Office of the Director General of Police
Commandant General, Home Guards & Director of Civil Defence and Director General Karnataka State Fire & Emergency Services
No. 1, Annaswamy Mudaliar Road
Banglore - 560 042

Phone : 25570733
: 22971501
Fax : 22971512

KARNATAKA STATE FIRE & EMERGENCY SERVICES

NO OBJECTION CERTIFICATE

No. KSFES/GBC(1)/225

Docket No. KSFES/NOC/225/2026 Dated : 10/08/2026 15:05

To,

Commissioner,
Bengaluru Development Authority,
Kumara Park West,
T.Chowdaiah Road,
Bengaluru-560020.

Sir

Sub : Issue of No Objection Certificate for the construction of Mixed Occupany building at (CS) bearing numbers CS-1, CS-2, CS-3 & CS-4 formed in Sy. No. 1, 5, 6, 7, 12, 13, 14, 15 and 16 situated at Konadasapura Village, Bidarahalli Hobli,, Bangalore East, BANGALORE - 560049

Ref:

1. Letter dated 14/05/2026 of the Authorized Signatory, M/s. Ananthay Properties Private Limited., 29th & 30th Floor, World Trade Center, Brigade Gateway Campus, 26/1, Dr. Rajkumar Road, Malleswaram-Rajajinagar, Bangalore North, BANGALORE - 560055

With reference to the letter of the M/s. Ananthay Properties Private Limited., 29th & 30th Floor, World Trade Center, Brigade Gateway Campus, 26/1, Dr. Rajkumar Road, Malleswaram-Rajajinagar, Bangalore North, BANGALORE - 560055 cited above, the Regional Fire Officer, CFO - Bangalore East Zone of this department has inspected the site of proposed Mixed Occupany buildings at (CS) bearing numbers CS-1, CS-2, CS-3 & CS-4 formed in Sy. No. 1, 5, 6, 7, 12, 13, 14, 15 and 16 situated at Konadasapura Village, Bidarahalli Hobli,, Bangalore East, BANGALORE - 560049 o n 20/05/2026 11:00 with reference to the drawings furnished by the builder and the details are as follows:

	Part-A: General Building requirements	
1	Address of the Applicant	The Authorised Signatory M/s. **Ananthay Properties** Pvt. Ltd., 29th& 30th Floor, World Trade Center, Brigade Gateway Campus, 26/1, Dr.Rajkumar Road, Malleswaram – Rajajinagar, Bengaluru 560 055.

2	Address of the Premises.	(CS) Bearing numbers CS-1, CS-2, CS-3 & CS-4 formed in Sy.Nos. 1,5,6,7,12,13,14,15 and 16 situated at Konadasapura Village, Bidarahalli Hobli, Bengaluru East Taluk, Bengaluru 560 049.
3	Number of Buildings	09 Residential Buildings i.e. **Building-1** with 2 Towers i.e. **Tower-A & Tower-B**– joined together. **Building-2** with 2 Towers i.e. **Tower-C & Tower-D**– joined together. **Building-3** i.e. **Tower-E**. **Building-4** i.e. **Tower-F**. **Building-5** i.e. **Tower-G**. **Building-6** i.e. **Tower-H**. **Building-7** with 2 Towers i.e. **Tower-I & Tower-J** – joined together. **Building-8** with 2 Towers i.e. **Tower-K & Tower-L** – joined together. **Building-9** i.e. **Tower-M** (Senior Living Building). and One High Rise Mixed Occupancy Commercial Building with 3 Wings i.e. Wing-1 (Office), Wing-2 (Hotel) & Wing-3 (Retail & F&B) – joined together.
		<u>Building-1</u> **Tower-A & Tower-B**– Each with 04 Common Basements, Ground & 48 upper floors.

4	Number of floors.	**Building-2** **Tower-C & Tower-D**– Each with 04 Common Basements, Ground & 48 upper floors. **Building-3** **Tower-E** - 04 Common Basements, Ground & 48 upper floors. **Building-4** **Tower-F** - 04 Common Basements, Ground & 52 upper floors. **Building-5** **Tower-G** - 04 Common Basements, Ground & 52 upper floors. **Building-6** **Tower-H** - 04 Common Basements, Ground & 36 upper floors. **Building-7** **Tower-I& Tower-J** – Each with 04 Common Basements, Ground & 31 upper floors. **Building-8** **Tower-K& Tower-L** – Each with 04 Common Basements, Ground & 48 upper floors. **Building-9** **Tower-M** - 04 Common Basements, Ground & 16 upper floors. **Commercial Building** **Wing-1 (Office)**: 04 Common Basements, Ground & 21 upper floors. **Wing-2 (Hotel)**: 04 Common Basements,

		Ground & 25 upper floors. **Wing-3 (Retail & F&B)**: 04 Common Basements, Ground & 04 upper floors.
5	Type of Occupancy **Type of Occupancy** **Part 4, Fire and Life Safety of Part-IV of NBC of 2016 clause 2.46** Occupancy or Use Group:— The principal occupancy for which a building or a part of a building is used or intended to be used; for the purpose of classification of a building according to the occupancy, an occupancy shall be deemed to include subsidiary occupancies which are contingent upon it. **Part 4, Fire and Life Safety of Part-IV of NBC of 2016 clause 3.1.2 classification of residential buildings.** **3.1.2 Group A Residential Buildings** These shall include any building in which sleeping accommodation is provided for normal residential purposes with or without cooking or dining or both facilities, except any building classified under Group C. **Subdivision A-4 Apartment houses** — These shall include any building or structure in which living quarters are provided for three or more families, living independently of each other and with independent cooking facilities, for example, apartment houses, mansions and Chawls. **Part 4, Fire and Life Safety of Part-IV of NBC of 2016 clause 3.1.2 classification of Mercantile buildings.** **3.1.7 Group F Mercantile Buildings** These shall include any building or part thereof, which is used as shops, stores, market, for display and sale of merchandise, either wholesale or retail. Mercantile buildings shall be further subdivided as follows: **Subdivision F-1** Shops, stores, departmental stores, markets (any with covered area up to 500 m^2) **Subdivision F-2** Shops, stores, departmental stores, markets (any with covered area more than 500 m^2) **Subdivision F-3** Underground shopping centres Storage and service facilities incidental to the sale of merchandise and located in the same building shall also be included under this group.	Group-A - Residential Building Sub Division-A4 (Apartment) &Sub Division-A5 (Hotel), Group-E – Business Building (Office) and Group-F - Mercantile Building (Retail)
6	Floor wise details of the occupancy	
		Building-1, 2, 3, 4, 5, 6, 7, 8 & 9.

Common Basement-4

For parking 1,000 cars.

Common Basement-3

For parking 1,200 cars.

Common Basement-2

For parking 1,225 cars.

Common Basement-1

For parking 1,000 cars, DG rooms, Fire pump rooms, UG tanks, PHE pump room, 07 Battery rooms, 7 UPS rooms, 2 Communication rooms and 02 Fire command centres (one for Tower A&B and one for Tower K&L).

Building-1

Tower-A

Ground floor

02 Flats, Entrance lobby (triple height), and Electrical room (double height).

1st floor

05 Flats.

2nd floor to 18th floor, 20th floor to 28thfloor, 30th floor to 38th floor, 40th floor to 46th floor and 48thfloor:-

07 Flats on each floor x 43 floors = 301 Flats.

19th floor, 29th floor, 39th floor and 47thfloor:-

06 Flats and Refuge area of 58.78 Sq.mtrs on each floor x 04 floors = 24 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Tower-B

Ground floor

05 Flats, Entrance lobby (triple height) and Electrical room (double height).

1st floor

08 Flats.

2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48thfloor:-

10 Flats on each floor x 43 floors = 430 Flats.

19th floor, 29th floor, 39th floor and 47th floor:-

09 Flats and Refuge area of 83.82 Sq.mtrs on each floor x 04 floors = 36 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building-2

Tower-C

Ground floor

05 Flats, Entrance lobby (triple height), Fire command centre (Combined for Tower C&D) and Electrical room (double height).

1st floor

05 Flats.

2nd floor

08 Flats.

3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48th floor:-

10 Flats on each floor x 42 floors = 420 Flats.

19th floor, 29th floor, 39th floor and 47th floor:-

09 Flats and Refuge area of 83.82 Sq.mtrs on each floor x 04 floors = 36 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Tower-D

Ground floor

03 Flats, Entrance lobby (triple height) and Electrical room (double height)

1st floor

03 Flats.

2nd floor

05 Flats.

3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48th floor:-

07 Flats on each floor x 42 floors = 294 Flats.

19th floor, 29th floor, 39th floor and 47thfloor:-

06 Flats and Refuge area of 58.62 Sq.mtrs on each floor x 04 floors = 24 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building-3

Tower-E

Ground floor

02 Flats, Entrance lobby (triple height), Fire command centre and Electrical room (double height).

1st floor

02 Flats.

2nd floor

04 Flats.

3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48th floor:-

06 Flats on each floor x 42 floors = 252 Flats.

19th floor, 29th floor, 39th floor and 47th floor:-

06 Flats and Refuge area of 75.38 Sq.mtrs on each floor x 04 floors = 24 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building-4

Tower-F

Ground floor

Entrance lobby (triple height), Fire command centre, Amenities and Electrical room (double height).

1st floor

Upper portion of ground floor.

2nd floor

02 Flats.

3rd floor to 17th floor, 19th floor to 26th floor, 28th floor to 35th floor, 38th floor to 44th floor and 46th floor to 52ndfloor:-

04 Flats on each floor x 45 floors = 180 Flats.

18th floor, 27th floor, and 45th floor:-

04 Flats and Refuge area of 62.94 Sq.mtrs on each floor x 03 floors = 12 Flats.

36thfloor:-

03 Flats and Fire pump room & UG tank with service floor.

37thFloor:-

03 Flats.

Terrace floor

Lift lobby, Staircases head rooms and

Domestic & Fire overhead tanks.

Building-5

Tower-G

Ground floor

Entrance lobby (triple height), Fire command centre, Amenities and Electrical room (double height).

1st floor

Upper portion of ground floor.

2nd floor

02 Flats.

3rd floor to 17th floor, 19th floor to 26th floor, 28th floor to 35th floor, 38th floor to 44thfloor and 46th floor to 52ndfloor:-

04 Flats on each floor x 45 floors = 180 Flats.

18th floor, 27th floor and 45thfloor:-

04 Flats and Refuge area of 59.58 Sq.mtrs on each floor x 03 floors = 12 Flats.

36thfloor:-

03 Flats and Fire pump room & UG tank with service floor.

37thFloor:-

03 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building-6

Tower-H

Ground floor

02 Flats, Entrance lobby (triple height), Fire command centre and Electrical room (double height).

1st floor

02 Flats.

2nd floor

04 Flats.

3rd floor to 18th floor, 20th floor to 28th floor and 30th floor to 36th floor :-

06 Flats on each floor x 32 floors = 192 Flats.

19thfloor and 29thfloor :-

06 Flats and Refuge area of 75.36 Sq.mtrs on each floor x 02 floors = 12 Flats.

Terrace floor

Lift lobby, Staircases head rooms and

			Domestic & Fire overhead tanks. **Building-7** **Tower-I** **Ground floor** 03 Flats, Entrance lobby (triple height), Fire command centre (Combined for Tower I&J) and 02 Electrical rooms (double height). **1st floor** 03 Flats. **2nd floor** 05 Flats. **3rd floor to 18th floor, 20th floor to 28th floor and 31st floor:-** 07 Flats on each floor x 27 floors = 189 Flats. **19th floor and 29thfloor :-** 06 Flats and Refuge area of 58.60 Sq.mtrs on each floor x 02 floors = 12 Flats. **Terrace floor** Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks. **Tower-J** **Ground floor** 05 Flats, Entrance lobby (triple height) and 02 Electrical rooms (double height). **1st floor** 05 Flats. **2nd floor** 08 Flats. **3rd floor to 18th floor, 20th floor to 28th floor and 30th floor to 31st floor:-** 10 Flats on each floor x 27 floors = 270 Flats. **19th floor and 29thfloor :-** 09 Flats and Refuge area of 83.98 Sq.mtrs on each floor x 02 floors = 18 Flats. **Terrace floor** Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks. **Building-8** **Tower-K** **Ground floor** 05 Flats, Entrance lobby (triple height) and
	Basement		

Electrical room (double height).

1st floor

08 Flats.

2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48thfloor:-

10 Flats on each floor x 43 floors = 430 Flats.

19th floor, 29th floor, 39th floor and 47th floor:-

09 Flats and Refuge area of 84.01 Sq.mtrs on each floor x 04 floors = 36 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Tower-L

Ground floor

02 Flats, Entrance lobby (triple height) and Electrical room (double height).

1st floor

05 Flats.

2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor and 48thfloor:-

07 Flats on each floor x 43 floors = 301 Flats.

19th floor, 29th floor, 39th floor and 47thfloor:-

06 Flats and Refuge area of 58.85 Sq.mtrs on each floor x 04 floors = 24 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building-9

Tower-M

Ground floor

Entrance lobby, Games area, Indoor games, Library, Swimming pool, Pool deck, Office space, Reception area, Clinic, Fitness/Meditation/Yoga room, Fire command centre and Electrical room.

1st floor to 16thfloor:-

10 Flats on each floor x 16 floors = 160 Flats.

Terrace floor

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Building	Tower	No. of Flats

Building-1	Tower-A	332
	Tower-B	479
Building-2	Tower-C	474
	Tower-D	329
Building-3	Tower-E	284
Building-4	Tower-F	200
Building-5	Tower-G	200
Building-6	Tower-H	212
Building-7	Tower-I	212
	Tower-J	306
Building-8	Tower-K	479
	Tower-L	332
Building-9	Tower-M	160

Commercial Building

Wing-1 (Office), Wing-2 (Hotel) & Wing-3 (Retail & F&B).

Basement-4:-

For parking 469 Cars.

Basement-3:-

For parking 405 Cars.

Basement-2:-

For parking 332 Cars and Chiller plans for Retail & Office Wing.

Basement-1:-

For parking 204 Cars, Chillers plant, Transformer room for Hotel Wing, Fire Pump room for Hotel Wing, UG tanks, Hotel loading & unloading dock, DG room for Hotel Wing, DG room for Retail Wing, Transformer area for Retail Wing, Fire pump room for Retail & Office Wing, UG tanks, PHE pump room.

Wing-1 (Office) :

Ground floor:-

Entrance Lobby, Café with pantry, main Electrical room and Lift lobby.

1st floor:-

Lift lobby.

2nd floor:-

Lift lobby.

3rd floor:-

Lift lobby.

4th floor:-

Lift lobby.

5th floor:-

Office space, Amenities, Electrical room, AHU room and Refuge area of 142.00 Sq.mtrs.

6th floor:-

03 Office spaces, 02 AHU rooms, 02 Server rooms, Electrical room, Communication room and Pantry.

7th floor:-

Office space, 02 AHU rooms, 02 Server rooms, Electrical room, Communication room and Pantry.

8th floor:-

06 Office space, 02 AHU rooms, 02 Server rooms, Electrical room, Communication room and Pantry.

9th floor, 13th floor, 17th floor & 21st floor:-

05 Office space, Electrical room and Refuge area of 142.00 Sq.mtrs. on each floor.

10th floor to 12th floor, 14th floor to 16th floor, 18th floor to 20th floor:-

06 Office space, 02 AHU rooms, 02 Server rooms, Electrical room, Communication room and Pantry on each floor.

Terrace floor:-

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Wing-2 (Hotel) :

Ground floor:-

Hotel entrance lobby, Lounge, Fire control room, Pantry, Luggage room, Main Electrical room, Guest lift lobby, Front of House and Banquet lobby.

1st floor:-

Lobby and Space for Services.

2nd floor:-

Sitting area and Electrical room.

3rd floor:-

VIP lounge, Banquet lift lobby, Electrical room, Back of House, Banquet hall control room, Kitchen, Banquet store, Service room and Banquet hall.

4th floor:-

Pantry, Storage room, Meeting room and Cabin.

5th floor:-

Reception & Waiting area, All day dining, Live kitchen, Electrical room, Buffet, Main Kitchen, Restaurant kitchen, Restaurant, Pool filtration tank, BOH area and Refuge area of 445.00 Sq.mtrs.

6th floor:-

Pool, Deck, Kids Pool, Open lounge, Gym, Kids play area, Pantry, Salon, Reception & Waiting lounge and SPA.

7th floor:-

Service area.

8th floor, 13th floor, 18th floor & 23rd floor:-

14 Rooms and Refuge area of 67.00 Sq.mtrs. on each floor.

9th floor to 12th floor, 14th floor to 17th floor, 19h floor to 22nd floor & 24th floor to 25th floor:-

15 Rooms and Maids room on each floor.

Terrace floor:-.

Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.

Wing-3 (Retail & F&B) :

Ground floor:-

Mall entrance, 21 Shops, Anchor room, Cafe, Promotion room and Thehexa Studio area.

1st floor:-

Micro Brewery, AHU room, 04 Restaurants, 15 Retail shops and Anchor.

2nd floor:-

Micro Brewery, 2 AHU rooms, Outdoor sitting area, Amphitheatre seating, 08 Retail /

		Restaurant and Family Entertainment centre. **3rd floor:-** Food court, Garbage collection room, Dish wash area and 02 Refuge areas (one of 103.00 Sq.mtrs& another of 207.00 Sq.mtrs). **4th floor:-** Upper portion of Food Court. **Terrace floor:-.** Lift lobby, Staircases head rooms and Domestic & Fire overhead tanks.
	Ground floor	Mentioned Above.
	Upper floors	Mentioned Above.
	Terrace floors	Mentioned Above.
7	Height of the building **As per Part 3 Development Control Rules and General Building Requirements clause 2.10 of NBC 2016Building, Height of –** 2.10 Building, Height of — The vertical distance measured in the case of flat roofs, from the average level of the ground around and contiguous to the building or as decided by the Authority to the terrace of last livable floor of the building adjacent to the external walls; 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.	**Building** — **Height** Building-1 (Tower-A&B) — 149.90 Mtrs. Building-2 (Tower-C&D) — 149.90 Mtrs. Building-3 (Tower-E) — 149.90 Mtrs. Building-4 (Tower-F) — 175.35 Mtrs. Building-5 (Tower-G) — 175.35 Mtrs. Building-6 (Tower-H) — 113.30 Mtrs. Building-7 (Tower-I&J) — 98.05 Mtrs. Building-8 (Tower-K&L) — 149.90 Mtrs. Building-9 (Tower-M) — 54.20Mtrs. **Commercial Building** Wing-1 (Office) — 97.65 mtrs. Wing-3 (Retail & F&B) — 30.00 mtrs. Wing-2 (Hotel) — 99.825 mtrs
8	Site Area. **As per Part 3 Development Control Rules and General Building Requirements clause 2.75 of NBC** **Site (Plot)** — A parcel (piece) of land enclosed by definite boundaries.	For Residential Development : 1,20,563.59 Sq.mtrs. For Commercial Development : 33,846.22 Sq.mtrs Total : ***1,54,409.81 Sq.mtrs.***

Building-1, 2, 3, 4, 5, 6, 7 , 8 & 9.

Basement-4	:	77,542.60 Sq.mtrs.
Basement-3	:	77,542.60 Sq.mtrs.
Basement-2	:	78,054.10 Sq.mtrs.
Basement-1	:	71,101.40 Sq.mtrs.
Total built up area of Basements	***:***	***3,04,240.70 Sq.mtrs.***

Building-1

Tower-A

Ground floor	:	539.87 S q.mtrs.
1st floor	:	653.00 Sq.mtrs.
2nd floor	:	843.63 Sq.mtrs
3rd floor	:	853.84 Sq.mtrs
4th to 5th floor	:	842.03 Sq.mtrs on each floor x 2 floors =1,684.06 Sq.mtrs
6th floor to 18th floor	:	837.43 Sq.mtrs on each floor x 13 floors = 10,886.59 *Sq.mtrs.*
19th floor	:	845.75 Sq.mtrs.
20th floor	:	847.63 Sq.mtrs
21st floor to 28th floor	:	837.43 Sq.mtrs. on each floor x 8 floors = 6,699.44 Sq.mtrs.
29th floor	:	845.75 Sq.mtrs
30th floor	:	847.63 Sq.mtrs
31st floor to 38th floor	:	837.43 Sq.mtrs. on each floor x 8 floors = 6,699.44 Sq.mtrs.
39th floor	:	845.75 Sq.mtrs
40th floor to 46th	:	847.63 Sq.mtrs on each floor x 7 floors = 5,933.41 Sq.mtrs
47st floor	:	845.75 Sq.mtrs.
48th floor	:	847.63 Sq.mtrs
Terrace floor	:	87.90 Sq.mtrs
Total built up area of Tower-A	***:***	***40,807.07 Sq.mtrs.***

Tower-B

Ground floor	:	938.18 Sq.mtrs.
1st floor	:	1,123.23 Sq.mtrs.
2nd floor		1315.19 Sq.mtrs.
3rd floor	:	1,325.41 Sq.mtrs.
4th to 5th floor		1,315.19 Sq.mtrs. on each floor x 2 floors = 2,630.38 Sq.mtrs
6th floor to 18th floor	:	1,307.45 Sq.mtrs on each floor x 13 floors = 16,996.85 *Sq.mtrs.*
19th floor	:	1,332.79 Sq.mtrs
20th floor	:	1,317.56 Sq.mtrs
21st floor to 28th floor	:	1,307.45 Sq.mtrs. on each floor x 8 floors = *10,459.60* Sq.mtrs.
29th floor	:	1,332.79 Sq.mtrs
30th floor	:	1,317.56 Sq.mtrs
31st floor to 38th floor	:	1,307.45 Sq.mtrs. on each floor x 8 floors = *10,459.60* Sq.mtrs.
39h floor	:	1,332.79 Sq.mtrs
40st floor to 46th floor	:	1,317.56 Sq.mtrs. on each floor x 7 floors = *9,222.92* Sq.mtrs.
47th floor	:	1,332.79 Sq.mtrs
48th floor	:	1,317.56 Sq.mtrs
Terrace floor	:	106.13 Sq.mtrs
Total built up area of Tower-B	***:***	***63,861.33 Sq.mtrs.***

Building-2

Tower-C

Ground floor	:	1,376.44 Sq.mtrs.
1st floor	:	869.94 Sq.mtrs.
2nd floor	:	1,123.37 Sq.mtrs.

3rd floor	:	1,315.18 Sq.mtrs.
4th floor	:	1,315.18 Sq.mtrs.
5th floor	:	1,315.18 Sq.mtrs.
6th floor to 18th floor	:	1,307.45 Sq.mtrs on each floor x 13 floors = 16,996.85 *Sq.mtrs.*
19th floor	:	1,332.52 Sq.mtrs.
20th floor	:	1,317.60 Sq.mtrs
21st floor to 28th floor	:	1,307.45 Sq.mtrs. on each floor x 8 floors = *10,459.60* Sq.mtrs.
29th floor	:	1,332.52Sq.mtrs.
30th floor	:	1,317.60Sq.mtrs
31st floor to 38th floor	:	*1,307.45 Sq.mtrs. on each floor x 8 floors = 10,459.60 Sq.mtrs*
39th floor	:	1,332.52Sq.mtrs.
40th floor to 45th floor	:	1,317.60 Sq.mtrs. on each floor x 7 floors = *9,223.20* Sq.mtrs.
47th floor	:	1,332.52 Sq.mtrs.
48th floor	:	1,317.60 Sq.mtrs
Terrace floor	:	106.13 Sq.mtrs
Total built up area of Tower-C	***:***	***63,843.55 Sq.mtrs.***

Tower-D

Ground floor	:	853.35 Sq.mtrs.
1st floor	:	462.99 Sq.mtrs.
2nd floor	:	652.84 Sq.mtrs
3rd floor	:	841.80 Sq.mtrs
4th floor	:	841.80 Sq.mtrs
5th floor	:	841.80 Sq.mtrs
6th floor to 18h floor	:	837.11 Sq.mtrs on each floor x 13 floors = 10,882.43 *Sq.mtrs.*
19th floor	:	845.41 Sq.mtrs.

20th floor	:	847.26 Sq.mtrs
21st floor to 28th floor	:	837.11 Sq.mtrs. on each floor x 8 floors = 6,696.88 Sq.mtrs.
29th floor	:	845.41 Sq.mtrs.
30th floor	:	847.26 Sq.mtrs
31st floor to 38th floor	:	837.11 Sq.mtrs. on each floor x 8 floors = 6,696.88 Sq.mtrs
39th floor	:	845.41 Sq.mtrs.
40th floor to 46th floor	:	847.26 Sq.mtrs. on each floor x 7 floors = 5,930.82 Sq.mtrs.
47th floor	:	845.41 Sq.mtrs.
48th floor	:	847.26 Sq.mtrs
Terrace floor	:	87.91 Sq.mtrs
Total built up area of Tower-D	***:***	***40,712.92 Sq.mtrs.***

Building-3 (Tower-E)

Ground floor	:	920.52 Sq.mtrs.
1st floor	:	625.41 Sq.mtrs.
2nd floor	:	885.83 Sq.mtrs.
3rd floor	:	1,180.52 Sq.mtrs.
4th floor	:	1,180.52 Sq.mtrs.
5th floor	:	1,180.52 Sq.mtrs.
6th floor to 18th floor	:	1,172.41 Sq.mtrs on each floor x 13 floors = *15,241.33 Sq.mtrs.*
19th floor	:	1,247.04 Sq.mtrs.
20thfloor to 28th floor	:	1,172.41 Sq.mtrs on each floor x 09 floors = *10,551.69 Sq.mtrs.*
29th floor	:	1,247.04Sq.mtrs
30thfloor to 38th floor	:	1,172.41 Sq.mtrs on each floor x 09 floors = *10,551.69 Sq.mtrs.*

39th floor	:	1,247.04 Sq.mtrs
40th floor to 46th floor	:	1,172.41Sq.mtrs on each floor x 07 floors = *8,206.87 Sq.mtrs.*
47th floor	:	1,171.66 Sq.mtrs.
48th floor	:	1,172.41 Sq.mtrs
Terrace floor	:	86.37 Sq.mtrs
Total built up area of Tower-E	***:***	***56,696.45 Sq.mtrs.***

Building-4 (Tower-F)

Ground floor	:	763.28 Sq.mtrs.
1st floor	:	234.54 Sq.mtrs.
2nd floor	:	513.48 Sq.mtrs.
3rd floor to 10th floor	:	914.85 Sq.mtrs. on each floor x 08 floors = 7,318.80 Sq.mtrs.
11th floor to 17th floor	:	910.09 Sq.mtrs on each floor x 07 floors = *6,370.63 Sq.mtrs.*
18th floor	:	976.98 Sq.mtrs.
19th floor to 26th floor	:	910.09 Sq.mtrs on each floor x 08 floors = *7,280.72 Sq.mtrs.*
27th floor	:	976.98 Sq.mtrs
28thfloor to 35th floor	:	910.09 Sq.mtrs on each floor x 08 floors = *7,280.72 Sq.mtrs.*
36th floor	:	976.98 Sq.mtrs
37th floor to 44th floor	:	910.09 Sq.mtrs on each floor x 08 floors = *7,280.72 Sq.mtrs.*
45th floor	:	976.98 Sq.mtrs.
46th floor to 52nd floor	:	910.09 Sq.mtrs on each floor x 07 floors = 6,370.63 Sq.mtrs
Terrace floor	:	74.30 Sq.mtrs
Total built up area of Tower-F	***:***	***47,395.74 Sq.mtrs.***

9	Built up area of each floor	***Building-5 (Tower-G)***		
		Ground floor	:	743.54Sq.mtrs.
		1st floor	:	225.27 Sq.mtrs.
		2nd floor	:	525.93 Sq.mtrs.
		3rd floor to 10th floor	:	846.88 Sq.mtrs. on each floor x 08 floors = 6,775.04 Sq.mtrs.
		11th floor to 17th floor	:	841.49 Sq.mtrs on each floor x 07 floors = 5,890.43 *Sq.mtrs.*
		18th floor	:	905.02Sq.mtrs.
		19th floor to 26th floor	:	841.49 Sq.mtrs on each floor x 08 floors = *6,731.92 Sq.mtrs.*
		27th floor	:	905.02 Sq.mtrs.
		28thfloor to 35th floor	:	841.49Sq.mtrs on each floor x 08 floors = *6,731.92 Sq.mtrs.*
		36th floor	:	905.02 Sq.mtrs.
		37th floor to 44th floor	:	841.49 Sq.mtrs on each floor x 08 floors = *6,731.92 Sq.mtrs.*
		45th floor	:	905.02 Sq.mtrs.
		46th floor to 52nd floor	:	841.49 Sq.mtrs on each floor x 07 floors = 5,890.43 Sq.mtrs.
		Terrace floor	:	74.30 Sq.mtrs
		Total built up area of Tower-G	***:***	***43,940.78 Sq.mtrs.***
		Building-6 (Tower-H)		
		Ground floor	:	914.31 Sq.mtrs.
		1st floor	:	603.03 Sq.mtrs.
		2nd floor	:	880.31 Sq.mtrs.
		3rd floor to 18th floor	:	1,172.11 Sq.mtrs. on each floor x 16 floors = 18,753.76 Sq.mtrs.
		19th floor	:	1,255.94 Sq.mtrs.

20th floor to 28th floor	:	1,172.11 Sq.mtrs on each floor x 09 floors = *10,548.99 Sq.mtrs.*
29th floor	:	1,255.94 Sq.mtrs
30th floor to 36th floor	:	1,172.11 Sq.mtrs on each floor x 07 floors = 8,*204.77 Sq.mtrs.*
Terrace floor	:	86.37 Sq.mtrs
Total built up area of Tower-H	***:***	***42,503.42 Sq.mtrs.***

Building-7

Tower-I

Ground floor	:	852.27 Sq.mtrs.
1st floor	:	460.77 Sq.mtrs.
2nd floor	:	649.30 Sq.mtrs.
3rd floor to 18th floor	:	836.67 Sq.mtrs. on each floor x 16 floors = 13,386.72 Sq.mtrs.
19thfloor	:	849.83 Sq.mtrs.
20th floor	:	846.90 Sq.mtrs.
21st floor to 28th floor	:	836.67 Sq.mtrs. on each floor x 08 floors = 6,693.36 Sq.mtrs.
29th floor	:	849.83 Sq.mtrs.
30th floor	:	846.90 Sq.mtrs.
31st floor	:	836.67 Sq.mtrs.
Terrace floor	:	87.91 Sq.mtrs
Total built up area of Tower-I	***:***	***26,360.46 Sq.mtrs.***

Tower-J

Ground floor	:	1,379.94 Sq.mtrs.
1st floor	:	876.72 Sq.mtrs.
2nd floor	:	1,132.98 Sq.mtrs.
3rd floor to 18th floor	:	1,323.21 Sq.mtrs. on each floor x 16 floors =

18th floor		21,171.36 Sq.mtrs.
19th floor	:	1,351.81 Sq.mtrs.
20th floor	:	1,333.45 Sq.mtrs.
21stfloor to 28th floor	:	1,323.21 Sq.mtrs. on each floor x 08 floors = 10,585.68 Sq.mtrs.
29th floor	:	1,351.81 Sq.mtrs.
30th floor	:	1,333.45 Sq.mtrs.
31st floor	:	1,323.21 Sq.mtrs.
Terrace floor	:	106.13 Sq.mtrs
Total built up area of Tower-J	***:***	***41,946.54 Sq.mtrs.***

Building-08

Tower-K

Ground floor	:	941.38 Sq.mtrs.
1st floor	:	1,136.87 Sq.mtrs.
2nd floor	:	1,328.56 Sq.mtrs.
3rd floor	:	1338.77 Sq.mtrs.
4th and 5th		1328.56 Sq.mtrs on each floor x 2 floors = 2657.12 *Sq.mtrs.*
6th floor to 18th floor	:	1,321.77 Sq.mtrs on each floor x 13 floors = 17,183.01 *Sq.mtrs.*
19th floor	:	1,346.60 Sq.mtrs.
20th floor	:	1,331.68 Sq.mtrs
21st floor to 28th floor	:	1,321.77 Sq.mtrs. on each floor x 8 floors = *10,574.16* Sq.mtrs.
29th floor	:	1,346.60 Sq.mtrs.
30th floor	:	1,331.68 Sq.mtrs
31st floor to 38th floor	:	1,321.77Sq.mtrs. on each floor x 8 floors = *10,574.16*

		Sq.mtrs.
39th floor	:	1,346.60 Sq.mtrs.
40th floor to 46th floor	:	1,331.68 Sq.mtrs on each floor x 7 floors = *9,321.76* Sq.mtrs.
47th floor	:	1,346.60 Sq.mtrs.
48th floor	:	1,331.68 Sq.mtrs
Terrace floor	:	106.13 Sq.mtrs
Total built up area of Tower-K	***:***	***64,543.36 Sq.mtrs***

Tower-L

Ground floor	:	538.56 Sq.mtrs.
1st floor	:	652.87 Sq.mtrs.
2nd floor	:	841.85 Sq.mtrs.
3rd floor	:	852.06 Sq.mtrs.
4th floor to 18th floor	:	841.85 Sq.mtrs on each floor x 15 floors = 12,627.75 *Sq.mtrs.*
19th floor	:	846.46 Sq.mtrs.
20th floor	:	848.25Sq.mtrs
21st floor to 28th floor	:	841.85 Sq.mtrs. on each floor x 8 floors = *6,734.80* Sq.mtrs.
29th floor	:	846.46 Sq.mtrs.
30th floor	:	848.25 Sq.mtrs
31st floor to 38th floor	:	841.85 Sq.mtrs. on each floor x 8 floors = *6,734.80* Sq.mtrs.
39th floor	:	846.46 Sq.mtrs.
40th floor	:	848.25 Sq.mtrs
41st floor to 46th floor	:	848.25 Sq.mtrs. on each floor x 6 floors = *5,089.50* Sq.mtrs.
47th floor	:	846.46 Sq.mtrs.
48th floor	:	848.25 Sq.mtrs
Terrace floor	:	87.81 Sq.mtrs
Total built up area of	***:***	***40,938.94 Sq.mtrs***

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Tower-L		***Sq.mtrs.***

Building-9 (Tower-M)

Ground floor	:	1,518.55 Sq.mtrs.
1st floor to 16th floor	:	1,011.01 Sq.mtrs on each floor x 16 floors = 16,176.16 Sq.mtrs.
Terrace floor	:	69.72 Sq.mtrs
Total built up area of Tower-M	***:***	***17,764.43 Sq.mtrs.***

Commercial Building

Wing-1 (Office), Wing-2 (Hotel) & Wing-3 (Retail & F&B)

Basement-4	:	12,733.22 Sq.mtrs.
Basement-3	:	11,881.35 Sq.mtrs.
Basement-2	:	11,126.38 Sq.mtrs.
Basement-1	:	12,397.63 Sq.mtrs.
Total built up area of Basements	***:***	***48,138.58 Sq.mtrs.***

Wing-1 (Office)

Ground floor	:	1,107.26 Sq.mtrs.
1st floor	:	187.13 Sq.mtrs.
2nd floor	:	279.66 Sq.mtrs.
3rd floor	:	303.41 Sq.mtrs.
4th floor	:	216.33 Sq.mtrs.
5th floor to 20th floor	:	2,337.55 Sq.mts on each floor x 16 floors = 37,400.80 Sq.mtrs
21st floor	:	705.83 Sq.mtrs.
Terrace floor	:	428.99 Sq.mtrs.
Total built up area of Wing-1 (Office(	***:***	***40,629.41 Sq.mtrs.***

Wing-2 (Hotel)

Ground floor	:	1,238.11 Sq.mtrs.

		1st floor : 200.07 Sq.mtrs 2nd floor : 207.47 Sq.mtrs. 3rd floor : 3,683.84 Sq.mtrs. 4th floor : 1,668.79 Sq.mtrs. 5th floor : 3,181.73 Sq.mtrs. 6th floor : 1,741.36 Sq.mtrs. 7th floor : 1,105.05 Sq.mtrs. 8th floor to 24th floor : 952.20 Sq.mtrs on each floor x 17 floors = 16,187.40 Sq.mtrs. 25th floor : 960.94 Sq.mtrs. Terrace floor : 352.24 Sq.mtrs. ***Total built up area of Wing-2 (Hotel) : 30,527.00 Sq.mtrs.*** ***Wing-3 (Retail & F&B)*** Ground floor : 5,859.92 Sq.mtrs. 1st floor : 5,919.42 Sq.mtrs. 2nd floor : 7,399.22 Sq.mtrs. 3rd floor : 2,871.88 Sq.mtrs. 4th floor : 531.16 Sq.mtrs. ***Total built up area of Wing-3 (Retail & F&B) : 22,581.60 Sq.mtrs.***
10	Total Built-up area.	Residential Buildings : 8,95,555.69 Sq.mtrs Commercial Building : 1,41,876.59 Sq.mtrs **Total Built up area : 10,37,432.29 Sq.mtrs**
11	Surrounding Properties	
	Front	East - 45.00 mtrs wide Whitefield to Hoskote Road.
	Rear	West - 9.00 mtrs wide Konadasapura Lake Bund Road.
	Side1	North-9.00 mtrs wide Road.
	Side2	South - 18.00 mtrs wide Konadasapura to Budigere Cross Road.
	B. Structural details indicating the fire	

	prevention, fire fighting and evacuation measures to be indicated in the drawings	
	Width of the road to which the building abuts and whether it is hard surfaced to carry the weight of 45000 kgs. **As per Part 3 Development Control Rules and General Building Requirements clause 2.83 of NBC 2016** **Street :** Any means of access, namely, highway, street, lane, pathway, alley, stairway, passageway, carriageway, footway, square, place or bridge, whether a thoroughfare or not, over which the public have a right of passage or access or have passed and had access uninterruptedly for a specified period, whether existing or proposed in any scheme, and includes all bunds, channels, ditches, storm-water drains, culverts, footpaths, sidewalks, traffic islands, roadside trees and hedges, retaining walls, fences, barriers	**Name of the Road:-**The premises is abutting from 45.00 mtrs wide Whitefield to Hoskote Road on the East side, 9.00 mtrs wide Road located on the northern side, 18.00 mtrs wide Konadasapura to Budigere Cross Road, located on the Northern side and 9.00 mtrs wide Konadasapura lake bund road on the western side. **Width of the Road:-**Mentioned above. **Type of Road:** Asphalted. **Is road a Dead end:** No.
	Number of entrances and width of each entrance to the premises & height clearance over the entrance. **As per Part 3 Development Control Rules and General Building Requirements clause 4.6 (d) of NBC 2016** 1) The main entrance to the plot shall be of adequate width to allow easy access to the fire engine and in no case shall it measure less than 6 m. 2) 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 tender. 3) If the main entrance at the boundary wall is built over, 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.	**Main entrance width:** Proposed to provide one entry and one exit, each of 10.00 mtrs wide from 45.00 mtrs wide Whitefield Hosakote Main Road, located on the Eastern side and 3 entrances, one of 12.00 mtrs, one of 7.00 mtrs width & another of 8.00 mtrs width from 9.00 mtrs wide Road, located on the northern side and one entry cum exit of 12.00 mtrs from 9.00 mtrs wide Konadasapura Lake Bund Road and 04 entrances, each of 6.00 mtrs width from 18.00 mtrs wide Konadasapura to Budigere Cross Road, located on the southern side. **Is Entrance gate provisioned:** YES, provisioned**.** **Is any Pergola planned :** Entrance portal proposed with height clearance will be minimum 5.50 mtrs.
		Building-1 (Tower-A&B – joined together) **Height of the building:-**149.90 mtrs. **Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.**

Front (East) : Min 35.40mtrs.

Rear (West) : 20.00 mtrs. up to Building-2.

Side (North) : Min 16.00 mtrs.

Side (South) : Min 16.00mtrs.

Building-2 (Tower-C&D– joined together)

Height of the building:-149.90mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 20.00 mtrs. up to Building-1.

Rear (West) : 22.60 mtrs. up to Building-3.

Side (North) : Min 16.00 mtrs.

Side (South) : Min 16.00 mtrs.

Building-3 (Tower-E)

Height of the building:-149.90mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 22.60 mtrs. up to Building-2.

Rear (West) : 16.00 mtrs.

Side (North) : Min 16.00 mtrs. up to Building-4.

Side (South) : Min 16.00 mtrs.

Building-4 (Tower-F)

Height of the building:-175.35mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 16.00 mtrs.

Width of open space (Setbacks)

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

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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
7.	30	10
8.	35	11
9.	40	12
10.	45	13
11.	50	14
12.	55	16
13.	70	17
14.	120	18
15.	Above 120	20

NOTES:

1 For buildings above 24 m in height, there shall be a minimum front open space of 6 m.

2. Where rooms do not derive light and ventilation from the exterior open space, the width of such exterior open space as given in col 3 may be reduced by 1 m subject to a minimum of 3 m and a maximum of 8 m. No further projections shall be permitted.

1

Front (East) : Min 16.00 mtrs.

Rear (West) : 16.00 mtrs.

Side (North) : Min 16.00 mtrs..

Side (South) : Min 30.70 mtrs. up to Building-3

Building-5 (Tower-G)

Height of the building:-175.35mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 16.00 mtrs.

Rear (West) : 16.00 mtrs.

Side (North) : Min 35.15 mtrs. up to Building-6.

Side (South) : Min 16.00 mtrs.

Building-6 (Tower-H)

Height of the building:-113.30mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 22.75mtrs. up to Building-7.

Rear (West) : 16.00 mtrs.

Side (North) : Min 16.00 mtrs. up to Building-9.

Side (South) : Min 35.15mtrs. up to Building-5.

Building-7 (Tower-I&J– joined together)

Height of the building:-98.05mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East) : Min 20.15 mtrs. up to Building-8.

Rear (West) : 22.75 mtrs. up to

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3. If the length or depth of the building exceeds 40 m, add to col (3) ten percent of length or depth of building minus 4.0 m subject to maximum requirement of 20 m.

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

Clause 4.6 (C):

1) The approach to the building and open spaces on all its sides shall be not less than 6 m in width, and a turning radius of minimum 9 m shall be provided for fire tender movement of fire tenders weighing up to 45 t.

2) The same shall be hard surface capable of taking the mass of fire tender, weighing up to 45 t minimum. For heavier fire tenders, the minimum width, turning radius and the hard surface capable of taking the fire tender loads shall be as per the requirement laid down by the Fire Department. The layout for the open space for fire tender movement shall be done in consultation with the Chief Fire Officer of the city, which shall be kept free of obstructions and shall be motorable. The compulsory open spaces around the building shall not be used for parking.

3) If the main entrance at the boundary wall is built over, the minimum clearance shall be 4.5 m.

Rear (West)	:	22.75 mtrs. up to Building-6.
Side (North)	:	Min 16.00 mtrs. up to Building-9.
Side (South)	:	Min 16.00 mtrs.

Building-8 (Tower-K&L– joined together)

Height of the building:-149.90mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East)	:	Min 23.18mtrs.
Rear (West)	:	20.15mtrs. up to Building-7.
Side (North)	:	Min 16.00 mtrs.
Side (South)	:	Min 16.00 mtrs.

Building-9 (Tower-M)

Height of the building:-54.20mtrs.

Setbacks (Open space) required as per ZR is minimum 16.00 mtrs. all around the building.

Front (East)	:	Min 16.00 mtrs.
Rear (West)	:	16.00 mtrs.
Side (North)	:	Min 16.00 mtrs.
Side (South)	:	Min 16.00 mtrs. up to Building-6.

Driveway space left : Proposed to provide minimum 8.00 mtrs. wide driveway all around each building from the building line with a turning radius of minimum 9.00 mtrs. for the easy movement of fire vehicles.

Commercial Building with 3 Wings i.e. Wing-1 (Office), Wing-2 (Hotel) & Wing-3 (Retail & F&B) – joined together

		Height of the building:-Maximum height is 99.825 mtrs. **Setbacks (Open space) required as per ZR minimum 16.00 mtrs. all around the building.** Front (East) : Min 16.00 mtrs. Rear (West) : Min 18.00 mtrs. Side (North) : Min 17.00 mtrs. Side (South) : Min 16.00 mtrs. **Driveway space left :**Proposed to provide minimum 8.00 mtrs. wide driveway all around the building from the building line with a turning radius of minimum 9.00 mtrs. for the easy movement of fire vehicles.
2	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** **(1)** / **(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	Street/ Road width: The premises is directly access from 45.00 mtrs wide Whitefield to Hoskote Road on the East side, 9.00 mtrs wide Road located on the northern side, 18.00 mtrs wide Konadasapura to Budigere Cross Road, located on the Northern side and

	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. **Clause 4.3.1 Width of Means of Access** For all assembly buildings like, theatres, cinema houses assembly halls, stadia; educational buildings; markets, hospitals; industrial buildings and other buildings which attract large crowd, the means of access shall not be less than the following: **Sl no. / Width of means of access / Length of means of access** **(1) / (2) / (3)** i. / 12.0 / 200 ii. / 15.0 / 400 iii. / 18.00 / 600 iv. / 24.00 / Above 600 In no case, development on plots shall be permitted unless it is accessible by a public street of width not less than 6 m.	9.00 mtrs wide Konadasapura lake bund road on the western side.
		Provision has been made to park cars at basement parking area and ground floor parking area, details as follows. **Residential Buildings-1, 2, 3, 4, 5, 6, 7, 8& 9.** Common Basement-4 1,000 Cars Common Basement-3 1,225 Cars Common Basement-2 1,200 Cars Common Basement-1 1,000 Cars Surface car parking on the open space available all around the buildings after leaving 8.00 mtrs wide driveway from the buildings 443 Cars **Commercial Building** Common Basement-4 469 Cars Common Basement-3 405 Cars Common Basement-2 332 Cars

3	Arrangement for parking the cars and ramps. **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. **As per Part 4, Fire and Life Safety of Part-IV of NBC** Clause 2.52: Ramp — The construction, in the form of an inclined plane that is steeper than or equal to 1 : 20 (5 percent) from the horizontal, together with any intermediate landing, that makes it possible to pass from one level to another. **Note: As per Clause 3.10) of ZR 2007 of BDA** **Ramps** Provision for ramp shall have a minimum width of 3.5 m and a slope of not less than 1 in 12 or 1 in 10 and 1 in 8 in special cases. The ramp and the driveway in the basement shall be provided after leaving a clear gap of minimum 2.0 m from the common property line/ set back line. The slope of the ramp shall commence from 1.5 m of the edge of property line.	Common Basement-1 204 Cars **No. of Ramps:-** **Residential Buildings :**08. **Commercial Building** : 06. **Width of Ramps:-** **Residential Buildings :-** 06 each of 4.50 mtrs. and 02 each of 6.00 mtrs. **Commercial Buildings :-** 04 Each of 4.50 mtrs& another 2 each of 4.00 mtrs. **Type of Ramp:-**One way. **Gradation:-**1 : 10& 1:8. **Location of Ramp:-** **Residential Buildings:-** 1) One ramp located on the Southern side of Building-1. 2) One ramp located on the Southern side of Building-2. 3) One ramp located on the Southern side of Building-3. 4) Two ramps are located between the Building-5 & Building-6. 5) One ramp located between the Building-6 & Building-9. 6) One ramp located between the Building-7 & Building-9. 7) One ramp located on the Northern side of Building-8. **Commercial Buildings:-** 1) One ramp located within the building line of Wing-1 (Office) at Eastern side. 2) One ramp located on the Western side of Wing-1 (Office). 3) 02 ramps located within the building line of Wing-2 (Hotel) at Eastern side. 4) One ramp located on the Western side of Wing-2 (Hotel).

		5) One ramp located on the Western side of Wing-3 (Retail & F&B).
4	Staircases. **As per NBC 2016, Part 4, Fire and Life Safety clause 4.4.2.4.3 Staircases,** As mentioned in **Part 4, Fire and Life Safety clause1.2 All buildings, shall have a minimum of two staircases.** The provisions of this Part are applicable to, a) all high rise buildings; where any of these buildings have floor area more than 500 m^2 on any one or more floors; 6) Buildings with two basements or more, or with one basement of area more than 500 m^2 unless otherwise mentioned specifically in the provisions. The minimum width of tread without nosing shall be 250 mm for staircase of residential buildings. The treads shall be constructed and maintained in a manner to prevent slipping. The maximum height of riser shall be 150 mm. The number of risers shall be limited to 12 per flight. The staircases may be internal staircases or external staircases. **4.4.2.4.3.2 Internal staircases** The internal staircases may be constructed with an external wall, or otherwise, and shall comply with the following: a) Internal stairs shall be constructed of non- combustible materials throughout, and shall have fire resistant rating of minimum 120 min. b) A staircase shall not be arranged round a lift shaft. c) Exits shall not be used as a portion of a supply, return or exhaust air system serving adjoining areas. Any opening(s) shall not be permitted in walls or in doors, separating exits from adjoining areas. d) No flue chimney, electromechanical equipment, air conditioning units, gas piping or electrical panels shall be allowed in the stairway. e) Notwithstanding the detailed provision for exits in accordance with 4.2 and 4.3, **the following minimum width shall be provided for staircases for respective occupancies:** **1) Residential (A-4) : 1.25 m.** **2) Mercantile (F1-F3) : 1.50 mtrs.** f) A handrail shall be provided on one side of the staircase of width less than 1 500 mm, and on both sides of the staircase of	**Residential Buildings** / **Tower** / **No. of Staircases** Building-1 / Tower-A / 02 Building-1 / Tower-B / 02 Building-2 / Tower-C / 02 Building-2 / Tower-D / 02 Building-3 / Tower-E / 02 Building-4 / Tower-F / 02 Building-5 / Tower-G / 02 Building-6 / Tower-H / 02 Building-7 / Tower-I / 02 Building-7 / Tower-J / 02 Building-8 / Tower-K / 02 Building-8 / Tower-L / 02 Building-9 / Tower-M / 02 **Commercial Building** **Wing** / **No. of Staircases** Wing-1 (Office) / 02 Wing-2 (Hotel) / 02 Wing-3 (Retail & F&B) / 06 **Floor area**: Mentioned in built up area column. **Area of Basement :** Mentioned in built up area columns. **No. of Basement :**- **Residential Buildings :**04 **Commercial Building** : 04. **Fire Rating120 min.**

	width 1 500mm and more. The projection of handrail(s) in the staircase width shall not be more than 115 mm. h) The design of staircase shall also take into account the following: 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 panelling 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 × 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.**	**Stairs around Lift :**NO. **Stairs are clear from any other service routings :**YES. **No other services is taken inside the stairs :**YES. **Fire door rating** **Fire Signage board :**YES. **Staircase terminated at Ground level:** **Residential Buildings:-**All the staircases will be terminated at ground floor level. 30 separate staircases have been proposed to reach the each basement parking area from the ground floor level. All the staircases have been proposed to enclose at each floor level by using self closing smoke stop swing door with two hours fire resistance capacity. **Commercial Building:-**All the staircases will be terminated at ground floor level. 07 separate staircases have been proposed to reach the each basement parking area from the ground floor level**.** All the staircases have been proposed to enclose at each floor level by using self closing smoke stop swing door with two hours fire resistance capacity.
5	Internal Staircase	
	a. Width of the staircases. **As per Clause 4.4.2.4.3.2 of Part 4 Fire and Life Safety of NBC 2016** The following minimum width shall be provided for: **1.Residential (A-4) : 1.25 m** **2.Mercantile (F1-F3): 1.50 m**	Residential Buildings – Each of 1.25 mtrs. **Commercial Building** Wing-1 (Office) – One of 2.05 mtrs& another of 1.65 mtrs. Wing-2 (Hotel) : Each of 1.65 mtrs. Wing-3 (Retail & F&B) : 3 each of 2.55 mtr5s & another 3 each of 2.05 mtrs.

	b. Width of treads **As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016:** The minimum width of tread without nosing shall be 250 mm for staircase of residential buildings & 300 mm for staircase of mercantile Buildings.	300mm
	c. Height of riser. **As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016** : The maximum height of riser shall be 190 mm for staircase of residential buildings & 150 mm for staircase of mercantile Buildings.	150 mm
	d. Number of risers in a flight **As per clause 4.4.2.4.3.1 of Part 4 Fire and Life Safety of NBC 2016: T**he number of risers shall be limited to 12 per flight.	Max 12 risers per flight.
	e. Height of hand rails **As per clause 4.4.2.4.3.2 (f) of Part 4 Fire and Life Safety of NBC 2016:** 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 As per Part 3 Development Control Rules and General Building Requirements clause 2.70 of NBC 2016 As per clause 4.4.2.4.3.2 (h) (1) of Part 4 Fire and Life Safety of NBC 2016: The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2 m.	3.05mtrs.
6	EXTERNAL STAIRCASE **4.4.2.4.3.4 External staircases** The external staircases are the staircases provided on the external wall/facade, and shall comply with the following: a) External stairs shall always be kept in sound and usable condition. b) All external stairs shall be directly connected to the ground. c) Entrance to the external stairs shall be separate and remote from the internal staircase. d) Where an external staircase is provided, it shall be ensured that the use of it at the time of fire is not prejudiced by smoke and flame from openings (for example, windows, doors) in the external face of the building. Care shall be taken to ensure that no external wall or window opening opens on to or close to an external stair. If such openings exists within 3 m from an external staircase, they shall be protected with fire rated doors/window assemblies with rating of at least 60 min. e) The external stairs shall be constructed of non- combustible	No external staircases are proposed.

	materials, and any doorway leading to it shall have minimum 120 min fire resistance. f) No external staircase shall be inclined at an angle greater than 45° from the horizontal. g) External stairs shall have straight flight not less than 1 500 mm wide. h) Handrails, to be provided on both sides, shall be of a height not less than 1 000 mm and not exceeding 1 200 mm. There shall be provisions of balusters with maximum gap of 150 mm.	
7	Fire Tower **As per Part-4, NBC 2016, 2.24 Firefighting Shaft (Fire Tower)** -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 firefightingshaft 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).	**Residential Buildings** :- Proposed to provide one Fire Tower in each Tower of each Residential Building as per Part-4, NBC-2016,2.24. Further, proposed to provide natural ventilation for avoiding fire door at fire towers. **Commercial Building**:- Proposed to provide 05 Fire Towers (one in Wing-1 (Office), one in Wing-2 (Hotel) and 03 in Wing-3 (Retail & F&B)) as per Part-4, NBC-2016,2.24.
		Building-1, 2, 3, 4, 5, 6, 7 ,8 & 9 Maximum 44.87mtrs. from the farthest point to the staircases in Basements. **Building-1** ***Tower-A*** Maximum 27.37mtrs. from the farthest point and maximum 10.00mtrs. from the dead end of the corridor to the staircases in upper floors. ***Tower-B*** Maximum 44.59mtrs. from the farthest point and maximum 11.59mtrs. from the dead end of the corridor to the staircases in upper floors. **Building-2** ***Tower-C*** Maximum 44.59mtrs. from the farthest point and maximum 11.59mtrs. from the dead end of the corridor to the staircases in upper floors. ***Tower-D***

8

Travel Distance

As per clause 2.59 of Part 4 Fire and Life Safety of NBC 2016:

Travel Distance: — The distance to be travelled from any point in a building to a protected exit or external escape route or final exit measured along the line of travel.

Table 5 Travel Distance (Based on Occupancy and Construction Type) (Clauses 4.4.2.1 and 4.4.2.2) of Part 4 0f NBC 2016.

Sl No.	Occupancy Group	Maximum Travel distance	
		Type 1 & 2	Type 3 and 4
I.	**Residential (Group A)**	**30.00**	**22.50**
II.	**Mercantile (Group-F)**	**30.00**	**30.00**

Notes:

1. For fully sprinklered building, the travel distance may be increased by 50 percent of the values specified.

2. Ramp shall not be counted as an exit in case of basement below the first basement in car parking.

Maximum 27.37 mtrs. from the farthest point and maximum 13.50mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-3 (Tower-E)

Maximum 42.25mtrs. from the farthest point and maximum 22.45mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-4 (Tower-F)

Maximum 26.85mtrs. from the farthest point and maximum 14.50 mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-5 (Tower-G)

Maximum 26.85mtrs. from the farthest point and maximum 14.50 mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-6 (Tower-H)

Maximum 42.25 mtrs. from the farthest point and maximum 22.45mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-7

Tower-I

Maximum 34.53mtrs. from the farthest point and maximum 14.00 mtrs. from the dead end of the corridor to the staircases in upper floors.

Tower-J

Maximum 29.80mtrs. from the farthest point and maximum 13.50 mtrs. from the dead end of the corridor to the staircases in upper floors.

Building-8

Tower-K

Maximum 29.80 mtrs. from the farthest point and maximum 13.50 mtrs. from the dead end of the corridor to the staircases in upper floors.

		Tower-L Maximum 34.53mtrs. from the farthest point and maximum 14.00 mtrs. from the dead end of the corridor to the staircases in upper floors. ***Building-9 (Tower-M)*** Maximum 37.12mtrs. from the farthest point and maximum 16.50mtrs. from the dead end of the corridor to the staircases in upper floors. Increased travel distance from the farthest point to the staircases is acceptable, as the entire buildings will be covered with automatic sprinkler system. ***Commercial Building*** ***Wing-1 (Office)*** Maximum 44.27 mtrs. from the farthest point and maximum 9.00mtrs. from the dead end of the corridor to the staircases in upper floors. ***Wing-2 (Hotel)*** Maximum 37.78 mtrs. from the farthest point and maximum 22.50mtrs. from the dead end of the corridor to the staircases in upper floors. ***Wing-3 (Retail & F&B)*** Maximum 44.57 mtrs. from the farthest point and maximum 9.00mtrs. from the dead end of the corridor to the staircases in upper floors.
	Number of lifts and capacity. **Lift:** An appliance designed to transport persons or materials between two or more levels in a vertical or substantially vertical direction by means of a guided car or a platform. The word elevator is also synonymously used for lift. **As per clause 4.15.1 of Part-4 Fire and Life Safety of NBC-2005** Where applicable, fire lifts shall be provided with a minimum capacity for 8 passengers and fully automated with emergency	**Building-1**

	switch on ground level. In general, buildings 15 m in height or above shall be provided with fire lifts. **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 m^2 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 m^2. 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 panelling 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:**	
9	**C-1.5 Lifts** General requirements of lifts shall be as follows: a) Walls of lift enclosures shall have a fire rating of 2 h; lifts shafts shall have a vent at the top of area not less than 0.2 m^2. 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 exceed 4 and the total number of lifts in the bank (of two rows) shall not exceed 8. A wall of 2 h fire rating shall separate individual shafts in a bank. e) Lift car door shall have a fire resistance rating of half an hour.	***Tower-A*** 06 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 08 lifts**). ***Tower-B*** 09 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 11 lifts**). **Building-2** ***Tower-C*** 09 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 11 lifts**). ***Tower-D*** 06 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 08 lifts**). ***Building-3 (Tower-E)*** 06 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 08 lifts**). ***Building-4 (Tower-F)*** 04 passenger lifts, 01 Service Lift and 01 Fireman lift, each of 15 persons capacity (**Total 06 lifts**). ***Building-5 (Tower-G)*** 04 passenger lifts, 01 Service Lift and 01 Fireman lift, each of 15 persons capacity (**Total 06 lifts**). ***Building-6 (Tower-H)*** 06 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 08 lifts**). **Building-7** ***Tower-I*** 06 passenger lifts and 02 Fireman lift, each of 15 persons capacity (**Total 08 lifts**). – ***Tower-J*** 09 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 11 lifts**). – **Building-8** ***Tower-K*** 06 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 08 lifts**). – ***Tower-L*** 09 passenger lifts and 02 Fireman lifts, each of 15 persons capacity (**Total 11 lifts**).

	f) Collapsible gates shall not be permitted for lifts and shall have solid doors with fire resistance of at least 1 h. g) If the lift shaft and lobby is in the core of the building, a positive pressure between 25 and 30 Pa shall be maintained in the lobby and a positive pressure of 50 Pa shall be maintained in the lift shaft. The mechanism for pressurization shall act automatically with the fire alarm; it shall be possible to operate this mechanically also. h) Exit from the lift lobby, if located in the core of the building, shall be through a self closing smoke stop door of half an hour fireresistance. j) Lifts shall not normally communicate with the basement; if, however, lifts are in communication, the lift lobby of the basements shall be pressurized as in (g), with self-closing door as in (h). k) Grounding switch(es), at ground floor level, shall be provided on all the lifts to enable the fire service to ground the lifts. m) Telephone or other communication facilities shall be provided in lift cars for building of 30 m in height and above. Communication system for lifts shall be connected to fire control room for the building. n) Suitable arrangements such as providing slope in the floor of lift lobby, shall be made to prevent water used during fire fighting, etc,at any landing from entering the lift shafts. p) 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 stairsunless instructed otherwise. The sign shall also contain a plan for each floor showing the locations of the stairways. Alternate source of power supply shall be provided for all the lifts through a manually operated changeover switch.	_ ***<u>Building-9 (Tower-M)</u>*** 03 passenger lifts and 01 Fireman lifts, each of 15 persons capacity (**Total 04 lifts**). _ _ **<u>Commercial Building</u>** **<u>Wing-1 (Office)</u> :**08 Passengers lifts and 02 Fireman lifts, each of 24 Persons capacity (Total 10 Lifts). _ **<u>Wing-2 (Hotel)</u> :**03 Guest lifts and 02 Fireman lifts, each of 24 Persons capacity (Total 05 Lifts). _ **<u>Wing-3 (Retail & F&B)</u> :**04 Passengers lifts and 03 Fireman lifts, each of 24 Persons capacity (Total 08 Lifts).
10	Structural material RCC materials and brick walls of not less than two hours 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.	RCC materials and brick walls of not less than two hours 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.
	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	

11	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 type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of (d); g) Access to basements through ramps shall be permitted subject to provision of (d). The requirements for the ramps shall be in accordance with 4.6.1.3 [see also Fig. 8 (b)]; h) For all public buildings and uses including group housing, having basement going up to more than one level, access to all levels shall also be provided through lift. The exit requirements in basements shall comply with the provisions of Part 4 . Fire and Life Safety. of the Code.	Proposed to provide mechanical ventilation at each basement as per specification and basements should be constructed as per clause 12.9.3.
	Smoke control of exits **NBC 2016, Part 4, Fire and Life Safety** **Clause 4.4.2.5 Smoke control of exits** **a)** In building design, compartmentation plays a vital part in limiting the spread of fire and smoke. The design should ensure avoidance of spread of smoke to adjacent spaces through the various leakage openings in the compartment enclosure, such as cracks, openings around pipes ducts, airflow grills and doors. In the absence of proper sealing of all these openings, smoke and toxic gases will obstruct the free movement of occupants of the building through the exits. Pressurization of staircases is of great importance for the exclusion of smoke and toxic gases from the protected exit. b) Pressurization is a method adopted for protecting the exits	

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from ingress of smoke, especially in high-rise buildings. In pressurization, air is injected into the staircases, lobbies, etc, as applicable, to raise their pressure slightly above the pressure in adjacent parts of the building. As a result, ingress of smoke or toxic gases into the exits will be prevented. The pressurization of staircases and lift lobbies shall be adopted as given in Table 6. The pressure difference for staircases shall be 50 Pa. Pressure differences for lobbies (or corridors) shall be between 25 Pa and 30 Pa. Further, the pressure differential for enclosed staircase adjacent to such lobby (or corridors) shall be 50 Pa. For enclosed staircases adjacent to non-pressurized lobby (or corridors), the pressure differential shall be 50 Pa.

c) Equipment and ductwork for staircase pressurization shall be in accordance with one of the following:

1) Directly connected to the stairway by ductwork 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.

Clause 12.9.3 (F)

The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors.

Where the staircase is continuous in the case of buildings

12	served by more than one staircase, the same shall be of enclosed type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of (d); **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** Corridors in exit access (exit access corridor) are created for meeting the requirement of use, privacy and layout in various occupancies. These are most often noted in hospitality, health care occupancies and sleeping accommodations. Exit access corridors of guest rooms and indoor patient department/areas having patients lacking self preservation and for sleeping accommodations such as apartments, custodial, penal and mental institutions, etc, shall be provided with 60 min fire resistant wall and 20 min self-closing fire doors along with all fire stop sealing of penetrations. Smoke exhaust system having make-up air and exhaust air system or alternatively pressurization system with supply air system for these exit access corridors shall be required. Smoke exhaust system having make-up air and exhaust air system shall also be required for theatres/auditoria. Such smoke exhaust system shall also be required for largelobbies and which have exit through staircase leading to exit discharge. This would enable eased exit of people through smoke controlled area to exit discharge. All exit passageway (from exit to exit discharge) shall be pressurized or naturally ventilated. The mechanical pressurization system shall be automatic in action with manual controls in addition. All such exit passageway shall be maintained with integrity for safe means of egress and evacuation. Doors provided in such exit passageway shall be fire rated doors of 120 min rating. Smoke exhaust system where provided, for above areas and occupancies shall have a minimum of 12 air changes per hour smoke exhaust mechanism. Pressurization system where provided shall have a minimum pressure differential of 25-30 Pa in relationship to other areas. The smoke exhaust fans in the mechanical ventilation system shall be fire rated, that is, 250°C for 120 min. For naturally cross-ventilated corridors or corridors with operable windows, such smoke exhaust system or pressurization system will not be required.	Proposed to provide Smoke control of exits and staircases are naturally ventilated at upper floors as per NBC-2016.

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Smoke Exhaust and Pressurization of areas below Ground.

As per clause 4.6.2 of Part 4 Fire and Life Safety of NBC 2016:

Each 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 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 insanitation 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 stands/services shall be taken care of in the planning and provision of the jet fans.

2) Fans shall be fire rated, that is, 250°C for 120 min.

3) Fans shall be adequately supported to enable operations for the duration as above.

4) Power supply panels for the fans shall be located in fire safe zone to ensure continuity of power supply.

5) Power supply cabling shall meet circuit integrity requirement in accordance with accepted standard [4(13)].

The smoke extraction system shall operate on actuation of flow switch actuation of sprinkler system. In addition, a local and/or remote 'manual start-stop control/switch' shall be provided for operations by the fire fighters. Visual indication of the operation status of the fans shall also be provided with the remote control. No system relating to smoke ventilation shall be allowed to interface or cross the transformer area, electrical switchboard, electrical rooms or exits.

Smoke exhaust system having make-up air and exhaust air system for areas other than car parking shall be required for common areas and exit access corridor in basements/underground structures and shall be completely separate and independent of car parking areas and other mechanical areas.

Supply air shall not be less than 5 m from any exhaust discharge openings.

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Compartmentation

As per clause 4.5 of Part 4 Fire and Life Safety of NBC 2016:

4.5.1 General

a) It is important to limit the spread of a fire in any building. The usual method is to use fire barriers. In some instances these barriers need to be penetrated for ductwork, plumbing and electrical systems, and in such cases, use of passive fire protection measures shall be done so that the integrity of these barriers is not compromised.

b) Floor(s) shall be compartmented with area as given below.

4.5.2 All floors shall be compartmented / zoned with area of each compartment being not more than 750 m^2. The maximum size of the compartment shall be as follows, in case of sprinklered Basement/Building:

Sl No	**Use**	**Compartment-ation Area m2**
1.	Basement car parking	3000
2.	Basements (other than car parking)	2000

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 m^2. Compartmentation shall be achieved by means of fire

Proposed to provide water curtain nozzle system at each basement parking area and fire barrier in upper floors of each Tower as per NBC-2016.

	barrier having fire resistance rating of 120 min.	
14	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 fume 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 fume 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 windows. **4.7.6** Gas meters shall be housed in a suitably constructed metal cupboard located in a well-ventilated space, keeping in view the fact that LPG is heavier than air and town gas is lighter than air. **4.7.7** Wherever LPG reticulation/cylinders are used in buildings above 100 m, gas leak detectors shall be provided at the usage points and monitored from fire command centre. The cables used for signalling shall be circuit integrity cables. **4.7.8** The gas lines shall not be installed through any electrical shafts, escape routes, refuge areas / refuge floors. **4.7.9** Kitchens working on LPG fuel shall not be permitted in basements.	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.
	Service ducts and shafts 3.4.5.4.Openings in walls or floors which are necessary to be provided to allow passages of all building services like cables, electrical wirings, telephone cables, plumbing pipes, etc, shall be protected by enclosure in the form of ducts/shafts having a fire resistance not less than 120 min. The inspection door for electrical shafts/ducts low voltage wiring running in shafts/ducts, shall either be armoured type or run through	All the Service ducts and shafts should be sealed at every floor level as per specification. As per clause 3.4.6.1, the electric distribution cables/wiring shall be laid in a separate shaft. The shaft shall be sealed at every floor with

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15	metal conduits. The space between the electrical cables/conduits and the walls/slabs shall be filled in by a fire stop material having fire resistance rating of not less than 120 min. This shall exclude requirement of fire stop sealing for low voltage services shaft. For plumbing shafts in the core of the building, with shaft door opening inside the building, the shafts shall have inspection doors having fire resistance rating not less than 30 min. For plumbing shafts doors which open in wet areas or in naturally ventilated areas or on external wall of the building, the shafts may not require doors having any specified fire rating. **3.4.6 Electrical Installation** 3.4.6.1 The electric distribution cables/wiring shall be laid in a separate shaft. The shaft shall be sealed at every floor with fire stop materials having the same fire resistance as that of the floor. High, medium and low voltage wiring running in shaft and in false ceiling shall run in separate shaft/conduits. Water mains, gas pipes, telephone lines, intercom lines or any other service line shall not be laid in the duct for electrical cables; use of bus ducts/solid rising mains instead of cables is preferred.	The shaft shall be sealed at every floor with fire stop materials having the same fire resistance as that of the floor. High, medium and low voltage wiring running in shaft and in false ceiling shall run in separate shaft/conduits. Water mains, gas pipes, telephone lines, intercom lines or any other service line shall not be laid in the duct for electrical cables use of bus ducts/solid rising mains instead of cables is preferred. Note : ***Transparent Fire Retardant coating should be provided to Electrical cables on termination points in the Electrical panels and distribution boxes.***
	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. **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 theescape 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 lumen / 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 lumen / 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	

16	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 luminaries 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. **NOTE**. For the purpose of this clause 'near' is normally considered to be within 2 m measured horizontally. j) The luminaries shall be mounted as low as Possible, but at least 2 m above the floor level. k) Signs are required at all exits, emergency exits and escape routes, which should comply with the graphic requirements of the relevant Indian Standards. **3.4.7.2** Exit passageway (at ground) and staircase lighting shall also be connected to alternative supply. The alternative source of supply may be provided by battery continuously trickle charged from the electric mains. **3.4.7.3** Suitable arrangements shall be made by installing double throw switches to ensure that the lighting installed in the staircase and the corridor does not get connected to two sources of supply simultaneously. Double throw switch shall be installed in the service room for terminating the stand-by supply. The emergency lighting system shall be well maintained by periodical inspections and tests so as to ensure their perfect serviceability at all times. **3.4.7.4** Exit signage Where exit access is provided through corridors / paths, the occupants shall be able to easily identify the way to exits. Exit signs shall be provided such that no point in an exit access is more than 30 m from a visible exit directional sign. An exit sign indicating the direction to an exit shall be provided at all changes in direction. Exits shall be clearly visible and the route to reach the exits shall be clearly marked and signs posted to guide the occupants of the floor concerned. Signs shall be illuminated and wired to	Escape lighting and Exit signage's should be provide as per clause 3.4.7, Lighting 3.4.7.1,

	an independent electrical circuit on an alternative source of supply. The sizes and colours of the exit signs shall be in accordance with good practice [4(7)]. The colour of the exit signs shall be green. **NOTE.** This provision shall not apply to A-2 and A-4 occupancies less than 15 m in height. The exit sign with arrow indicating the way to the escape route shall be provided at a suitable height from the floor level on the wall and shall be illuminated by electric light connected to corridor circuits. All exit way marking signs should be so installed that no mechanical damage shall occur to them due to moving of furniture or other heavy equipment. Further, all landings of floor shall have floor indicating boards prominently indicating the number of the floor. Photo luminescent markings shall be pasted at internal hydrant boxes.	
	D. The builder should arrange for the following fire fighting and evacuation measures:	
1	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) Pressurization 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 annunciation). 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 systems. 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**	Proposed to provide standby diesel generators at common basement-1 to provide alternative power supply to all the emergency provisions in the buildings, details as follows. ***Buildings*** — ***No. & Capacity of DG.*** ***Residential Building*** Building-1 (Tower-A&B) — 05 Nos. (3 each of 750 KVA & 2 each of 1000 KVA). Building-2 (Tower-C&D)and Building-3 (Tower-E) — 06 Nos. (Each of 1000 KVA). Building-4 (Tower-F) and Building-5 (Tower-G) — 04 Nos. (Each of 1000 KVA). Building-6 (Tower-H) and Building-7 (Tower-I&J) — 04 Nos. (Each of 750 KVA). Building-8 (Tower-K&L) — 03 Nos. (Each of 750 KVA). Building-9 (Tower-M) — 02 Nos. (Each of 500 KVA). ***Commercial Building*** Office & Retail Wing — 04 Nos. (3 each of 1500 KVA & 1 of 1010 KVA)

	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.	Hotel Wing — 02 Nos. (Each of 1250 KVA).
2	Down comer system. **NBC-2016, Part-4, Fire & Life Safety, Down-comer —** An arrangement of fire fighting within the building by means of down-comer pipe connected to terrace tank through terrace pump, gate valve and non-return valve and having mains not less than 100 mm internal diameter with landing valves on each floor/landing. It is also fitted with inlet connections at ground level for charging with water by pumping from fire service appliances and air release valve at roof level to release trapped air inside. **NBC 2016, Part-4, Fire & Life Safety Table 7 (6) down comer shall be provided for every 1000 sq.mtrs. built up area,** **Apartment Houses (A-4)** 1. 1. For 15 m and above but not exceeding 35 m in height. The down comer should be of 100 mm internal diameter and G.I. 'C' class pipe. From each down comer single hydrant outlet should be provided **Mercantile Building (Sub division F-1 & F-2)** 1. Buildings less than 15 m in height with ground plus one storey and total of all floor area exceeding 500m^2. 2. More than ground plus one storey. Size of mains shall be 100 mm with single outlet landing valves.	Not required.
	Wet riser system. **NBC 2016 Part-4, Fire & Life Safety, Clause 2.65 Wet Riser —** An arrangement for fire fighting within the building by means of vertical rising mains not less than 100 mm nominal diameter with landing valves on each floor/landing for fire fighting purposes and permanently charged with water from a pressurized supply. **NBC -2016, Part-4 Fire & Life Safety, Table 7 (5) wet riser shall be provided for every 1000 sq.mtrs. built up**	Proposed to provide wet riser cum down comer systems in each Tower of each Building, near the staircases, details as follows. **Building** — **No. of Risers** Building-1 (Tower-A&B) — 03 Nos (One in Tower-A &Two in Tower-B). Building-2 (Tower-C&D) — 03 Nos (Two in Tower-C & One in Tower-D). Building-3 (Tower-E) — 02 Nos. Building-4 (Tower-F) — 01 No. Building-5

3	**area**, **Apartment Houses (A-4)** 1. 1. 35 m and above in height. The riser should be of 100 mm internal diameter and G.I. 'C' class pipe. From each riser single hydrant outlet should be provided at each landing. **Mercantile Building (Sub division F-1, F-2 & F-3)** i. More than 15 m in height up to 30 m in height. ii. Should be provided in all the underground shopping complex buildings irrespective of height and irrespective of occupancy. 1. Size of mains shall be 100 mm with single outlet landing valves – upto 45 m height. Size of mains shall be 150 mm with single outlet landing valves – above 45 m height.	(Tower-G) 01 No. Building-6 (Tower-H) 02 Nos. Building-7 (Tower-I&J) 03 Nos (One in Tower-I & Two in Tower-J). Building-8 (Tower-K&L) 03 Nos (Two in Tower-K & One in Tower-L). Building-9 (Tower-M) 02 Nos. **Commercial Building** Wing-1 (Office) 03 Nos. Wing-3 (Retail & F&B) 06 Nos. Wing-2 (Hotel) 04 Nos. (out which 2 will be terminated at 7^{th} floor level) Each riser will be of 150 mm. internal diameter and will be of G.I. 'C' Class pipe. From the each riser single hydrant outlet at each floor landing will be provided.
4	Hose reel hose system. **NBC-2016, Part-4, Fire and Life Safety, Table 7 (4) First Aid Hose reel shall be provided for,** **Apartment Houses (A-4) & Mercantile (F1-F3)** 1. Should be provided in all the buildings irrespective of height and irrespective of occupancy. Rubber lined Hose reel hose of size minimum 19 mm of 40 mtrlength as per IS 884, with Gate valve (upstream) and shut off nozzle of 5 mm size. The hose reel hose should be connected at each landing by means of an adaptor. Adequate BIS marked re-inforced rubber lined delivery hoses of 63 mm size to reach the farthest point of the floor / setbacks from the system should be provided with a branch pipe near each hydrant outlet in a proper box to protect it from withering.	Hose reel hose of 40.00 mtrs. length with drum and 2 Nos. delivery hose pipes, each of 15.00 mtrs. length with gunmetal branch pipe will be provided inside the hose cabinet near each outlet.
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	In all 58 yard hydrants around the **Residential buildings** and One 4-Way& one 2-Way Fire Service inlets near the entrance will also been provided.

5	i. 15 m and above in height. **Mercantile Building (Sub division F-1, F-2 & F-3)** i. More than 15 m in height up to 30 m in height. ii. Should be provided in all the underground shopping complex buildings irrespective of height and irrespective of occupancy. 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.	Similarly 12 yard hydrants around the **Commercial building** and one 4-way and one 2-way Fire service inlets near the entrance will also been 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 – 1,50,000lts. 3. Above 60 m in height. – 2,00,000lts. **Mercantile Building (Sub division F-1, F-2 & F-3)** i. Above 15 m in height up to 24 m height – 1,00,000 Ltrs. ii. Above 24 m and not exceeding 30 m in height - 2,00,000 Ltrs. iii. Underground shopping complex buildings irrespective of height and irrespective of occupancy - 1,50,000 Ltrs. **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.**	**Building-1 (Tower-A&B)** All the wet riser cum down comer systems will be connected to 03 underground tanks, each of 2,00,000 litres capacity include water curtain nozzle system (total 6,00,000 ltrs). **Building-2 (Tower-C&D) and Building-3 (Tower-E)** All the wet riser cum down comer systems will be connected to 03 underground tanks, each of 2,00,000 litres capacity include water curtain nozzle system (total 6,00,000 ltrs). **Building-4 (Tower-F) and Building-5 (Tower-G)** All the wet riser cum down comer systems will be connected to 03 underground tanks, each of 2,00,000 litres capacity include water curtain nozzle system (total 6,00,000 ltrs). Similarly the wet riser cum down comer system of **Building-4 (Tower-F**) will also be connected to underground tank of 2,00,000 litres capacity (Break Up of 1,00,000 Litres at **36th floor level**. Similarly the wet riser cum down comer system of **Building-5 (Tower-G)** will also be connected to underground tank of 2,00,000 litres capacity (Break Up of 1,00,000 Litres) at **36th floor level.** **Building-6 (Tower-H) and Building-7 (Tower-I&J)** All the wet riser cum down comer systems will be connected to 03 underground tanks

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	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 there of. 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. 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. e) The water curtain shall be operated by the actuation of flow switch actuating sprinkler system. f) For smoke ventilation requirement of car parking, see 4.6.2. g) All fire exit doors from the car parking to exits shall be painted green and shall display exit signage.	Will be connected to 03 underground tanks, each of 2,00,000 litres capacity include water curtain nozzle system (total 6,00,000 ltrs). **Building-8 (Tower-K&L) and Building 09 (Tower– M)** All the wet riser cum down comer systems will be connected to 03 underground tanks, each of 2,00,000 litres capacity include water curtain nozzle system (total 6,00,000 ltrs). **Commercial Building** **Wing-1 (Office) and Wing-3 (Retail & F&B)** All the wet riser cum down comer systems will be connected to 02 underground tanks, each of 2,00,000 litres capacity (total 4,00,000 ltrs). **Wing-2 (Hotel)** All the wet riser cum down comer systems will be connected to 03 underground tanks, 2 each of 1,25,000 litres capacity & another of 1,50,000 ltrs capacity (total 4,00,000 ltrs).
	Terrace tank **NBC-2016, Part-4 Table 7(12) Terrace Tank Over Respective Tower Terrace shall be provided for** **Apartment Houses (A-4)** 1. Less than 15 m in height 5000 lts. (5000 lts.) **(Note 6 :** Additional value given in parenthesis shall be added if basement area exceeds 200 m^2) 2. 15 m and above but not exceeding 35 m in height 25,000 lts. 3. Above 35 m but not exceeding 45 m in height 5000 lts. 4. 45 m and above in height 10,000 lts. **Mercantile Building (Sub division F-1, F-2 & F-3)** i. Less than 15 m in height with ground plus one storey with total covered area not exceeding 500m^2 - 5,000 Ltrs. (5000) (Note:6 Additional value given in parenthesis shall be added if basement area exceeds	**Building-1, 2, 3, 4, 5, 6, 7, 8 & 9** The wet riser cum down comer systems of each Tower of each Building will be connected to RCC overhead tank of 10,000 litres capacity (total 13 overhead tanks). **Commercial Building** **Wing-1 (Office) and Wing-3 (Retail &**

7	200 m^2 ii. Less than 15 m in height with ground plus one storey with total covered area exceeding 500m^2. - 20,000 Ltrs. (5000) (Note:6 Additional value given in parenthesis shall be added if basement area exceeds 200 m^2). iii. Less than 15 m in height more than ground plus one storey - 25,000 Ltrs. (5000) (Note:6 Additional value given in parenthesis shall be added if basement area exceeds 200 m^2). iv. Above 15 m and but not exceeding 24 m in height - 10,000 Ltrs. v. Above 24 m and but not exceeding 30 m in height - 20,000 Ltrs. vi. Underground shopping complex buildings irrespective of height and irrespective of occupancy - 10,000 Ltrs. **Note: Over head tank to overflow to domestic tank. Arrangement should be such that any incoming water should first fill-up fire tank, then overflow to other utilizations.**	**F&B)** All the wet riser cum down comer systems will be connected to overhead tank of 20,000 litres capacity. **Wing-2 (Hotel)** All the wet riser cum down comer systems will be connected to overhead tank of 20,000 litres capacity.
	Pump near underground static water storage tank (Fire pump) with minimum pressure of 3.5 kg/cm2 at remotest location. **NBC-2016, Part-4, Table 7 (13) Pump near underground static water storage tank (Fire pump) with minimum pressure of 3.5 kg/cm2 at remotest location.** **Apartment Houses (A-4)** 1. Above 35 m but not exceeding 45 m in height (**Note 10 :**One electric and one diesel pump of capacity 2220 l/min and one electric pump of capacity 180 l/min. See also	**Building-1 (Tower-A&B)** All the wet riser cum down comer systems will be connected to 02 nos. Multi stage multi outlets Electric driven pumps & 02 nos. Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 02 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute. **Building-2 (Tower-C&D) and Building-3 (Tower-E)** All the wet riser cum down comer systems will be connected to 04 nos. Multi stage multi outlets Electric driven pumps & 02 nos. Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 04 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute. **Building-4 (Tower-F) and Building-5 (Tower-G)**

	Note 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.) 2. Above 45 m in height but not exceeding 60 m in 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)	All the wet riser cum down comer systems will be connected to 02 nos. Multi stage multi outlets Electric driven pumps & 02 nos. Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 02 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute. Similarly the wet riser cum down comer system of **Building-4 (Tower-F)** will also be connected to 02 nos. of single stage Electric driven pumps & 01 no. Electric driven pump as standby, each capable of delivering 2850 litres of water per minute and 02 nos. single stage Jockey pumps, each capable of delivering 180 litres of water per minute at **36th floor level.** Similarly the wet riser cum down comer system of **Building-5 (Tower-G)** will also be connected to 02 nos. single stage and Electric driven pumps & 01 no. of single stage Electric driven pump as standby, each capable of delivering 2850 litres of water per minute and 02 nos. of single stage Jockey pumps, each capable of delivering 180 litres of water per minute at **36th floor level.**
8	(**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.) **Mercantile Building (Sub division F-1, F-2 & F-3)** 1. Above 15 m in height up to 24 m height (Note 10: Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by of capacity 2 280 litre/min and one electric pump of capacity 180 litre/min (see also Notes 22 & 23) 2. 24 m and above but not exceeding 30 m in height & underground shopping complex buildings irrespective of height (Note 11 Provide required number of sets of pumps each consisting of two electric and one diesel	**Building-6 (Tower-H) and Building-7 (Tower-I&J)** All the wet riser cum down comer systems will be connected to 04 nos. Multi stage multi outlets Electric driven pumps & 02 nos. Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 04 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute. **Building-8 (Tower-K&L) & Building – 9 (Tower-M)** All the wet riser cum down comer systems will be connected to 02 nos. Multi stage multi outlets Electric driven pumps & 02 nos.

	pump (stand by) of capacity 2 280 litre/min and two electric pump of capacity 180 litre/min (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.) **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.**	Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 02 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute. **Commercial Building** **Wing-1 (Office) and Wing-3 (Retail & F&B)** All the wet riser cum down comer systems will be connected to 02 nos. Multi stage multi outlets Electric driven pumps & 02 nos. Multi stage multi outlets Diesel driven pumps, each capable of delivering 2850 litres of water per minute and 02 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute. **Wing-2 (Hotel)** All the wet riser cum down comer systems will be connected to 02 nos. Multi stage multi outlets Electric driven pumps & 01 no. Multi stage multi outlets Diesel driven pump, each capable of delivering 2850 litres of water per minute and 02 nos. Multi stage multi outlets Jockey pumps, each capable of delivering 180 litres of water per minute and water curtain nozzle system will be connected to separate Electric driven pump, capable of delivering 2850 litres of water per minute.
9	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 m^2.) 2. 15 m and above but not exceeding 35 m in height – 900 LPM. **Mercantile Building (Sub division F-1, F-2)** i. Less than 15 m in height with ground plus one storey with total covered area not exceeding 500m^2 - 450 lpm	Terrace pump not required.

	(450) (Note:6 Additional value given in parenthesis shall be added if basement area exceeds 200 m^2). ii. Less than 15 m in height with ground plus one storey with total covered area exceeding 500m^2 & more than ground plus one storey - 900 lpm. (450) (Note:6 Additional value given in parenthesis shall be added if basement area exceeds 200 m^2).	
10	Manually operated fire alarm system. **NBC-2016, Part-4, Clause 2.1 Alarm System —** Fire alarm system comprising components for automatically detecting a fire, initiating an alarm of fire and initiating other actions as appropriate. NOTE — The system may also include manual fire alarm call points. **NBC-2016, Part-4, Table 7 (9) Manually operated Electric Fire alarm system is required** **Apartment Houses (A-4)** 1. 15 m and above in height. **Mercantile Building (Sub division F-1, F-2 & F-3)** 1. Should be provided in all the buildings irrespective of height and irrespective of occupancy **except buildings of ground plus one storey with total of all floor area not exceeding 500m^2.** Manually operated electrical fire alarm system should be installed with call boxes located near each staircase landing of each building. The call boxes should be of 'break glass' type, where the call is transmitted automatically to the control room when the glass of the system is broken. This system should also be connected to an alternative source of power supply (diesel generator). The call boxes should be so installed that their location can be easily noticed from either direction and should be at a height of one meter from the floor level.	Proposed to provide manually operated fire alarm system with call points near each staircase landing at each floor with its control panel at ground floor.
		Proposed to provide automatic fire detection system with smoke detector heads& heat detector heads, as indicated below. **Residential Buildings** **Floors** / **Smoke detector heads.** / **Heat detector heads** ***Building-1, 2, 3, 4, 5, 6, 7 , 8 & 9.*** Basement-4 101 -- Basement-3 107 -- Basement-2 107 122 Basement-1 176 135 **Building-1**

Tower-A		
Ground floor	18	15
1st floor	27	06
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	31 On each floor	07 On each floor
19th, 29th, 39th& 47th floors	27 On each floor	06 On each floor
Tower-B		
Ground floor	29	18
1st floor	43	08
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor &48th floor	47 On each floor	10 On each floor
19th, 29th, 39th& 47thfloors	43 On each floor	09 On each floor
Building-2		
Tower-C		
Ground floor	29	20
1st floor	29	20
2nd floor	43	08
3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	47 On each floor	10 On each floor

19th, 29th, 39th& 47th floors	43	09
	On each floor	On each floor
Tower-D		
Ground floor	16	14
1st floor	16	14
2nd floor	27	05
3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	31	07
	On each floor	On each floor
19th, 29th, 39th& 47th floors	27	06
	On each floor	On each floor
Building-3 (Tower-E)		
Ground floor	20	02
1st floor	20	17
2nd floor	30	04
3rd floor to 48th floor	40	06
	On each floor	On each floor
Building-4 (Tower-F)		
Ground floor	07	06
1st floor	08	06
2nd floor	22	02
3rd floor to 10th floor	22	02
11th floor to 17th floor, 19th floor to 26th floor, 28th floor to 35th floor, 38th floor to 44th floor & 47th floor to 52nd floor	26	04
	On each floor	On each floor

		18^{th}, 27^{th}, 36^{th}& 45^{th} floors	28 On each floor	04 On each floor
		37^{th} floor	23	03
		Building-5 (Tower-G)		
		Ground floor	06	--
		1^{st} floor	08	07
		2^{nd} floor	25	02
		3^{rd} floor to 10^{th} floor	25 On each floor	04 On each floor
		11^{th} floor to 36^{th} floor & 37^{th} floor to 52^{nd} floor	27 On each floor	04 On each floor
		37^{th} floor	22	03
		Building-6 (Tower-H)		
		Ground floor	19	02
		1^{st} floor	20	17
		2^{nd} floor	30	04
		3^{rd} floor to 36^{th}floor	40 On each floor	04 On each floor
11	Automatic fire detection system and alarm system. **NBC -2016, Part-4, Clause 2.1** **Automatic Fire Detection system with smoke detectors & heat detectors is required. —** Fire alarm system comprising components for automatically detecting a fire, initiating an alarm of fire and initiating other actions as appropriate. 1. **As per Table 7(10) Automatic Detection and Alarm System.** **Apartment Houses (A-4).** Above 60 m in height (Automatic detection and alarm system is not required to be provided in car parking area. Such detection system shall however be required in other areas of car parking such as electrical rooms, cabins and other areas) **Mercantile Building (Sub division F-1, F-2 & F-3)** Above 15 m height & above and underground shopping	***Building-7*** ***Tower-I***		
		Ground floor	16	03
		1^{st} floor	16	14
		2^{nd} floor	27	05
		3^{rd} floor to 18^{th} floor, 20^{th} floor to 28^{th} floor & 30^{th} floor to 31^{st} floor	31 On each floor	07 On each floor
		19^{th} floor & 29^{th} floor	27 On each floor	06 On each floor
		Tower-J		
		Ground floor	29	05

complex.

floor		
1st floor	29	20
2nd floor	43	08
3rd floor to 18th floor, 20th floor to 28th floor & 30th floor to 31st floor	47 On each floor	10 On each floor
19th floor & 29th floor	43 On each floor	08 On each floor
Building-08		
Tower-K		
Ground floor	29	18
1st floor	43	08
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor & 48th floor	47 On each floor	10 On each floor
19th, 29th, 39th& 47th floor	41 On each floor	09 On each floor
Tower-L		
Ground floor	18	16
1st floor	27	05
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor & 48th floor	31 On each floor	07 On each floor
19th, 29th, 39th& 47th floor	27 On each floor	06 On each floor

Building-9 (Tower-M)

Ground floor	33	04
	35	10
1st floor to 16th floor	On each floor	On each floor

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Commercial Building

Floors	Smoke detector heads.	Heat detector heads
Wing-1 (Office), Wing-2 (Hotel) and Wing-3 (Retail & F&B)		
Basement-4	30	--
Basement-3	25	--
Basement-2	36	--
Basement-1	32	55
Wing-1 (Office)		
Ground floor	06	02
1st floor	06	02
2nd floor	06	02
3rd floor	06	02
4th floor	06	02
5th floor	50	02

		6th floor	68	02
		7th floor	38	02
		8th, 10th, 11th, 12th, 14th, 15th, 16th, 18th& 19th floors	66 On each floor	02 On each floor
		5th, 9th, 13th, 17th& 21st floors	59 On each floors	02 On each floors
		Wing-2 (Hotel)		
		Ground floor	64	14
		1st floor	81	--
		2nd floor	88	01
		3rd floor	40	12
		4th floor	109	--
		5th floor	74	08
		6th floor	49	03
		7th floor	21	--
		9th floor to 12th floor, 14th floor to 17th floor, 19th floor to 22nd floor and 24th floor to 25th floor.	32 On each floor	01 On each floor
		3rd, 5th, 8th, 13th, 18th& 23rd floors	28 On each floor	01 On each floor
		Wing-3 (Retail & F&B)		
		Ground floor	88	05
		1st floor	101	01
		2nd floor	78	01
		3rd floor	63	01
		4th floor	87	02
12	Public Address System: A system of two way talk back speaker with push to talk speakers to be provided at every staircase or firemen telephone to be provided at every staircase. Necessary console & amplifier with micro phone to be provided at ground floor in fire	Proposed to provide Public Address system with two way communication facility near each staircase landing at each floor with its console at ground floor.		

command center.

Proposed to provide automatic sprinkler system with sprinkler heads & Water curtain nozzle, as indicated below.

Residential Buildings

Floor	Pendent Sprinkler heads	Side wall sprinkler heads	Water curtain nozzles
Building-1, 2, 3, 4, 5, 6, 7 , 8 & 9.			
Basement-4	6886	161	792
Basement-3	6772	164	806
Basement-2	6476	164	742
Basement-1	5601	150	605
Building-1			
Tower-A			
Ground floor	26	11	
1st floor	42	23	
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	18 On each floor	35 On each floor	
19th, 29th, 39th& 47th floors	27 On each floor	29 On each floor	
Tower-B			
Ground floor	24	28	
1st floor	44	44	
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor	26 On each floor	56 On each floor	

		46th floor & 48th floor	
		19th, 29th, 39th& 47th floors	37 On each floor	50 On each floor
		Building-2	
		Tower-C	
		Ground floor	26	28
		1st floor	26	28
		2nd floor	50	44
		3rd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	26 On each floor	56 On each floor
		19th, 29th, 39th& 47th floors	37 On each floor	50 On each floor
		<u>Tower-D</u>		
		Ground floor	16	12
		1st floor	16	12
		2nd floor	37	23
		3rd floor	18	23
		4th floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor 46th floor & 48th floor	16 On each floor	35 On each floor
		19th, 29th, 39th& 47th floors	25 On each floor	29 On each floor
		Building-3 (Tower-E)		
		Ground floor	24	14
		1st floor	24	14
		2nd floor	44	28
		3rd floor to	25	42

48th floor	On each floor	On each floor
Building-4 (Tower-F)		
Ground floor	11	--
1st floor	22	--
2nd floor	45	14
3rd floor to 17th floor, 19th floor to 26th floor, 28th floor to 35th floor, 38th floor to 44th floor & 47th floor to 52nd floor	15	28
	On each floor	On each floor
18th, 27th, 36th& 45th floors	15	30
	On each floor	On each floor
37th floor	14	23
Building-5 (Tower-G)		
Ground floor	12	--
1st floor	22	--
2nd floor	46	14
3rd floor to 17th floor, 19th floor to 26th floor, 28th floor to 35th floor, 38th floor to 44th floor & 47th floor to 52nd floor	14	30
	On each floor	On each floor
18th, 27th, 36th& 45th floors	15	30
	On each floor	On each floor
37th floor	13	23
Building-6 (Tower-H)		
Ground floor	23	14
1st floor	23	14
2nd floor	44	28
3rd floor to 36th floor	25	42
	On each	On each

Automatic sprinkler system

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.

(**Note4:** Required to be installed in basement if area of basement exceeds 200 m^2)

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	2. Above 35 m but not exceeding 45 m in height.	floor	floor
13	(**Note 4:** Required to be installed in basement if area of basement exceeds 200 m^2 and **Note 9: S**prinklers shall be fed water from both underground static water storage tank and terrace tank)	***Building-7***	
	3. 45 m and above in height to installed in entire building. (Basements, ground and all upper floors.	***Tower-I***	
	Mercantile Building (Sub division F-1, F-2 & F-3)	Ground floor	16	12
	1. Should be provided in the buildings less than 15 m height in basement only.	1st floor	16	12
	(**Note 4:** Required to be installed in basement if area of basement exceeds 200 m^2)	2nd floor	35	23
	Buildings 15 m above up to 30 m height & underground shopping complex.	3rd floor to 18th floor, 20th floor to 28th floor & 30th floor to 31st floor	16 On each floor	35 On each floor
		19th floor & 29th floor	25 On each floor	29 On each floor
		Tower-J		
		Ground floor	26	28
		1st floor	26	28
		2nd floor	51	44
		3rd floor to 18th floor, 20th floor to 28th floor & 30th floor to 31st floor	27 On each floor	56 On each floor
		19th floor & 29th floor	39 On each floor	50 On each floor
		Building-08		
		Tower-K		
		Ground floor	24	28
		1st floor	50	44
		2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor & 48th floor	26 On each floor	56 On each floor
		19th, 29th, 39th& 47th floors	40 On each floor	50 On each floor
		Tower-L		

Ground floor	28	11
1st floor	35	23
2nd floor to 18th floor, 20th floor to 28th floor, 30th floor to 38th floor, 40th floor to 46th floor &48th floors	16 On each floor	35 On each floor
19th, 29th, 39th& 47th floor	25 On each floor	29 On each floor

Building-9 (Tower-M)

Ground floor	110	44
1st floor to 16th floor	19 On each floor	44 On each floor

Commercial Buildings

Floor	Pendent Sprinkler heads	Side wall sprinkler heads	Water curtain nozzles
Wing-1 (Office), Wing-2 (Hotel) and Wing-3 (Retail & F&B)			
Basement-4	977	296	104
Basement-3	885	271	101
Basement-2	776	52	95
Basement-1	943	191	87
Wing-1 (Office)			
Ground floor	10	--	--
1st floor	10	--	--
2nd floor	10	--	--
3rd floor	10	--	--
4th floor	10	--	--
5th floor	241	04	--

6th floor	257	06	--
7th floor	257	06	--
8th, 10th, 11th, 12th, 14th, 15th, 16th, 18th& 19th floors	151 On each floor	06 On each floor	--
5th, 9th, 13th, 17th&21st floors	214 On each floor	04 On each floor	--
Wing-2 (Hotel)			
Ground floor	207	04	--
1st floor	316	04	--
2nd floor	340	04	--
3rd floor	137	--	--
4th floor	421	--	--
5th floor	335	--	--
6th floor	127	--	--
7th floor	45	12	--
9th floor to 12th floor, 14th floor to 17th floor, 19th floor to 22nd floor and 24th floor to 25th floor.	34 On each floor	--	--
3rd, 5th, 8th, 13th, 18th& 23rd floors	49 On each floor	--	--
Wing-3 (Retail & F&B)			
Ground floor	334	06	--
1st floor	426	06	--
2nd floor	303	06	--
3rd floor	189	--	--
4th floor	353	--	--

		<u>Building-1</u> **Tower-A** Proposed to provide Refuge area of 58.78 Sq.mtrsat each floor i.e. 19th floor, 29th floor, 39th floor and 47thfloor 19th floor built up area is 845.75 Sq.mtrs/ 12.50 = 67.66 Persons. 20th floor built up area is 847.63 Sq.mtrs / 12.50 = 67.81 Persons. Required Refuge area = Total 135.47 Persons x 0.30 Sq.mtr = 40.64Sq.mtrs. + 0.90 Sq.mtr = **41.54 Sq.mtrs.** Proposed refuge area is more than the requirement. 29th floor built up area is 845.75 Sq.mtrs/ 12.50 = 67.66 Persons. 30th floor built up area is 847.63 Sq.mtrs / 12.50 = 67.81 Persons. Required Refuge area = Total 135.47 Persons x 0.30 Sq.mtr = 40.64Sq.mtrs. + 0.90 Sq.mtr = **41.54 Sq.mtrs.** Proposed refuge area is more than the requirement. 39th floor built up area is 845.75 Sq.mtrs/ 12.50 = 67.66 Persons. 30th floor built up area is 847.63 Sq.mtrs / 12.50 = 67.81 Persons. Required Refuge area = Total 135.47 Persons x 0.30 Sq.mtr = 40.64Sq.mtrs. + 0.90 Sq.mtr = **41.54 Sq.mtrs.** Proposed refuge area is more than the

requirement.

19th floor built up area is 845.75 Sq.mtrs/ 12.50 = 67.66 Persons.

20th floor built up area is 847.63 Sq.mtrs / 12.50 = 67.81 Persons.

Required Refuge area = Total 135.47 Persons x 0.30 Sq.mtr = 40.64Sq.mtrs. + 0.90 Sq.mtr = **41.54 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Tower-B

Proposed to provide Refuge area of 83.82 Sq.mtrs on each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 1,332.79 Sq.mtrs/ 12.50 = 106.62 Persons.

20th floor built up area is 1,317.56 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.02 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,332.79 Sq.mtrs/ 12.50 = 106.62 Persons.

30th floor built up area is 1,317.56 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.02 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 1,332.79 Sq.mtrs/ 12.50 = 106.62 Persons.

40th floor built up area is 1,317.56 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.02 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 1,332.79 Sq.mtrs/ 12.50 = 106.62 Persons.

48th floor built up area is 1,317.56 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.02 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Building-2

Tower-C

Proposed to provide Refuge area of 83.82 Sq.mtrs on each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 1,332.52 Sq.mtrs/ 12.50 = 106.60 Persons.

20th floor built up area is 1,317.60 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.00 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,332.52 Sq.mtrs/ 12.50 = 106.60 Persons.

30th floor built up area is 1,317.60 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.00 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 1,332.52 Sq.mtrs/ 12.50 = 106.60 Persons.

40th floor built up area is 1,317.60 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.00 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 1,332.52 Sq.mtrs/ 12.50 = 106.60 Persons.

48th floor built up area is 1,317.60 Sq.mtrs / 12.50 = 105.40 Persons.

Required Refuge area = Total 212.00 Persons x 0.30 Sq.mtr = 63.60Sq.mtrs. + 1.80 Sq.mtrs = **65.40 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Tower-D

Proposed to provide Refuge area of 58.62 Sq.mtrs on each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 845.41 Sq.mtrs/ 12.50 = 67.63 Persons.

20th floor built up area is 847.26 Sq.mtrs / 12.50 = 67.79 Persons.

Required Refuge area = Total 135.42 Persons x 0.30 Sq.mtr = 40.62Sq.mtrs. + 0.90 Sq.mtr = **41.52 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 845.41 Sq.mtrs/ 12.50 = 67.63 Persons.

30th floor built up area is 847.26 Sq.mtrs / 12.50 = 67.79 Persons.

Required Refuge area = Total 135.42 Persons x 0.30 Sq.mtr = 40.62Sq.mtrs. + 0.90 Sq.mtr = **41.52 Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 845.41 Sq.mtrs/ 12.50 = 67.63 Persons.

40th floor built up area is 847.26 Sq.mtrs / 12.50 = 67.79 Persons.

Required Refuge area = Total 135.42 Persons x 0.30 Sq.mtr = 40.62Sq.mtrs. + 0.90 Sq.mtr = **41.52 Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 845.41 Sq.mtrs/ 12.50 = 67.63 Persons.

48th floor built up area is 847.26 Sq.mtrs / 12.50 = 67.79 Persons.

Required Refuge area = Total 135.42 Persons x 0.30 Sq.mtr = 40.62Sq.mtrs. + 0.90 Sq.mtr = **41.52 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Building-3

Tower-E

Proposed to provide Refuge area of 75.38 Sq.mtrs on each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 1,247.04 Sq.mtrs/ 12.50 = 99.76 Persons.

20th floor built up area is 1,172.41 Sq.mtrs/ 12.50 = 93.79 Persons.

Required Refuge area = Total 193.55 Persons x 0.30 Sq.mtr = 58.06 Sq.mtrs. + 0.90 Sq.mtr = **58.96 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,247.04 Sq.mtrs/ 12.50 = 99.76 Persons.

30th floor built up area is 1,172.41 Sq.mtrs / 12.50 = 93.79 Persons.

Required Refuge area = Total 193.55 Persons x 0.30 Sq.mtr = 58.06 Sq.mtrs. + 0.90 Sq.mtr = **58.96 Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 1,247.04 Sq.mtrs/ 12.50 = 99.76 Persons.

40th floor built up area is 1,172.41 Sq.mtrs / 12.50 = 93.79 Persons.

Required Refuge area = Total 193.55

Persons x 0.30 Sq.mtr = 58.06 Sq.mtrs. + 0.90 Sq.mtr = **58.96 Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 1,171.66 Sq.mtrs/ 12.50 = 93.73 Persons.

48th floor built up area is 1,172.41 Sq.mtrs / 12.50 = 93.79 Persons.

Required Refuge area = Total 193.55 Persons x 0.30 Sq.mtr = 56.25 Sq.mtrs. + 0.90 Sq.mtr = **55.15 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Building-4

Tower-F

Proposed to provide Refuge area of 62.94 Sq.mtrs at each floor i.e. 18th floor, 27th floor, 36th floor and 45th floor.

18th floor built up area is 976.98 Sq.mtrs/ 12.50 = 78.15 Persons.

48th floor built up area is 910.09 Sq.mtrs / 12.50 = 72.80 Persons.

Required Refuge area = Total 150.95 Persons x 0.30 Sq.mtr = 45.28 Sq.mtrs. + 0.90 Sq.mtr = **46.18 Sq.mtrs.**

Proposed refuge area is more than the requirement.

27th floor built up area is 976.98 Sq.mtrs/ 12.50 = 78.15 Persons.

28th floor built up area is 910.09 Sq.mtrs / 12.50 = 72.80 Persons.

Required Refuge area = Total 150.95

	Persons x 0.30 Sq.mtr = 45.28 Sq.mtrs. + 0.90 Sq.mtr = **46.18 Sq.mtrs.** Proposed refuge area is more than the requirement. 36th floor built up area is 976.98 Sq.mtrs/ 12.50 = 78.15 Persons. 37th floor built up area is 910.09 Sq.mtrs / 12.50 = 72.80 Persons. Required Refuge area = Total 150.95 Persons x 0.30 Sq.mtr = 45.28 Sq.mtrs. + 0.90 Sq.mtr = **46.18 Sq.mtrs.** Proposed refuge area is more than the requirement. 45th floor built up area is 976.98 Sq.mtrs/ 12.50 = 78.15 Persons. 46th floor built up area is 910.09 Sq.mtrs / 12.50 = 72.80 Persons.
HORIZONTAL EXITS/REFUGE AREA **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 openable 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	Required Refuge area = Total 150.95 Persons x 0.30 Sq.mtr = 45.28 Sq.mtrs. + 0.90 Sq.mtr = **46.18 Sq.mtrs.** Proposed refuge area is more than the requirement. **Building-5** **Tower-G** Proposed to provide Refuge area of 59.58 Sq.mtrs at each floor i.e. 18th floor, 27thfloor, 36th floor and 45th floor. 18th floor built up area is 905.02 Sq.mtrs/ 12.50 = 72.40 Persons. 19th floor built up area is 841.49 Sq.mtrs / 12.50 = 67.31 Persons. Required Refuge area = Total 139.71 Persons x 0.30 Sq.mtr = 41.91 Sq.mtrs. +

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14	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 first aid box, fire extinguishers, public address speaker, fire man talk back, and adequate emergency lighting as well as drinking water facility. g) Refuge areas shall be approachable from the space they serve by an accessible means of egress. h) Refuge areas shall connect to fire fighting shaft (comprising fireman.s lift, lobby and staircase) without having the occupants requiring to return to the building spaces through which travel to the area of refuge occurred. j) 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. k) Refuge area shall be provided with adequate drainage facility to maintain efficient storm water disposal. m) Entire refuge area shall be provided with sprinklers. n) Where there is a difference in level between connected areas for horizontal exits, ramps of slope not steeper than 1 in 12 shall be provided (and steps should be avoided). **NOTE**. Refuge area provided in excess of the requirements shall be counted towards FAR. High rise apartment buildings with apartments having balcony, need not be provided with refuge area; however apartment buildings without balcony shall provide refuge area as given above. Refuge areas for apartment buildings of height above 60 m while having balconies shall be provided at 60 m and thereafter at every 30 m. The refuge area shall be an area equivalent to 0.3 m^2 per person for accommodating occupants of two consecutive floors, where occupant load shall be derived on basis of 12.5 m^2 of gross floor area and additionally 0.9 m^2 for accommodating wheel chair requirement or shall be 15 m^2, whichever is higher.	Persons x 0.30 Sq.mtr = 41.91 Sq.mtrs. + 0.90 Sq.mtr = **42.81 Sq.mtrs.** Proposed refuge area is more than the requirement. 27th floor built up area is 905.02 Sq.mtrs/ 12.50 = 72.40 Persons. 28th floor built up area is 841.49 Sq.mtrs / 12.50 = 67.31 Persons. Required Refuge area = Total 139.71 Persons x 0.30 Sq.mtr = 41.91 Sq.mtrs. + 0.90 Sq.mtr = **42.81 Sq.mtrs.** Proposed refuge area is more than the requirement. 36th floor built up area is 905.02 Sq.mtrs/ 12.50 = 72.40 Persons. 37th floor built up area is 841.49 Sq.mtrs / 12.50 = 67.31 Persons. Required Refuge area = Total 139.71 Persons x 0.30 Sq.mtr = 41.91 Sq.mtrs. + 0.90 Sq.mtr = **42.81 Sq.mtrs.** Proposed refuge area is more than the requirement. 45th floor built up area is 905.02 Sq.mtrs/ 12.50 = 72.40 Persons. 46th floor built up area is 841.49 Sq.mtrs / 12.50 = 67.31 Persons. Required Refuge area = Total 139.71 Persons x 0.30 Sq.mtr = 41.91 Sq.mtrs. + 0.90 Sq.mtr = **42.81 Sq.mtrs.** Proposed refuge area is more than the requirement. **Building-6**

Tower-H

Proposed to provide Refuge area of 75.36 Sq.mtrs at each floor i.e. 19th floor and 29th floor.

19th floor built up area is 1,255.94 Sq.mtrs/ 12.50 = 100.47 Persons.

20th floor built up area is 1,172.11 Sq.mtrs / 12.50 = 93.76 Persons.

Required Refuge area = Total 194.23 Persons x 0.30 Sq.mtr = 58.26 Sq.mtrs. + 0.90 Sq.mtr = **59.16 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,255.94 Sq.mtrs/ 12.50 = 100.47 Persons.

30th floor built up area is 1,172.11 Sq.mtrs / 12.50 = 93.76 Persons.

Required Refuge area = Total 194.23 Persons x 0.30 Sq.mtr = 58.26 Sq.mtrs. + 0.90 Sq.mtr = **59.16 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Building-7

Tower-I

Proposed to provide Refuge area of 58.60 Sq.mtrs at each floor i.e. 19th floor and 29th floor.

19th floor built up area is 849.83 Sq.mtrs/ 12.50 = 67.98 Persons.

20th floor built up area is 846.90 Sq.mtrs / 12.50 = 67.75 Persons.

Required Refuge area = Total 135.73 Persons x 0.30 Sq.mtr = 40.71Sq.mtrs. + 0.90 Sq.mtr = **41.61 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 849.83 Sq.mtrs/ 12.50 = 67.98 Persons.

30th floor built up area is 846.90 Sq.mtrs / 12.50 = 67.75 Persons.

Required Refuge area = Total 135.73 Persons x 0.30 Sq.mtr = 40.71Sq.mtrs. + 0.90 Sq.mtr = **41.61 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Tower-J

Proposed to provide Refuge area of 83.98 Sq.mtrs at each floor i.e. 19th floor and 29thfloor.

19th floor built up area is 1,351.81 / 12.50 = 108.14 Persons.

20th floor built up area is 1,333.45 Sq.mtrs / 12.50 = 106.67 Persons.

Required Refuge area = Total 214.81 Persons x 0.30 Sq.mtr = 64.44 Sq.mtrs. + 1.80 Sq.mtr = **66.24 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,351.81 / 12.50 = 108.14 Persons.

30th floor built up area is 1,333.45 Sq.mtrs / 12.50 = 106.67 Persons.

Required Refuge area = Total 214.81 Persons x 0.30 Sq.mtr = 64.44 Sq.mtrs. + 1.80 Sq.mtr = **66.24 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Building-8

Tower-K

Proposed to provide Refuge area of 84.01 Sq.mtrs at each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 1,346.60 / 12.50 = 107.72 Persons.

20th floor built up area is 1,331.68 Sq.mtrs / 12.50 = 106.53 Persons.

Required Refuge area = Total 214.25 Persons x 0.30 Sq.mtr = 64.27Sq.mtrs. + 1.80 Sq.mtr = **66.07Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 1,346.60 / 12.50 = 107.72 Persons.

30th floor built up area is 1,331.68 Sq.mtrs / 12.50 = 106.53 Persons.

Required Refuge area = Total 214.25 Persons x 0.30 Sq.mtr = 64.27Sq.mtrs. + 1.80 Sq.mtr = **66.07Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 1,346.60 / 12.50 = 107.72 Persons.

40th floor built up area is 1,331.68 Sq.mtrs / 12.50 = 106.53 Persons.

Required Refuge area = Total 214.25 Persons x 0.30 Sq.mtr = 64.27Sq.mtrs. + 1.80 Sq.mtr = **66.07Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 1,346.60 / 12.50 = 107.72 Persons.

48th floor built up area is 1,331.68 Sq.mtrs / 12.50 = 106.53 Persons.

Required Refuge area = Total 214.25 Persons x 0.30 Sq.mtr = 64.27Sq.mtrs. + 1.80 Sq.mtr = **66.07Sq.mtrs.**

Proposed refuge area is more than the requirement.

Tower-L

Proposed to provide Refuge area of 58.85 Sq.mtrs at each floor i.e. 19th floor, 29th floor, 39th floor and 47th floor.

19th floor built up area is 846.46 / 12.50 = 67.71 Persons.

20th floor built up area is 848.25 Sq.mtrs / 12.50 = 67.86 Persons.

Required Refuge area = Total 135.57 Persons x 0.30 Sq.mtr = 40.67Sq.mtrs. + 0.90 Sq.mtr = **41.57 Sq.mtrs.**

Proposed refuge area is more than the requirement.

29th floor built up area is 846.46 / 12.50 = 67.71 Persons.

30th floor built up area is 848.25 Sq.mtrs / 12.50 = 67.86 Persons.

Required Refuge area = Total 135.57 Persons x 0.30 Sq.mtr = 40.67Sq.mtrs. + 0.90 Sq.mtr = **41.57 Sq.mtrs.**

Proposed refuge area is more than the requirement.

39th floor built up area is 846.46 / 12.50 = 67.71 Persons.

40th floor built up area is 848.25 Sq.mtrs / 12.50 = 67.86 Persons.

Required Refuge area = Total 135.57 Persons x 0.30 Sq.mtr = 40.67Sq.mtrs. + 0.90 Sq.mtr = **41.57 Sq.mtrs.**

Proposed refuge area is more than the requirement.

47th floor built up area is 846.46 / 12.50 = 67.71 Persons.

48th floor built up area is 848.25 Sq.mtrs / 12.50 = 67.86 Persons.

Required Refuge area = Total 135.57 Persons x 0.30 Sq.mtr = 40.67Sq.mtrs. + 0.90 Sq.mtr = **41.57 Sq.mtrs.**

Proposed refuge area is more than the requirement.

Commercial Building

Wing-1 (Office)

Proposed to provide Refuge area of 142.00 Sq.mtrs at each floor i.e. 5th, 9th, 13th, 17th& 21st floor.

5th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

6th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

Required Refuge area = Total 467.50 Persons x 0.30 Sq.mtr = 140.25 Sq.mtrs + 2.70 Sq.mtrs (0.90 Sq.mtrx3) = 142.95 Sq.mtrs.

Proposed Refuge area is more than the requirement.

9th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

10th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

Required Refuge area = Total 467.50 Persons x 0.30 Sq.mtr = 140.25 Sq.mtrs + 2.70 Sq.mtrs (0.90 Sq.mtrx3) = 142.95 Sq.mtrs.

Proposed Refuge area is more than the requirement.

13th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

14th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

Required Refuge area = Total 467.50 Persons x 0.30 Sq.mtr = 140.25 Sq.mtrs + 2.70 Sq.mtrs (0.90 Sq.mtrx3) = 142.95 Sq.mtrs.

Proposed Refuge area is more than the requirement.

17th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

18th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

Required Refuge area = Total 467.50 Persons x 0.30 Sq.mtr = 140.25 Sq.mtrs + 2.70 Sq.mtrs (0.90 Sq.mtrx3) = 142.95 Sq.mtrs.

Proposed Refuge area is more than the requirement.

20th floor built up area is 2,337.55 Sq.mtrs / 10 = 233.75 Persons.

21st floor built up area is 705.83 Sq.mtrs / 10 = 70.58 Persons.

Required Refuge area = Total 304.33 Persons x 0.30 Sq.mtr = 91.29 Sq.mtrs + 1.80 Sq.mtrs (0.90 Sq.mtrx2) = 93.09 Sq.mtrs.

Proposed Refuge area is more than the requirement.

Wing-2 (Hotel)

Proposed to provide Refuge area of 67.00 Sq.mtrs at each floor i.e. 8th, 13th, 18th& 23rd floor.

08th floor built up area is 952.20 Sq.mtrs /

12.50 = 76.17 Persons.

9th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

Required Refuge area = Total 152.35 Persons x 0.30 Sq.mtr = 45.70 Sq.mtrs + 0.90 Sq.mtr = 46.60 Sq.mtrs.

Proposed Refuge area is more than the requirement.

13th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

14th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

Required Refuge area = Total 152.35 Persons x 0.30 Sq.mtr = 45.70 Sq.mtrs + 0.90 Sq.mtr = 46.60 Sq.mtrs.

Proposed Refuge area is more than the requirement.

18th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

19th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

Required Refuge area = Total 152.35 Persons x 0.30 Sq.mtr = 45.70 Sq.mtrs + 0.90 Sq.mtr = 46.60 Sq.mtrs.

Proposed Refuge area is more than the requirement.

23rd floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

24th floor built up area is 952.20 Sq.mtrs / 12.50 = 76.17 Persons.

Required Refuge area = Total 152.35 Persons x 0.30 Sq.mtr = 45.70 Sq.mtrs + 0.90 Sq.mtr = 46.60 Sq.mtrs.

Proposed Refuge area is more than the requirement.

Wing-3 (Retail & F&B)

Proposed to provide 02 Refuge areas (one of 103.00 Sq.mtrs& another of 207.00 Sq.mtrs = 310.00 Sq.mtrs at 3rd floor.

3rd floor built up area is 2,871.88 Sq.mtrs / 6 = 478.64 Persons.

4th floor built up area is 531.16 Sq.mtrs / 6

		= 88.52 Persons. Required Refuge area = Total 567.16 Persons x 0.30 Sq.mtr = 170.14 Sq.mtrs + 2.70 Sq.mtrs (0.90 Sq.mtrtx3) = 172.84 Sq.mtrs. Proposed Refuge area is more than the requirement.
15	Fire Command Centre. **NBC-2016, Part-4 Clause 3.4.12 Fire Command Centre (FCC)** a) Fire command centre shall be on the entrance floor of the building having direct access. The control room shall have the main fire alarm panel with communication system (suitable public address system) to aid floors and facilities for receiving the message from different floors. b) Fire command centre shall be constructed with 120 min rating walls with a fire door and shall be provided with emergency lighting. Interior finishes shall not use any flammable materials. All controls and monitoring of fire alarm systems, pressurization systems, smoke management systems shall happen from this room. Monitoring of integrated building management systems, CCTVs or any other critical parameters in building may also be from the same room. 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.	Proposed to provide Fire Command Centre at ground floor at each Tower/Wing of each Building as per NBC-2016, Part-4 Clause 3.4.12 Fire Command Centre (FCC).
16	FIRE SAFETY PLAN **NBC-2016, Part-4, Annex-D, Clause 4.11 D-5 FIRE SAFETY PLAN** **D-5.1 A format for the Fire Safety Plan shall be as given in D-9.10.** **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. 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. 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.	Fire safety plan should be provided as per NBC-2016, Part-4, Annex-D, Clause 4.11 D-5.

17	Fire Officer **As per clause 4.10 of Part 4 Fire and Life Safety of NBC 2016:** **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 insist on compliance of the above rules in case of buildings having very large areas even if the height is less than 30 m.	Fire Officer should be appointed as per clause 4.10 of Part-4 Fire and Life Safety of NBC 2016 for each Building. Training - 40% of the occupants/employees of each block should be got trained in fire prevention &fire fighting at the R.A. Mundkur Fire and Emergency Services Academy, Bannerghatta Road, Bangalore-560 029, within 6 months from the date of occupation. 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.
		As proposed Fire extinguishers at following suitable places should be provided. 1) One ABC powder extinguishers of 6 kgs. and 9 Litres capacity Portable Hand held "Water Mist & CAFs" fire extinguishers – Jet & spray (combination)Capacity for every 8 cars at parking areas should be provided. - 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

18	Fire extinguishers **NBC-2016, Part-4, Table 7 (3) Fire extinguishers shall be provided for,** **Apartment Houses (A-4) & Mercantile (F1-F3)** 1. One ABC powder extinguishers of 6 kgs. Capacity for every 8 cars at parking areas should be provided. 2. One CO_2 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 CO_2 extinguishers of 2 kgs. Capacity should be provided inside each lift machine room. 6. One CO_2 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.	**2)** One CO_2 extinguishers of 4.5 kgs. Capacity should be provided near the entrance to the electrical room. **3)** One 9 Litres 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 transformer& standby generators. - 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) **4)** Foam Expansion minimum 1:10 or more and one ABC powder extinguishers of 6 kgs. Capacity should be provided near transformer & standby generators. **5)** One CO_2 extinguishers of 2 Kgs. Capacity should be provided inside each lift machine room& each kitchen. **6)** 4 Litres capacity Portable Hand held "Water Mist & CAFs" fire extinguishers – Jet / spray type (combination) should be kept in alternative staircase landing at each floor. - 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 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.

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 comer 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 Mixed Occupany that is (CS) bearing numbers CS-1, CS-2, CS-3 & CS-4 formed in Sy. No. 1, 5, 6, 7, 12, 13, 14, 15 and 16 situated at Konadasapura 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 compiled with mandatorily.**

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

Digitally signed by T N SHIVASHANKARA
Date: 2026.08.10 17:19:56 +05:30
Reason: Approved