MUNICIPAL CORPORATION OF GREATER MUMBAI

MUMBAI FIRE BRIGADE

Office of the Chief Fire Officer
Mumbai Fire Brigade
Byculla Command Center Building,
1st Floor, Bapurao Jagtap Marg,
Byculla, Mumbai - 400 008.

No: FB/HR/R-II/17

Date: 20/04/2017

Sub: NOC stipulating fire protection & fire fighting requirements for the proposed construction of high-rise residential rehab building comprising of 08 Wings i.e. "Wing-A", "Wing-B", "Wing-C", "Wing-D", "Wing-E", "Wing-F", "Wing-G" & "Wing-H" on plot bearing C.T.S No: 713,1/713, 3/713, 714, BDD Chawls, Naigaon in F/South ward, Mumbai.

Ref: i) Letter from M/S Sandip Shikre & Associates, Architect dt.13/04/2017.
ii) MFB. No: HR / R-II / 17 dated 13/04/2017.
iii) Fresh application & 03 sets of revised plan submitted on 17/04/2017.

Chief Architect &Planner,
MHADA,

This is a proposal for the proposed construction of high-rise residential rehab building Comprising of 08 Wings i.e. "Wing-A", "Wing-B", "Wing-C", "Wing-D", "Wing-E", "Wing-F", "Wing-G" & "Wing-H". "Wing-A" to "G" comprising of common 03 level basements (-10.35 M) for surface car parking, two wheeler parking accessible by 07.50 mtrs. wide two-way ramp & U.G. tank with pump room + Common ground floor on part stilt for surface car parking and part ground for shops, stalls, electric meter room for each wing, temples, fire panel of each wings + 1st to 23rd upper residential floors with a total height of 69.95 mtrs. from general ground level up to terrace level. "Wing-H" comprising of common 03 level basements (-10.35 M) for surface car parking, two wheeler parking accessible by 07.50 mtrs. wide two-way ramp & U.G. tank with pump room + Common ground floor on part stilt for surface car parking and part ground for electric meter room for each wing, fire panel of each wings + 1st to 19th upper residential floors with a total height of 58.35 mtrs. from general ground level up to terrace level.

COMMON 03 LEVEL BASEMENTS FOR ALL WINGS (-10.350 M):

All wings are having common 03 level basements are proposed to be used for surface car parking, two wheeler parking accessible by 07.50 mtrs, wide two way ramp, U.G. tank with pump room. The basements are proposed below the building line as well as extended beyond the building line. Natural ventilation to the basement is provided through cut outs, ventilation shafts, additionally mechanical ventilation also proposed.

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THE FLOOR-WISE USER OF RESIDENTIAL REHAB BUILDING IS UNDER:
Wing- A to D.

Floor	Occupancy per floor			
	Wing-A	**Wing-B**	**Wing-C**	**Wing-D**
Common 03 level basements for all wings.	Surface car parking accessible by 07.50 mtrs. wide two-way ramp, Services, common U.G. tank for fire fighting with pump room.			
Common Ground floor	Shops, stalls, Surface car parking, electric meter room, Control panel room.	Shops, stalls, Surface car parking, electric meter room, Temple.	Shops, stalls Surface car parking, electric meter room.	Shops, stalls Surface car parking, electric meter room.
1st to 7th, 9th to 14th, 16th to 21st, & 23rd floors.	08 residential flats on each floor.			
8th & 15th floor	06 residential flats + refuge area on each floor.			
22nd floor	07 residential flats + refuge area.			

Wing - E to G:

Floor	Occupancy per floor		
	Wing-E	**Wing-F**	**Wing-G**
Common 03 level basements	Surface car parking & two wheeler parking accessible by 07.50 mtrs. wide two-way ramp, common U.G. tank for fire fighting with pump room.		
Common Ground floor	Shops, stalls Surface car parking, electric meter room,	Shops, stalls Surface car parking, electric meter room, Temple	Shops, stalls Surface car parking, electric meter room, BMS Room.
1st to 7th, 9th to 14th, 16th to 19th & 23rd floors.	08 residential flats on each floor.		
8th & 15th floor	06 residential flats + Refuge area		
20th & 21st floor	08 residential flats on each floor.		
22nd floor	07 residential flats + Refuge area		

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Wing- A to D.

Floor	Occupancy per floor			
	Wing-A	**Wing-B**	**Wing-C**	**Wing-D**
Common 03 level basements for all wings.	Surface car parking accessible by 07.50 mtrs. wide two-way ramp, Services, common U.G. tank for fire fighting with pump room.			
Common Ground floor	Shops, stalls, Surface car parking, electric meter room, Control panel room.	Shops, stalls, Surface car parking, electric meter room, Temple.	Shops, stalls Surface car parking, electric meter room.	Shops, stalls Surface car parking, electric meter room.
1st to 7th, 9th to 14th, 16th to 21st, & 23rd floors.	08 residential flats on each floor.			
8th & 15th floor	06 residential flats + refuge area on each floor.			
22nd floor	07 residential flats + refuge area.			

Wing - E to G:

Floor	Occupancy per floor		
	Wing-E	**Wing-F**	**Wing-G**
Common 03 level basements	Surface car parking & two wheeler parking accessible by 07.50 mtrs. wide two-way ramp, common U.G. tank for fire fighting with pump room.		
Common Ground floor	Shops, stalls Surface car parking, electric meter room,	Shops, stalls Surface car parking, electric meter room, Temple	Shops, stalls Surface car parking, electric meter room, BMS Room.
1st to 7th, 9th to 14th, 16th to 19th & 23rd floors.	08 residential flats on each floor.		
8th & 15th floor	06 residential flats + Refuge area		
20th & 21st floor	08 residential flats on each floor.		
22nd floor	07 residential flats + Refuge area		

Wing - H:

Floor	Occupancy per floor
	Wing-H
Common 03 level basements	Surface car parking & two wheeler parking accessible by 07.50 mtrs. wide two-way ramp, common U.G. tank for fire fighting with pump room.
Common Ground floor	Shops, stalls Surface car parking, electric meter room,
1st to 7th, 9th to 14th, 16th to 19th floors.	08 residential flats on each floor
8th & 15th floor	06 residential flats + Refuge area on each floor.

THE DETAILS OF STAIRCASES & LIFTS:

Type of Bldg.	Wing	No. of staircase	Width	From - To	Type of staircase
Residential Rehab bldg.	A	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	B	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	C	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	D	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	E	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	F	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	G	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
	H	01	1.50mtrs.	From 3rd basement to terrace level	Enclosed
Common staircase		01	1.50mtrs.	From 3rd basement to ground level	Enclosed
The proposed staircases of each wing as shown on the plans are enclosed type, externally located and adequately ventilated to outside air above ground floor and smoke check lobby for the basement & cut off lobby for entry to basement at ground level.					

LIFTS:

Building	Wing	Types of lifts	No. of lifts	From – To
Residential rehab building.	A	Passenger	03	From 3rd basement to top floor level
	B	Passenger	03	From 3rd basement to top floor level
	C	Passenger	03	From 3rd basement to top floor level
	D	Passenger	03	From 3rd basement to top floor level
	E	Passenger	03	From 3rd basement to top floor level
	F	Passenger	03	From 3rd basement to top floor level
	G	Passenger	03	From 3rd basement to top floor level
	H	Passenger	03	From 3rd basement to top floor level
One of the lift from each wing shall be converted into fire lift as per the norms. The lift lobby & common corridor at each floor level of each wing, each building is directly ventilated to outside air above ground level as shown in the plans.				

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RAMP PROVIDED FOR RESIDENTIAL REHAB BUILDING ARE AS UNDER:

Bldg. No. 1	No. of ramp	From - To	Widths
Common for all wings.	02 no's.	From ground to 3rd level basement	7.50 mtrs. wide two-way ramp

REFUGE AREA:

The architect has proposed refuge area on 8th, 15th & 22nd floor in "Wing-A to Wing-G" and 8th & 15th floor in "Wing-H" and all the details are as under;

Buildings	Wings	Floors	Refuge area in sq. mtrs.		At the height from ground level in mtrs.
			Required	Provided	
Residential Rehab Building	A to G	8th floor	115.11	115.8	+23.55 mtrs.
		15th floor	115.11	115.8	+43.85 mtrs.
		22nd floor	33.15	33.72	+64.15 mtrs.
	H	8th floor	115.11	115.8	+23.55 mtrs.
		15th floor	82.07	82.55	+43.85 mtrs.
In addition to that, terrace floor area above 23rd of Wings A to G and above 19th floor of wing H will be treated as refuge area. Excess refuge area shall be counted towards FSI.					

The site/plot abuts on 15.00 mtrs. wide existing B.J. Devrukhkar Marg on North side, 15.24 mtrs. wide existing Govidji Keni Marg on South side, 12.20 mtrs. wide existing Road No:5 on East side & 15.24 mtrs. wide existing Mahatma Jyoitba Phule Marg on West side.

OPEN SPACES AROUND THE BUILDING ARE AS UNDER:

(Wing A to D);

Side	Wing A	Wing B	Wing C	Wing D
North	32.95 mtrs.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-C.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-D.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-E.
South	6.25 mtrs.	06.00 mtrs.	03.00 mtrs, + 03.00 mtrs. paved R.G. & Annex wing-B.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-C.
West	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-B.	6.59 mtrs.+ 15.24 mtrs. wide existing Mahatma Jyotiba Phule Marg	06.78 mtrs.+ 15.24 mtrs. wide existing Mahatma Jyotiba Phule Marg	06.14 mtrs.+ 15.24 mtrs. wide existing Mahatma Jyotiba Phule Marg.
East	06.00 mtrs. internal road+ 03.00 mtrs. paved R.G.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-A.	38.70 mtrs. up to R.G.	Annexed wing-H.

Wing- E to H:

Side	Wing E	Wing F	Wing G	Wing H
North	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-F.	06.00 mtrs. to 06.13 mtrs.+ 15.00 mtrs. wide existing B.J. Devrukhkar Marg.	07.92 mtrs.+ 15.00 mtrs. wide existing B.J. Devrukhkar Marg.	32.95 mtrs.
South	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-D.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-E.	32.95 mtrs.	32.95 mtrs.
West	06.38 mtrs.+ 15.24 mtrs. wide existing Mahatma Jyotiba Phule Marg.	06.70 mtrs.+ 15.24 mtrs. wide existing Mahatma Jyotiba Phule Marg.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-F.	Annexed wing-D.
East	38.70 mtrs. up to R.G.	03.00 mtrs, + 03.00 mtrs. paved R.G. & part Annexed wing-G.	06.00 mtrs. internal road.	06.00 mtrs. internal road.+ 03.00 mtrs. paved R.G.

The proposal has been considered favorably in view of the following facts that:

A. The site/plot abuts on 15.00 mtrs. wide existing B.J. Devrukhkar Marg on North side, 15.24 mtrs. wide existing Govidji Keni Marg on South side, 12.20 mtrs. wide existing Road No:5 on East side & 15.24 mtrs. wide existing Mahatma Jyotiba Phule Mard on West side.
B. This proposal falls under new DCR 33(9) (B)-Appendix III-B dt.27th Dec 2016.
C. Natural ventilation to the basement is provided through cut outs, ventilation shafts, additionally mechanical ventilation also proposed.
D. Automatic sprinkler system shall be provided in each habitable room of each flat of each wing, in lift lobbies & common corridor at each floor level of each wing, in each shop, surface car parking area & entire basement area.
E. Automatic smoke detection system shall be provided in lift lobbies & common corridor at each floor level of each wing, in each shop, in each lift machine room, each electric meter room & in each electrical shaft at every floor level with response indicator.
F. Fire Curtains provided at the basements from one compartment to other compartment shall be of two hours fire resistance. Water curtains system provided at the entrance/exit of ramp in basement area as standard laid down by T.A.C. or relevant I.S. specification.
G. During construction stage and prior to final occupation architect agreed to comply with additional requirements stipulated by Mumbai Fire Brigade Officer if any in future.

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In view of above, as far as this department is concerned there is no objection from fire safety point of view for the proposed construction of high-rise residential rehab building Comprising of 08 Wings i.e. "Wing-A", "Wing-B", "Wing-C", "Wing-D", "Wing-E", "Wing-F", "Wing-G" & "Wing-H". "Wing-A" to "G" comprising of common 03 level basements (-10.35 M) for surface car parking, two wheeler parking accessible by 07.50 mtrs. wide two-way ramp & U.G. tank with pump room + Common ground floor on part stilt for surface car parking and part ground for shops, stalls electric meter room for each wing, temples, fire panel of each wings + 1st to 23rd upper residential floors with a total height of 69.95 mtrs. from general ground level up to terrace level. "Wing-H" comprising of common 03 level basements (-10.35 M) for surface car parking, two wheeler parking accessible by 07.50 mtrs. wide two-way ramp & U.G. tank with pump room + Common ground floor on part stilt for surface car parking and part ground for electric meter room for each wing, fire panel of each wings + 1st to 19th upper residential floors with a total height of 58.35 mtrs. from general ground level up to terrace level, as per the details shown on the enclosed plans, signed in token of approval, subject to satisfactory compliance of the following requirements;

1. **ACCESS (for each wing):**
   i) All access & fire tender access should be free of encumbrances.
   ii) Main entrance gate shall be of not less than 6.00 meters width shall be provided, at locations marked on the plan. Archways, if any over the entrance gates, shall have height clearance of not less than 4.50 mtrs.
   iii) No compound wall proposed on road sides of each building.

2. **ACCESS RAMP:**
   i) The access ramp as shown in enclosed plan provided entry at the ground level.
   ii) The gradient of ramp shall not be steeper than 1:10.

3. **PROTECTION TO STRUCTURAL STEEL (for each wing):**
   i) All the structural steel members i.e. columns, beams etc., shall be protected with the 02 hours fire resisting materials and methods as stipulated under IS 1942-1960 as application for residential building.
   ii) A certificate to that effect that the fire resistance protection has been provided as above shall be furnished from the Structural Engineer as the time of application for occupying the building.

4. **COURTYARDS (for each wing):**
   i) The available courtyards/ open space on all the sides of the building shall be paved as required for fire tender movement suitably to bear the load of fire engines with point load of 10 kgs./sq. cms.
   ii) All the courtyards shall be in one plane and mandatory open space shall be clear of any obstructions including tree.
   iii) The courtyards shall be kept free from obstruction at all times.

5. **STAIRCASE (for each wing):**
   i) The flight width of staircases shall be maintained as shown in the enclosed plans.

ii) The layout of staircases shall be enclosed type as shown in the plan throughout its height and shall be approached (gained) at each floor level at least two hours fire resistant self closing door placed in the enclosed wall of the staircase
iii) Externally located staircases and lobbies adequately ventilated to outside air.
iv) Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
v) Open able sashes or R.C.C. grills with clear opening of not less than 0.5 sq.mtrs. per landing on the external wall of the staircase shall be provided.
vi) No combustible material shall be kept or stored in staircase / passage and shall be kept unobstructed all time.

Staircase Terrace Door Manner (for each wing):

The terrace door shall be provided in following manners:

a. The top of portion of the door shall be provided with louvers.
b. The single latch lock shall be installed from the terrace side at the height of not more than one meter.
c. The glass front of 6 inch dia. with the breakable glass shall be provided just above the single latch lock, as to open the latch in emergency.
d. The door shall either be fitted with magnetic lock or shall be synchronize with fire detection and alarm system.

6. CORRIDOR / LIFT LOBBY (for each wing):

i) Corridor / lift lobby at each floor level shall be naturally ventilated as shown in plan.
ii) The common corridor / lift lobby at each floor level shall be kept free from obstructions at all times.
iii) Self glowing/fluorescent exit signs in green color shall be provided showing the means of escape for entire building.
iv) Portable lights / insta lights shall be provided at strategic locations in the staircase and lift lobby.

7. STAIRCASE AND CORRIDOR LIGHTINGS (for each wing):

i) The staircase and corridor lighting shall be on separate circuits and shall be independently connected so that they could be operated by one switch installation on the ground floor control room easily accessible to fire fighting staff at any time irrespective of the position of the individual control of the light points, if any.
ii) Staircase and corridor lighting shall also be connected to alternate supply.
iii) Double throw switches should be installed to ensure that lighting in the staircase and the corridor do not get connected to two sources of supply simultaneously. A double throw switch shall be installed in the service room to terminate the stand-by-supply.
v) Emergency lights shall be provided in the staircases/corridors.

8. FLAT/ KITCHEN / SHOP ENTRANCE DOOR & ENTRANCE/ EXIT OF STAIRCASE (for each wing):

i) Shops & stalls have M.S. rolling shutters which are only on stilt level, Flat entrance and kitchen doors if any shall be of solid core having fire resistance of not less than one hour (solid wood of 45 mm thickness.)

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ii) The fire resistance rating for staircase F.R.D., Lift lobby / protected lobby & the lift doors as per N.B.C. provisions.

9. ELECTRIC CABLE SHAFT, SERVICES & METER ROOM (for each wing,):

i) Electric cable shaft shall be exclusively used for electric cables and should not open in staircase enclosure.

ii) Inspection doors for shafts at the each floor level shall have two hours fire resistance.

iii) Electric shaft shall be sealed at each floor level with non combustible materials such as vermiculite concrete. No storage of any kind shall be done in electric shaft.

iv) Electric wiring/ cable shall be non-toxic, non-flammable, low smoke hazard having copper core / fire resistance for the entire building with provision of ELCB/MCB.

v) Electric meter room shall be provided at the location shown in the plan. It shall be adequately ventilated & easily accessible.

vi) Low and medium voltage wiring running in shaft and in false ceiling should run in separate conduits;

vii) Water mains, telephone lines, intercom lines, gas pipes or any other service line should not be laid in the duct for electrical cables; use of bus bar/solid rising mains instead of cables is preferred.

xi) Preferably bus bar system shall be installed from ground to all upper floors main supply.

xii) Separate circuits for firefighting pumps, lifts, staircases and corridor lighting and blowers for pressurizing system shall be provided directly from the main switch gear panel and these circuits shall be laid in separate conduit pipes, so that fuse in one circuit will not affect the others. Such circuits shall be protected at origin by an automatic circuit breaker with its no-volt coil removed.

xiii) Automatic smoke detector system shall be provided in each electric shaft on each floor along with response indicator which shall be connected to main consol panel board on ground floor level and each floor level.

xv) Master switches controlling essential service circuits shall be clearly labeled and shall be placed at control room on ground floor.

10. FALSE CEILING (if provided for each wing):

False ceiling if provided in the building shall be of non combustible material. Similarly, the suspenders of the false ceiling shall be of no combustible materials.

11. MATERIALS FOR INTERIOR DECORATION/FURNISHING (for each wing):

The use of materials which are combustible in nature and may spread toxic fume/gases should not be used for interior decoration/furnishing, etc.

12. LIFTS:

A. PASSENGER LIFT (for each wing):

i) Walls enclosing lift shaft shall have a fire resistance of not less than two hour.

ii) Shafts shall have permanent vent of not less than 0.2 sq. mtrs in clear area immediately under the machine room.

iii) Landing doors and lift car doors of the lifts shall be of steel shuttered with fire resistance of one hour. No collapsible shutter shall be permitted.

iv) Fire lift shown in the plan shall be as per specifications laid down under the regulations, a toggle switch shall be provided to this lift for the use of Firemen.

v) Threshold of non combustible material shall be provided at the entrance of each landing door.

B. FIRE LIFT (for each wing):

i) Walls enclosing lift shafts shall have two hours fire resistance.

ii) The shafts shall have permanent vent equal 0.2 sq.mtr. clear area under the Lift Machine room.

iii) Landing doors and lift car doors shall be of steel shuttered type with onehour fire resistance. No collapsible shutters shall be provided.

iv) To enable fire services personnel to reach the upper floor with the minimum delay, one fire lift shall be provided and shall be available for the exclusive use of the firemen in an emergency and the directly accessible to every dwelling of each floor.

v) The lift shall have a floor area of not less than 1.4 sq. mtrs. with a minimum dimension of 1.12 mtrs. It shall have loading capacity of not less than 545 k.g. (8persons lift) with automatic closing doors.

vi) There shall be an alternate electric supply of an adequate capacity apart from the normal electric supply the building and the cables run in a route safe from fire, i.e. within the lift shaft. In case of failure normal electric supply, it shall automatically trip over to alternate supply.

vii) The operation of fire lift should be by a simple toggle or two button switch situated in 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 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.

viii) The words 'Fire lift' shall be conspicuously displayed in florescent paint on the lift landing door at each floor level & Threshold of non combustible material shall be provided at the entrance of each landing door.

ix) Except Service Lifts, other lifts shall be converted into Fire Lifts conforming to relevant regulations.

13. CAR PARKING (for each wing):

i) Car parking shall be permitted in the designated area.

ii) Drainage of the car parking area of all the levels shall be laid independent from that of the buildings & it shall be provided with catch pit & fire trapped before connecting the building drainage or Municipal drainage.

ii) Drainage of the car parking areas at all the levels shall be so laid as to prevent any overflow in the staircase, lift shaft etc.

iii) The parking area shall not be used for dwelling purpose & repairing / maintenance purpose, at any time. Dwelling use of naked light/flame, repairing /maintenance of vehicles shall be strictly prohibited in the parking area.

iv) Repairing / servicing of cars, use of naked light shall not be permitted in the car parking areas.

v) The drive way shall be properly marked & maintained unobstructed

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vi) The Automatic Sprinkler System provided to the entire surface car parking area.

14. <u>COMMON 03 LEVEL BASEMENTS FOR ALL WINGS (-10.350M);</u>

i) Each Basement shall be separately ventilated. Vents with cross, sectional area (Aggregate) not less than 2.5 percent of the floor area spread evenly around the perimeter of the basement shall be provided in the form of grills or breakable stall boards lights or pavement lights or by way of shafts. Alternatively, a system of air inlets shall be provided at basement floor level and smoke outlets at basement ceiling level. Inlets and outlets may be terminated at ground level with stall boards or pavement lights as before but ducts to convey fresh air to the basement floor level shall have to be laid. Stall boards and pavement lights should be in position easily accessible to the fire Brigade personal and rescue teams and clearly marked 'SMOKE OUTLET' or 'AIR INLET' with an indication of area served at or near the opening.

ii) The basements shall be used for designated purpose only as shown in the plan.

iii) The basement shall be provided with natural ventilations through the ventilators, open cut outs as shown in the plan.

iv) The staircases of the basement shall be of enclosed type and entry to basement areas shall be through two hours fire resistance self-closing door provided in the enclosed wall of the staircase and through smoke check / cut off lobby. The smoke check / cut off lobby shall be mechanically pressurized.

v) Mechanical ventilation shall be provided to the basement with 6 air changes per hour with an arrangement to accelerate the rate of air changes to 12 per hour in the event of a fire emergency.

vi) The ducts of the mechanical ventilations system shall be of substantial metal gauge as per the relevant I.S. standard.

vii) The operating switches of the mechanical ventilation shall be located in the fire control room with appropriate zonal indications.

viii) Exhaust duct shall be provided to draw out exhaust at ground level of the basement.

ix) Suitable signages shall be provided in basement showing exit direction, way to exits etc.

x) Automatic sprinkler system shall be provided in entire basement including ramp. These systems shall be installed as per the standard laid down by T.A.C. and relevant I.S. specifications

xi) Smoke check lobby, Staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.

xii) One Dry Chemical Powder fire extinguisher ABC type of 09 kgs. Capacity each shall be kept for every 100 sq. mtrs. area in each basement.

xiii) Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signages shall be such that they are visible from a distance of 12 to 16 meters.

xiv) The staircase of the basement & the associated lift lobbies shall be pressurized in the event of fire. The pressure in this enclosed staircase and enclosed lift lobbies shall be maintained not less than 5m.m. W.G. & 2.5 mm W.G. for lift lobbies.

xv) CO Detector with audible alarm system shall be provided to all the basement areas and the circuit of the same shall be given / connected to mechanical ventilation

system to start automatically on actuation of CO detector and the other detectors provided in the basement.

xvi) Ventilation system shall start automatically on actuation of detector provided in the basement area.

xvii) Exhaust duct, mechanical ventilation duct should not pass through exit or entry.

xviii) The basement beyond building line shall be paved, suitably to bear the load of fire engines weighing upto 48 m. tones each with point load of 10 kgs./sq. cms.

xix) Basement area shall be divided in compartments as per NBC regulations.

xx) The ventilation and area of ventilation and compartmentation if required shall be checked by C.A. & P. (MHADA).

xxi) The interconnectivity between (exit / entrance) between two compartments shall be protected by fire curtain having four hours fire resistance.

15. FIRE FIGHTING REQUIREMENTS:

A) UNDERGROUND WATER STORAGE TANK (Common for all wings):

An underground water storage tank of capacity 5,00,000 liters shall be provided as shown on the plan as per design specified in the rules with baffle wall and fire brigade collecting breaching. The layout of which shall be got approved from H.E.'s department prior to erection. The tanks shall be connected to sprinkler system. The slab of the upper level basement shall be reinforced suitably to bear the load of fire engines weighing up to 48 m. tones each with a point load of 10 kgs./sq. cms.

B) OVERHEAD WATER STORAGE TANK (Separate for each wing):

An over head water storage tank of capacity 30,000 liters shall be provided on staircase shaft at the terrace level of each wing. The design shall be got approved form H.E.'s department prior to erection. The tank shall be connected to the wet riser through a booster pump through a non return valve and gate valve.

C) WET RISER CUM DOWN COMER (for each wing):

Wet riser cum down comer of internal dia. of 15 cms. of G.I. 'C' Class pipe shall be provided in the duct adjoining each staircase with double hydrant outlet & hose reel at each floor in such a way as not to reduce the width of the common corridor. Pressure reducing discs or orifices shall be provided at lower level, so as not to exceed the pressure of 5.5 kgs. per sq. cms. Wet riser outlet and hose reel at a distance of every 100 ft. shall be provided on periphery of all podium / parking floors of each wing, each building. Wet riser extended from lower basement to terrace/top floor level.

D) FIRE SERVICE INLET (for each wing):

i) A fire service inlet on the external face of the building near the tank directly fronting the courtyards shall be provide to connect the mobile pump of the fire service to (a) The wet riser (b) Sprinkler system.

ii) Breeching connection inlet shall be provided to refill U.G. tank.

iii) Operating switches of fire pumps shall be also provided in glass fronted boxes at ground floor.

E) AUTOMATIC SPRINKLERS SYSTEM (for each wing):

Automatic sprinkler system shall be provided in each flat of each wing, in lift lobbies & common corridor at each floor level of each wing, in each shop of each wing, surface car parking area & entire basement.

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F) **AUTOMATIC SMOKE DETECTION SYSTEM (for each wing):**

Automatic smoke detection system shall be provided in lift lobbies & common corridor at each floor level of each wing, in each shop, in each lift machine room, each electric meter room electric substation & in electric shaft at every floor level with response indicator; same should be connected to main consol panel on ground floor level in BMS Room, as per IS specification. for basement area.

G)**FIRE CURTAIN (for basement area):**

Fire Curtain shall be provided for entry/exit at basements from one compartment to other shall be of two hour fire resistance.

H)**Water Curtain (for basement area):**

Water curtains system shall be provided at the entrance/exit of ramp in basement area as standard laid down by T.A.C. or relevant I.S. specification.

I) **FIRE PUMP, BOOSTER PUMP, SPRINKLER PUMP AND JOCKEY PUMP (Common for all wings):**

a) Wet-riser cum down comer shall be connected to a fire pump at ground level of capacity of not less than 2400 liters/min. capable of giving a pressure of not less than 3.2 kgs/ sq. cms. at the top most hydrant.
b) Booster pump of 900 liters/min. capacity giving a pressure of not less than 3.2 kgs./ sq. cms. at the top most hydrant out let of the wet-riser shall be provided at the terrace level.
c) Sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
d) Electric supply (normal) to these pumps shall be independent circuit.
e) Separate jockey pump shall be provided to Wet riser system to keep system pressurized.
f) Operating switches for booster pumps shall be also provided in glass fronted boxes in lift lobbies on each floor at prominent place.
g) Operating switches of fire pumps shall be also provided in glass fronted boxes at ground floor.
h) All above pumps should be surface mounted or vertical turbine type (submersible pump not permitted) pump along with adequate size of pump room

I) **EXTERNAL HYDRANTS (for each wing):**

Courtyard hydrants shall be provided at distance of 30.00 mtrs each within the confines of the site of the wet riser-cum-down comer. Hose box with two non percolating ISI marked hoses (length not less than 15 mtrs) & branch shall be equally distributed on ground floor, podium floor, as well as on each floor of each wing near the wet riser outlet.

J) **ALTERNATE SOURCE OF POWER SUPPLY (Common for all wings);**

An alternate source of LV/HV supply from a separate substation or from a diesel generator with Auto/Manual changeover over switch shall be provided for fire pumps, booster pump, sprinkler pump, jockey pump, staircase and corridor lighting circuits and fire alarm system, detection system, public address system, voice evacuation system etc of each wing. It shall be housed in separate cabin.

K) **PORTABLE FIRE EXTINGUISHERS (for each wing):**

(i) One dry chemical powder type fire extinguisher of 06 kgs. capacity having I.S.I. certification mark and two sand buckets filled with dry cleaned sand shall be kept in each shop, each electric meter room as well as in each lift machine room.

(ii) One dry chemical powder type fire extinguisher of 06 kgs capacity having I.S.I. certification mark and two sand buckets filled with dry cleaned sand shall be kept at ground & each level of podium for every 100 sq mtrs. area.

(iii) One dry chemical powder type fire extinguisher of 06 kgs. capacity having I.S.I. certification mark shall be kept on each floor level at prominent place & refuge area

L) FIRE ALARM SYSTEM / FIRE DETECTION SYSTEM (for each wing):

The building shall be provided with manual fire alarm system with main control panel at ground floor level and pill-boxes and hooters at each upper floor level. The layout of fire alarm system shall be in accordance with I.S. specification.

M) PUBLIC ADDRESS SYSTEM (for each wing):

Each wing shall be provided with the public address system in common areas with main control panel at ground floor reception area and in BMS Room.

N) FIRE DRILLS / EVACUATION DRILLS (for each wing):

Fire Drills and evacuation drills shall be conducted regularly in accordance with fire safety plan of building at least once in a three month in consultation with Mumbai Fire Brigade and log of the same shall be maintained.

O) SIGNAGES (for each wing):

Self-glowing/fluorescent exit signs in green color shall be provided showing the means of escape for each wing.

16. SERVICE DUCT (if provided);

a) All service ducts shall have 2 hr. fire resistance.
b) Inspection door of the service ducts shall have 2 hr. fire resistance.
c) Duct for water service, drainage line, shall be separate from that of electrical cable duct.

17. TRAINED OCCUPIERS (for each wing):

Occupiers of the building shall be trained to extinguish the fire at in initial stage, supervision on Maintenance of entire fixed fire fighting installation system, Mock evacuation drills & to use of portable fire extinguishers etc.

18. REFUGE AREA (for each wing);

(A) Refuge area provided on 8th, 15th & 22nd floor in Wing-A to G and 8th, 15th floor in Wing-H as shown on the plan & it shall be conforming to the following requirements:

i) Manner of refuge area:

a) The refuge area shall be so located that it shall preferably face the wider open space on the side of the building perpendicular to the main access road.
b) The refuge area shall be provided with railing/ fire rated glass / parapet of 1.20 mt.
c) The refuge area shall have a door which 'shall be painted or fixed with a sign in luminous paint mentioning "REFUGE AREA"
d) The lift/s shall not be permitted to open into the refuge areas.
e) The refuge area provided within building line shall be accessible from common passage/ staircase.

ii) Use of refuge area:

a. The refuge area shall be earmarked exclusively for the use of occupants as temporary shelter and for the use of Fire Brigade Department or any other

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organization dealing with fire or other emergencies when occur in the building and also for exercises/drills if conducted by the Fire Brigade Department.

b. The refuge areas shall not be allowed to be used for any other purpose and it shall be the responsibility of the owner/occupier to maintain the same clean and free of encumbrances and encroachments at all times.

c. Adequate emergency lighting facility shall be provided.

iii) Terrace floor as a refuge floor:

a) The necessary facilities such as emergency lighting, drinking water etc shall be provided.

b. The access door/s from the enclosed staircase/s to the terrace floor shall have louvers at top half portion of the door. The entrance doors to the terrace shall be painted or fixed with sign painted in luminous paint mentioning "REFUGE AREA".

iv) Excess refuge area (above 4%) shall be counted in FSI.

The party has paid the scrutiny fee of Rs. 48,98,245.00/- vides receipt under No. 5594966, SAP Doc. No.1002937058 dated 18/04/2017 on the total gross built-up area of 1,13912.59 sq. mtrs. as certified by the architect.

C.A. & P. (MHADA) is requested to verify the total built up area and inform this department if it is more for the purpose of levying additional scrutiny fee, if required.

The width of the Abutting Road / Access Road, Open spaces all around the building mentioned in this NOC are as per plans submitted by the Architect, attached herewith. These parameters shall be verified by C.A. & P. (MHADA) before granting any permission (i.e. IOD / CC / further CC). If found any contradiction, the proposal shall be referred back to this department for fresh fire safety remarks.

This NOC is issued for the proposed building from Fire Risk / Fire Safety point of view only. The plans approved along with this NOC are approved from fire Risk / fire safety point of view only. Approval of this plan does not mean in any way of allowing construction of the building. It is Architect / Developer's responsibility to take necessary prior approval from all concerned competent authorities for the proposed construction of the building.

Note:

1. The fire fighting installation shall be carried out by licensed approved agency.
2. The area calculation shown in the enclosed plan shall be checked by the C.A. & P. (MHADA).
3. C.A. & P. (MHADA) requested to scrutinized the plans as per amended DCR & verify civil work and all other requirements pertaining to civil Engineering side including open spaces, podium, ramps, corridors, staircases, amendments, height, refuge area in sq. mtrs. & floor occupancy of the building. C.A. & P. (MHADA) is also requested to verify open space as per the Directives of Hon. M.C.'s office order No. MGC/A/6647 dated 23.12.2013 & orders of Hon. Supreme Court. And if these plans, given open space is not approvable then this NOC shall be refer back to this department for revised NOC also till then further process of issuing IOD & C.C. shall not be permitted.

4. C.A. & P. (MHADA) shall verify the proposal in context with Hon. M.C.'s circulars issued u/n. Ch.E./32545/DP-Gen dated 24/02/2015 & u/no. Ch. E/34194/DP/Gen dated 10/03/2015 and verify the compliance as per the above said circulars. If the same is not complied with, this proposal shall be referred back to this department for issuing fresh NOC.
5. Necessary permission shall be obtained from concerned department of MCGM / CFO's department for any licensable activity on ground floor shops, till then it shall not be allowed to use.
6. During construction stage and prior to final occupation party agreed to comply with additional requirements stipulated by Mumbai Fire Brigade Officer if any in future.
7. There is no tree located in compulsory open spaces.
8. This NOC is issued from fire risk point of view only, without prejudice to legal matters pending in the court of law, if any.

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Chief Fire Officer
Mumbai Fire Brigade.

Copy to: M/S Sandip Shikre & Associates, Architect, Mumbai.

Chief Fire Officer
Mumbai Fire Brigade.

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