 persons capacity and 01 Service lift of 884 kgs capacity (total 3 lifts).

Wing - 4 : 01 Passenger lift of 10 persons capacity and 01 Fireman lift of 8 persons capacity (total 2 lifts).

Block - B (Club House)

12	fire resistance should be used for the construction of structures. Only fire resistant materials or materials treated with fire retardant chemicals, should be used for interior decoration work. While attending the interior decoration the fixed fire fighting systems like sprinklers / risers etc., should not be covered or shifted from their original location.	fire resistant materials or materials treated with fire retardant chemicals, should be used for interior decoration work. While attending the interior decoration the fixed fire fighting systems like sprinklers / risers etc., should not be covered or shifted from their original location.
13	Basements: 12.9.3. The basement shall have the following requirements: a) Every basement shall be in every part at least 2.4 m in height from the floor to the underside of the roof slab or ceiling; b) Adequate ventilation shall be provided for the basement. The ventilation requirements shall be the same as required by the particular occupancy according to byelaws. Any deficiency may be met by providing adequate mechanical ventilation in the form of blowers, exhaust fans, air conditioning systems, etc; c) The height of the ceiling of any basement shall be minimum 0.9 m and the maximum, 1.2 m above the average surrounding ground level. However, in case of parking, mercantile or business occupancy at ground floor, minimum height of the ceiling of the basement may be 0.3 m above the average surroundings ground level subject to mechanical ventilation being provided (see Fig. 11); d) Adequate arrangements shall be made such that surface drainage does not enter the basement; e) The walls and floors of the basement shall be watertight and be so designed that the effects of the surrounding soil and moisture, if any, are taken into account in design and adequate damp proofing treatment is given; f) The access to the basement shall be separate room the main and alternative staircase providing access and exit from higher floors. Where the staircase is continuous in the case of buildings served by more than one staircase, the same shall be of enclosed	Proposed to provide basement ventilation as per clause 12.9.3 of Part 4 Fire and Life Safety of NBC 2016.

enclosed in non-combustible construction.

2) If ducts used to pressurize the system are passed through shafts and grills are provided at each level, it shall be ensured that hot gases and smoke from the building cannot ingress into the staircases under any circumstances.

d) The normal air conditioning system and the pressurization system shall be designed and interfaced to meet the requirements of emergency services. When the emergency pressurization is brought into action, the following changes in the normal air conditioning system shall be effected:

1) Any re-circulation of air shall be stopped and all exhaust air vented to atmosphere.

2) Any air supply to the spaces/areas other than exits shall be stopped.

3) The exhaust system may be continued provided,

i) the positions of the extraction grills permit a general air flow away from the means of egress;

ii) the construction of the ductwork and fans is such that, it will not be rendered inoperable by hot gases and smoke; and

iii) there is no danger of spread of smoke to other floors by the path of the extraction system which can be ensured by keeping the extraction fans running.

e) For pressurized stair enclosure systems, the activation of the systems shall be initiated by signalling from fire alarm panel.

f) Pressurization system shall be integrated and supervised with the automatic/manual fire alarm system for actuation.

g) Wherever pressurized staircase is to be connected to unpressurized area, the two areas shall be segregated by 120 min fire resistant wall.

h) Fresh air intake for pressurization shall be away (at least 4 m) from any of the exhaust outlets/grille.

Pressurization of staircases & lift lobbies may be recommended as per requirement mentioned in Table-6.

As per clause 2.49 of Part 4 Fire and Life Safety of NBC 2016:

Pressurization—The establishment of a pressure difference across a barrier to protect a stairway, lobby, escape route or room of a building from smoke penetration.

Smoke exhaust and Pressurization of areas above ground as per clause 4.6.1 of Part 4 Fire and Life Safety of NBC 2016

Alternatively, a system of mechanical ventilation system may be provided with following requirements:

a) Mechanical ventilation system shall be designed to permit 12 air changes per hour in case of fire or distress call. However, for

normal operation, air changes schedule shall be as given in Part 8 'Building Services, Section 3 Air conditioning, Heating and Mechanical Ventilation' of the Code.

b) In multi-level basements, independent air intake and smoke exhaust shafts (masonry or reinforced concrete) for respective basement levels and compartments therein shall be planned with its make-up air and exhaust air fans located on the respective level and in the respective compartment. Alternatively, in multi-level basements, common intake masonry (or reinforced cement concrete) shaft may serve respective compartments aligned at all basement levels. Similarly, common smoke exhaust/outlet masonry (or reinforced cement concrete) shafts may also be planned to serve such compartments at all basement levels. All supply air and exhaust air fans on respective levels shall be installed in fire resisting room of 120 min. Exhaust fans at the respective levels shall be provided with back draft damper connection to the common smoke exhaust shaft ensuring complete isolation and compartmentation of floor isolation to eliminate spread of fire and smoke to the other compartments/floors.

c) Due consideration shall be taken for ensuring proper drainage of such shafts to avoid inundation condition. Inlets and extracts may be terminated at ground level with stall board or pavement lights as before. Stall board and pavement lights should be in positions easily accessible to the fire brigade and clearly marked 'AIR INLET' or 'SMOKE OUTLET' with an indication of area served at or near the opening.

d) Smoke from any fire in the basement shall not obstruct any exit serving the ground and upper floors of the building.

e) The smoke exhaust fans in the mechanical ventilation system shall be fire rated, that is, 250°C for 120 min.

f) The smoke ventilation of the basement car parking areas shall be through provision of supply and exhaust air ducts duly installed with its supports and connected to supply air and exhaust fans. Alternatively, a system of impulse fans (jet fans) may be used for meeting the requirement of smoke ventilation complying with the following:

1) Structural aspects of beams and other down

4. parking
Basements
2. 2000
(other than car parking)

In addition, there shall be requirement of a minimum of two compartments if the floor plate size is equal or less than the areas mentioned above. However, such requirement of minimum two compartments shall not be required, if the floor plate is less than 750 m². Compartmentation shall be achieved by means of fire barrier having fire resistance rating of 120 min.

Gas Supply

Gas Supply

As per clause 4.7.1 of Part 4 Fire and Life Safety of NBC 2016:

Town Gas/ LPG supply pipes

Where gas pipes are run in buildings, the same shall be run in separate shafts exclusively for this purpose and these shall be on external walls, away from the staircases. Gas distribution pipes shall always be below the false ceiling. The length of these pipes shall be as short as possible. In the case of kitchen cooking range area, hood should have grease filters using metallic grill to trap oil vapours escaping into the fire hood.

NOTE — For detailed information on gas pipe installations, reference may be made to Part 9 'Plumbing Services, Section 4 Gas Supply' of the Code.

4.7.2 Thermal detectors: These shall be installed into fire hoods of large kitchens for hotels, hospitals, and similar areas located in high rise buildings. Arrangements shall be made for automatic tripping of the exhaust fan in case of fire. If gas is used, the same shall be shut off. The voltage shall be 24 V or 100 V d.c. operated with external rectifier. The valve shall be of the hand re-set type and shall be located in an area segregated from cooking ranges. Valves shall be easily accessible. The hood shall have manual facility for steam or suitable hood extinguishing gas released depending on duty condition.

4.7.3 Gas cylinders and manifold shall need to be housed in a detached location with no other occupancy within distances prescribed in good practice [4(14)] thereof. There shall be an enclosure suitably ventilated. It is desirable to provide medium velocity spray nozzles which can be operated by quick opening valve situated away from the enclosure.

4.7.4 In the case of gas cylinders, if manifold has to be installed on podium close to podium, the same shall be away from any air intakes/smoke exhaust openings/ any

If Town Gas / LPG supply system is proposed in the building, it shall be provided as per clause 4.7.1 of Part-4 Fire and Life Safety of NBC 2016 & separate NOC has to be obtained from this department.

3.4.7.1 Lighting

a) The exit, exit access and exit discharge systems shall be illuminated continuously. The floors of the means of egress shall be illuminated at all points, including angles and intersections, in corridors and passageways, stairwells, landings of stairwells and exit.

b) Emergency lighting shall be powered from a source independent of that supplying the normal lighting.

c) Escape lighting shall be capable of:

- 1) indicating clearly and unambiguously the escape routes;
- 2) providing adequate illumination along such routes to allow safe movement of persons towards and through the exits; and
- 3) Ensuring that fire alarm call points and Fire fighting equipment provided along the escape routes can be readily located.

d) The horizontal luminance at floor level on the centreline of an escape route shall not be less than $10 \text{ lux} / \text{m}^2$. In addition, for escape routes up to 2 m wide, 50 percent of the route width shall be lit to a minimum of $5 \text{ lux} / \text{m}^2$.

e) Required illumination shall be arranged such that the failure of any single lighting unit, such as the burning out of one luminaire, will not leave any area in darkness and does not impede the functioning of the system further.

f) The emergency lighting shall be provided to be put on within 5 s of the failure of the normal lighting supply. Also, emergency lighting shall be able to maintain the required illumination level for a period of not less than 90 min in the event of failure of the normal lighting even for smaller premises.

g) Battery pack emergency lighting, because of its limited duration and reliability, shall not be allowed to be used in lieu of a diesel engine driven emergency power supply.

h) Escape lighting luminaires should be sited to cover the following locations:

- 1) Near each intersection of corridors,
- 2) At exits and at each exit door,
- 3) Near each change of direction in the escape route,
- 4) Near each staircase so that each flight of stairs receives direct light,
- 5) Near any other change of floor level,
- 6) Outside each final exit and close to it,
- 7) Near each fire alarm call point,
- 8) Near fire fighting equipment, and
- 9) To illuminate exit and safety signs as required by the enforcing authority.

Escape Lighting and Exit Signage's.
3.4.7 Escape Lighting and Exit Signage
Exit access, exits and exit discharge shall be properly identified, with adequate lighting maintained in the elements of the egress systems so that all occupants shall be able to leave the facility safely.

Electric Power Supply

NBC 2016, Part-4 Fire and Life Safety

3.4.6.2 Emergency power for fire and life safety systems

Emergency power supplying distribution system for critical requirement for functioning of fire and life safety system and equipment shall be planned for efficient and reliable power and control supply to the following systems and equipment where provided:

- a) Fire pumps.
 - b) Pressurisation and smoke venting including its ancillary systems such as dampers and actuators.
 - c) Fireman's lifts (including all lifts).
 - d) Exit signage lighting.
 - e) Emergency lighting.
 - f) Fire alarm system.
 - g) Public address (PA) system (relating to Emergency voice evacuation and announcement).
 - h) Magnetic door hold open devices.
 - j) Lighting in fire command centre and security room.
- Power supply to these systems and equipment shall be from normal and emergency (standby generator) power sources with changeover facility. If power supply is from HV source and HV generation, the transformer should be planned in standby capacity to ensure continuity of power to such system. Wherever and backup DG sets are of higher voltage rating, then dual redundant cables shall be taken to all transformers. The generator shall be capable of taking starting current of all the fire and life safety systems and equipment as above. Where parallel HV/LV supply from a separate substation fed from different grid is provided with appropriate transformer for emergency, the provision of generator may be waived in consultation with the Authority.

3.4.6.4 Standby supply

Diesel generator set(s) shall not be installed at any floor other than ground/first basement. If the same are installed indoors, proper ventilation and exhaust shall be planned. The DG set room shall be separated by 120 min fire resistance rated walls and doors. The oil tank for the DG sets (if not in the base of the DG) shall be provided with a dyked enclosure having a volumetric capacity of at least 10 percent more than the volume of the oil tank. The enclosure shall be filled with sand for a height of 300 mm. For detailed information regarding fire safety requirements for hazardous petroleum products, reference may be made to The Petroleum Act, 1934 and the Rules framed there under.

Proposed to provide 2 nos.

generators, each of 350 KVA capacity shall be installed in the open space available at North – West corner of the premises after leaving 08.00 mtrs driveway to supply alternative power for staircase lighting, corridor lighting, fire fighting systems and lifts etc., in the event of failure of electricity supply, in the buildings.

Down corner system

Down corner system. 47

	branch pipe near each hydrant outlet in a proper box to protect it from withering	
5	Yard hydrant system. NBC-2016, Part-4, Clause 2.64.1 : Hydrant system- A distribution system having a network of piping installed underground / above ground around and / or through inside of a building with internal and / or external hydrants fitted with landing walls at regular interval according to the occupancy. The distribution system is connected to water supply system from fire fighting. NBC-2016, Part-4, Table 7 (7) Yard hydrant shall be provided for, Apartment Houses (A-4) 1. 45 m and above in height. At least two fire service inlets to boost the water in the riser directly from the mobile pump should also be provided. These inlets should be located at an easily accessible position, preferable near the entry point to the premises.	1 no. 2 way Fire Service inlets near the entrance shall be provided.
6	Underground static water storage tank combined capacity for wet riser, yard hydrant and sprinklers per set of pumps NBC-2016, Part-4, Table 7 (11) Underground Static Water Storage Tank Combined Capacity for Wet Riser, Yard hydrant and Sprinklers per set of Pumps shall be provided for, Apartment Houses (A-4) 1. Above 35 m but not exceeding 45 m. In height – 75,000 lts. 2. Above 45 m but not exceeding 60 m. In height – 1,50,000 lts. 3. Above 60 m in height. – 2,00,000 lts. Note: Fire tank to be always filled with water. Over flow of fire tank to be taken to domestic tank. Arrangement should be such that any incoming water should first fill-up fire tank, then overflow to other utilizations. H-4 ENCLOSED PARKING STRUCTURES c) For basement car parking, compartmentation can be achieved, with fire barrier or with water curtain nozzle (K-23) or with combination thereof. Automatic deluge system comprising deluge valve, piping, nozzles, etc shall be used to zone the compartment in case of water curtain system. In case of water curtain, existing water storage shall be supplemented by water demand for water curtain nozzles for 60 min considering the largest compartment, perimeter out of all compartments of car parking in any of the basements.	The wet riser-cum-down comer systems and water curtain system will be connected to combined underground tank of 1,25,000 liters capacity.

height

(Note 11 Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2 280 litre/min and two electric pump of capacity 180 litre/min (see Fig. 12) (see also Notes 22 and 23).

(Note 22 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.

Note 23 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.)

1. Above 60 m in height

(Note 12 Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2 850 litre/min and two electric pump of capacity 180 litre/min (see Fig. 12) (see also Notes 22 and 23)

(Note 13 Lower levels in high rise buildings 60 m or above in height are likely to experience high pressure and therefore, it is recommended to consider multi-stage, multi-outlet pumps (creating pressure zones) or variable frequency drive pumps or any other equivalent arrangement)

(Note 22 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.

(Note 23 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.)

If Basement is compartmented using water curtains additional pump as per clause H-4 d) The water supply for the water curtain nozzles shall be through independent electric pump of adequate capacity (flow and head) with piping/riser for the water supply to the nozzles to be provided.

Pumps at the Terrace Tank level with Minimum Pressure of 2.0 kg/cm².

NBC-2016, Part-4, Table 7 (14) pumps at the Terrace tank level with Minimum Pressure of 3.5 kg/cm² shall be provided for,

Apartment Houses (A-4)

1. Less than 15 m in height 450 LPM (450 LPM)

(Note 6: Additional value given in parenthesis shall be added if basement area exceeds 200 m².)

The wet riser-cum-down comer systems of Block-A & Block-B will be connected to 01 no electrically driven pump & 01 no. diesel driven pump capable of delivering 2280 litres of water per minute and 01 No. jockey pump capable of delivering 180 litres of water per minute.

The water curtain systems will also be connected to an electrically driven pump, capable delivering 900 liters of water per minute.

Not required.

Automatic sprinkler system

Automatic Sprinkler System —A system of water pipes fitted with sprinkler heads at suitable intervals and heights and designed to actuate automatically, control and extinguish a fire by the discharge of water.

NBC-2016, Part-4, Table 7 (8) Automatic Sprinkler system.

Apartment Houses (A-4).

1. Upto 35 m in height.

(Note 4: Required to be installed in basement if area of basement exceeds 200 m²)

2. Above 35 m but not exceeding 45 m in height.

(Note 4: Required to be installed in basement if area of basement exceeds 200 m² and Note 9: Sprinklers shall be fed water from both underground static water storage tank and terrace tank)

45 m and above in height to be installed in entire building (Basements, ground and all upper floors)

Sprinkler system with sprinkler heads & water curtain nozzles as indicated below:-

Floor	Sprinkler heads	Water Curtain Nozzles
Block – A (Wing - 1, 2, 3 & 4) – joined together & Block – B (Club House)		
Common	433	40
Basement		
Block – A (Wing - 1, 2, 3 & 4) – joined together		
Ground Floor	151	--
Block – B (Club House)		
Ground floor	11	--
1 st floor	11	--
2 nd floor	11	--
3 rd floor	11	--

NBC-2016, Part-4, Annex-E-4 HORIZONTAL EXITS/REFUGE AREA

a) A horizontal exit shall be through a fire door of 120 min rating in a fire resistant wall. Horizontal exit require separation with the refuge area or adjoining compartment through 120 min fire barrier. The adjoining compartment of the horizontal exit should allow unlocked and ease of egress and exits for the occupants using defend in place strategy.

Requirements of horizontal exits are as under: a) Width of horizontal exit doorway shall be suitable to meet the occupant load factor for egress.

b) Doors in horizontal exits shall be operable at all times from both sides.

c) All doors shall swing in the direction of exit travel. For horizontal exits, if a double leaf door is used, the right hand door leaf shall swing in the direction of exit travel.

1) The refuge area shall be provided on the periphery of the floor and open to air at least on one side protected with suitable railings.

2) A prominent sign bearing the words 'REFUGE AREA' shall be installed at the entry of the refuge area, having height of letters of minimum 75 mm and also containing information about the location of refuge areas on the floors above and below this floor. The same signage shall also be conspicuously located within the refuge area.

f) Each refuge area shall be ventilated and provided with

	c) Details of all floor plans along with the details of fire fighting equipment and installations (2 sets laminated and bound) shall be maintained in fire command centre. d) The fire staff in charge of the fire command centre shall be responsible for the maintenance of the various services and fire fighting equipment and installations in coordination with security, electrical and civil staff of the building.	
16	NBC-2016, Part-4, Annex-D, Clause 4.11 D-5 FIRE SAFETY PLAN <i>D-5.1 A format for the Fire Safety Plan shall be as given in D-9.10.</i> <i>D-5.2 The applicable parts of the approved Fire Safety Plan shall be distributed to all tenants of the building by the building management when the Fire Safety Plan has been approved by the Fire Authority.</i> <i>D-5.3 The applicable parts of the approved Fire Safety Plan shall then be distributed by the tenants to all their employees and by the building management to all their building employees.</i> <i>D-5.4 In the event there are changes from conditions existing at the time the Fire Safety Plan for the building was approved, and the changes are such so as to require amending the Fire Safety Plan, within 30 days after such changes, an amended Fire Safety Plan shall be submitted to the fire brigade for approval.</i>	FIRE SAFETY PLAN should be provided as per NBC 2016
17	Fire Officer <i>As per clause 4.10 of Part 4 Fire and Life Safety of NBC 2016:</i> 4.10 Fire Officer 4.10.1 A qualified Fire Officer with experience of not less than 3 years shall be appointed who will be available on residential building with height 60 m and above. 4.10.2 The Fire Officer shall a) maintain the fire fighting equipment in good working condition at all times. b) prepare fire orders and fire operational plans and get them promulgated. c) impart regular training to the occupants of the buildings in the use of fire fighting equipment provided on the premises and keep them informed about the fire emergency evacuation plan. d) keep proper liaison with the city fire brigade. e) ensure that all fire precautionary measures are observed at the times. NOTE - Competent authority having jurisdiction may issue on compliance of the above rules in case of buildings	Fire Officer- Not required. Training - 40% of the occupants / employees should be got trained in fire fighting at the R.A Mundkur Fire & Emergency Services Academy, Bannerghatta Road, Bengaluru 560 029 within 6 months from the date of occupation of the building. For this purpose, before approaching this department for final clearance certificate, the applicant should give an undertaking in the form of an affidavit regarding the maintenance of the fire prevention and fire fighting measures suggested above and arranging training of 40% of the occupants in fire prevention and fire fighting within 6 months from the date of issue of the clearance Certificate.

Fire extinguishers

NBC-2016, Part-4, Table 7 (3) Fire extinguishers shall be provided for,

Apartment Houses (A-4)

1. One ABC powder extinguishers of 6 kgs. Capacity for every 8 cars at parking area should be provided.
2. One CO₂ extinguishers of 4.5 kgs. Capacity should be provided near the entrance to the electrical room.
3. One Mechanical Foam extinguishers of 9 litres capacity & one ABC powder extinguishers of 6 kgs. Capacity should be provided near the transformer.
4. One Mechanical foam extinguishers of 9 litres capacity and one ABC powder extinguishers of 6 kgs. Capacity should be provided near the diesel generator.
5. One CO₂ extinguishers of 2 kgs. Capacity should be provided inside each lift machine room.
6. One CO₂ extinguishers of 2 kgs. Capacity should be provided inside each kitchen.
7. One Water Mist type extinguishers of 4 litres & 9 litres capacity should be kept near each staircase landing at each floor.

All the extinguishers suggested above should be with B.I.S. markings and should be located at an easily accessible position without obstructing the normal passage and maintained periodically.

- Spraying Angle 60°
- Class – A, B, LPG Fires and Live Electrical Fire below 1000Volts (Test certificate to be submitted)
- Fire Rating A: 21A or more
- Fire Rating B: 144B or more
- Foam Mist / Pressurised bubbles (Adhere to vertical and Horizontal surfaces, bubbles should retain for a minimum period of 20Minutes)
- Foam Expansion minimum 1:10 or more and one ABC powder extinguishers of 6 kgs. Capacity should be provided near the diesel generator.

4) One 4Litres capacity Portable Hand held "Water Mist & CAFs" fire extinguishers – Jet / spray type (Combination) and One ABC powder extinguishers of 6kgs. Capacity should be provided near the diesel generator.

- As per IS-15683 / EN3-7 / NFPA-10 (Design & Construction)
- Suppression Technology: NFPA 750 & NFPA 11
- Minimum Lancing Distance : Jet – 30Feet or more
- Minimum Lancing Distance : Spray– 10Feet or more
- Spraying Angle 60°
- Class – A, B, LPG Fires and Live Electrical Fire below 1000Volts (Test certificate to be submitted)
- Fire Rating A: 21A or more
- Fire Rating B: 144B or more
- Foam Mist / Pressurised bubbles (Adhere to vertical and Horizontal surfaces, bubbles should retain for a minimum period of 20Minutes)
- Foam Expansion minimum 1:10 or more and one ABC powder extinguishers of 6 kgs. Capacity should be provided near the diesel generator.

5) One CO₂ extinguishers of 2 Kgs. Capacity should be provided inside each lift machine room.

6) 2Litres capacity Portable Hand

CONDITIONS:-

1. All the fire prevention, fire fighting and evacuation measures suggested/ recommended in B, C and D shall be strictly adhered to adopted.
2. Hazardous materials such as petroleum products, explosives, chemicals etc. should not be stored on any floor.
3. Refuse dumps or storage should not be permitted in any of the floors.
4. Liquefied petroleum gas should not be stored in the building except the limited quantity required for each kitchen.
5. Plan and occupancy should not be changed without informing the Fire & Emergency Services and without taking clearance.
6. The occupancy certificates should not be issued without obtaining the clearance certificate from the Fire and Emergency Services department.
7. Such reasonable changes/modifications as may be found necessary, after the building is fully constructed, will have to be agreed to be done by the builder/occupants of the building.
8. All the metal fittings of down corner system and all the extinguishers suggested above should have B.I.S markings.
9. Apart from the above the Building shall be constructed by following all the rules & conditions stipulated in Part-III & IV of NBC & local zoning regulations strictly, failing which the NOC issued will not be valid.
10. The above mentioned requirements are indicative and not exhaustive. All other requirements of National Building Code not specifically mentioned above shall also be complied with mandatorily.
11. This NOC is issued from the Fire Prevention and Fire Fighting point of view Karnataka State Fire & Emergency Services Department is not responsible for the ownership of the land, its location and other disputes, which may arise in due course.

Subject to the strict adherence to the conditions laid down as above, issue of License for the construction Residential that is Sy No. 29, 30, 31, 32, 33, 37, 38, 39, 40/1, 40/2, 40/3, 42/2, 42/2A & 42/2C of Huskur Village, Bidarahalli Hobli, Bangalore East, BANGALORE - 560049 may please be considered.

• **All other relevant and applicable requirements as per NBC-2016 will have to be complied with mandatorily.**



Yours faithfully,
Director General of Police and Director,
Karnataka Fire & Emergency Services.

Digitally signed by SHIVA KUMAR K
Date: 2022.10.12 18:17:30 +05:30
Reason: Approved