MUNICIPAL CORPORATION OF GREATER MUMBAI

MUMBAI FIRE BRIGADE

No.: FB/HRC/RII/03 Date: 06/05/2016

Sub: NOC stipulated for fire protection and fire-fighting requirements for the proposed redevelopment Municipal property Known as Barracks No.T/57, T/58, and T/59 on plot bearing C.S. No. 6 (pt) of sion division, situated at Bhaudaji road, F/ North ward, Matunga, Mumbai under

33(7) as Known as Building No. 2 and 3

Ref.: MFB No. HRC/R-II/ 03 DT 13.04.2016 and 29.04.2016

Ch. Eng. (D.P.):-

This is a proposal under 33(7) for the construction of a high rise residential building Comprising of Two Wings i.e. Building No. 2 & 3 having common 3 level basement (-10.50 mtrs.)+ common Ground floor on stilt + 1st to 4th common podium floors+ 5th floor fitness centre, Refuge area thereafter the building is divided into two wings, each wings having 6th to 66th upper residential floors with total height of 224.74 mtr. From general ground level to terrace level.

<u>Basement</u>: The proposed building is having 3 level basements (-10.50 mtrs.) which will be mainly used for two tier stack/ puzzle car parking accessible by 8 Nos. car lifts. Basement is lighted & ventilated mechanically as well as naturally through ventilation cut out/ shaft and side ventilators as well as mechanical ventilation as shown in the plan.

<u>Podiums/ Car Parking Floors:</u> 4 level podiums will be used for car parking as well as services. Podiums will be accessed by way of 8 Nos. of Car Lifts.

THE FLOOR-WISE USER OF BUILDING NO. 2 and 3 IS AS UNDER.

Floor	User					
	Bldg. No.2	Bldg. No.3				
Basement 1 (-2.5	Two tier Stack/puzzle car parking, 2 Nos. Pump room, S					
mtrs.)	RWHT, Garbage Room . 6 mtrs to 7.63 mtrs. Wide drive way.					
Basement 2 & 3 (-	Stack/puzzle car parking, U.G. Water tank, 6 mtrs to 7.63 mtrs.					
10.5 mtrs.)	Wide drive way.					
Ground floor	2 Nos. Fire Panel room, 3 tier stack car parking on stilt, 2 Nos.					
	Meter Rooms, 2 Nos. Society Offices, 2 Nos. Entrance Foyer.					
	3Nos. DG sets.	BRODET TOWARD				
1 st podium parking	Horizontal car Parking using 8 nos	s. of car lifts, 5.15 mtrs. To 9.00				
floor	mtrs. Wide drive way	water regit				
2 nd to 4 th podium	Horizontal car Parking using 8 nos	s. of car lifts, 5.15 mtrs. To 9.00				
parking floors	mtrs. Wide drive way	The state of the s				
5 th floor	Fitness Centre, Stack/puzzle car I	Parking using 6 nos. of car lifts.				
	5.50 mtrs. To 9.00 mtrs. Wide drive					
Service floor		-				
7^{th} to 12^{th} , 14^{th} to	06 flats on each floor	06 flats on each floor				

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19 th , 21 th to 26 th , 28 th to 33 nd , 35 th to 40 th , 42 nd to 47 th , 49 th to 54 th , 56 th to 60 th , 61 nd to 66 th		
floors 6 th ,13 th , 20 th , 27 th , 34 th , 41 th , 48 th , 55 th and 62 st floors	04 flats on each floor + refuge area	04 flats on each floor + refuge area

REFUGE:

Building No. 2 and 3 Refuge area is provided as under -

		A4 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
a sa required	relage area provided	At the height from 4 th
100 11	VELL E IS A LEVI SE IL VILLE	podium level
188.14 sq. mtrs,	189.08 sq.mtrs.	29.70 mtrs.
188 14 sq. mtrs	180 08 08 mtm	<u> </u>
100.1104.11113.	109.06 Sq. Mirs.	51.05 mtrs.
188.14 sq. mtrs.	189 08 sq. mtrs	74.40 maters
	and the second s	74.40 mtrs.
	189.08 sq. mtrs.	96.75 mtrs.
188.14 sq. mtrs		118.10 mtrs.
		Tel Sentimental
		142.45 mtrs.
the same of the sa	189.08 sq. mtrs.	163.80 mtrs.
188.14 sq. mtrs	189.08 sq. mtrs.	185.15 mtrs.
161.24 sq. mtrs.		
	in a cittle to the	209.50 mtrs.
that terrace of the build	ing will be treated as refug	e area.
e area shall be counted	towards FSI	
	Refuge area required 188.14 sq. mtrs. 188.14 sq. mtrs. 188.14 sq. mtrs. 188.14 sq. mtrs. 188.14 sq. mtrs 181.14 sq. mtrs	188.14 sq. mtrs, 189.08 sq. mtrs. 188.14 sq. mtrs. 189.08 sq. mtrs. 188.14 sq. mtrs. 189.08 sq. mtrs. 188.14 sq. mtrs. 189.08 sq. mtrs. 188.14 sq. mtrs 189.08 sq. mtrs. 189.08 sq. mtrs. 189.08 sq. mtrs.

FIRE CHECK FLOORS:

A Fire check floor having height of 1.5 mtrs. is proposed as under.

Floor level	At the height from ground level
Between 18 th floor level & Service floors	69.35 mtrs.
Between 40 th floor level & Service floors	139.45 mtrs
Between 61st floor level & Service floors	206.50 mtrs

SERVICE FLOORS:

A service floor having height of 1.5 mtrs. is proposed as under.

Floor level	•
	At the height from ground level
Between 6 th & 5 th floor	28.20 mtrs.
Between Fire check floors & 19th floor level	70.85 mtrs.
Between Fire check floors & 41th floor level	140.95 mtrs.
Between Fire check floors & 62 nd floor level	208.00 mtrs.

THE OPEN SPACES: (Bldg No.2 & 3)

The Site abuts on 18.30 mtrs Wide Bhau Daji Road on North side...

Cidaa	F 1 '1.0'	T=	
Sides	From building to	From building to compound	From podium to
	podium	come responsibility in the first series	compound
North	Flushed to 7.84 mtrs.	6.85 mtrs.	6.85 mtrs. to 14.69 mtrs.
South	Flushed	Flushed	6.21 mtrs. to 6.35 mtrs.
West	3.01 mtrs.	8.05 mtrs. to 9.63 mtrs.	6.62 mtrs.
East	3.24 mtrs.	09.25 mtrs.	6.00 mtrs.

THE DETAILS OF STAIRCASES & LIFTS: (Building No. 2 and 3)

Staircase	The second harmonic to the second sec
Staircase	Width & No.
 Leading from Basement to terrace. 	02.00 mtrs wide – 02 Nos. (Each Bldg)
ii) Leading from Ground to 3 rd basement .	01.00 mtrs.Wide - 02 Nos. (Each Bldg)
The proposed staircases as shown in plans are	enclosed type and are externally located &
adequately ventilated to outside air with smoke	check lobby for the basement.

Lifts Type	Profile	Nos
Passenger	i) Leading from ground floor to terrace.ii) Leading from Basement to terrace.	06 Nos. (Each Bldg) 04 Nos. (Each Bldg)
Car	Leading from basement to 4 th Podium.	08 Nos.
One passeng	er lift from each lift bank shall be converted into	fire lift as per norms. The lift
lobby & comn the plan.	non corridor at each floor level is directly ventilate	ed to outside air as shown on

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

- A) The Site abuts on 18.30 mtrs Wide Bhau Daji road on South side.
- B) The building will be protected with advance in built fire fighting system such as wet riser, hydrant system, fire alarm & fire detection system & sprinkler system, integrated system, voice evacuation system, public address system, BMS system etc.
- C) Additional stand by pump to all the fire fighting systems is recommended along with regular fire, sprinkler, jockey and booster pump.
- D) The fire resistance rating for staircase F.R.D., Lift lobby / protected lobby & the lift doors as per N.B.C. provisions.
- E) Efficient P.A. system is recommended for building with standard Building Management System.
- F) 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.
- G) This N.O.C. is subject to approval by High Rise Technical Committee.

In view of above, as far as this department is concerned there is no objection for the construction of a high rise residential building Comprising of Two Wings i.e. Building No. 2

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& 3 having common 3 level basement (-10.50 mtrs.)+ common Ground floor on stilt + 1st to 4th common podium floors+ 5th floor fitness centre+ refuge area thereafter the building is divided into two wings, each wings having 6th to 66th upper residential floors with total height of 224.74 mtr. From general ground level to terrace level, subject to satisfactory compliance of the following requirements;

1. ACCESS:

- i) All access & fire tender access should be free of encumbrances.
- ii) Entrance gate if provided shall be of not less than 6.00 meters width each 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.

2. COURTYARDS:

- The available courtyards on all the sides of the building, sloping access road & podium top shall be paved suitably to bear the load of Fire Engine weighing upto 48 Metric tonnes each with a point load of 10 kgs/ sqm.
- ii All the courtyards shall be in one plane.
- lii The courtyards shall be kept free of obstructions all the time.
- iv parking shall not be permitted in courtyards & Drive ways of Fire appliances
- v Court yards shall be kept free from encumbrances & encroachments.
- vi Astro Turf etc shall not be permitted in the courtyard & top of the podium & Drive way
- vii No structure of any type shall be permitted in the courtyard of the building.
- viii There shall not be any trees obstructing fire appliances reach in compulsory open spaces, required as per DCR.

3. STAIRCASE: (Each Bldg.)

- i) The flight width of staircases shall be maintained as shown in the enclosed plans.
- 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 (45 mm. thickness) placed in the enclosed wall of the staircase.
- iii) Externally located staircases adequately ventilated to outside air with smoke check lobby for the basement.
- iv) Internally located staircases & lobbies shall be pressurized.
- v) Permanent vent at the top equal to 5% of the cross sectional area of the staircase shall be provided.
- vi) Openable 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.
- vii) No combustible material shall be kept or stored in staircase / passage.

4. TERRACE STAIRCASE:

i) The staircase door shall be provided in the following manner;

- ii) The top half portion of the doors shall be provided with louvers.
- iii) The latch-lock shall be installed from the terrace side at the height of not more than 1 mtrs.
- iv) The glass front of 6 inch diameter with the breakable glass shall be provided just above the latch lock, so as to open the latch incase of an emergency by breaking the glass.
- v) The door shall either be fitted with magnetic lock connected to console & detection system or shall be synchronized with fire detection and alarm system.

5. CORRIDOR / LIFT LOBBY:

- i) Corridor & lift lobby at each floor level shall be naturally ventilated.
- ii) The common corridor & lift lobby at each floor level shall be kept free from obstructions at all times.
- iii) Proper signages for way to staircase, escape routes, staircase, floor nos. etc. shall be provided at each floor of building.
- iv) Portable lights / insta lights shall be provided at strategic locations in the staircase and lift lobby

6 STAIRCASE AND CORRIDOR LIGHTINGS:

- 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 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.
- 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.
- iv) Emergency lights shall be provided in the staircases/corridors.

7 FLAT ENTRANCE & EXIT / ENTRANCE STAIRCASE

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

8 ELECTRIC CABLE SHAFTS, SERVICES & METER ROOM:

- i) Electric cable shafts shall be exclusively used for electric cables and should not open in staircase enclosure.
- ii) Inspection doors for shafts shall have two hours fire resistance.
- iii) Electric shafts 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.

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- v) Electric meter room shall be provided at upper basement & shall be adequately ventilated & easily accessible. Emergency electric switch shall be provided at ground floor level.
- vi) Electric wiring shall be having copper core having the fire resistance and low smoke hazard cables for the entire bldg., with the provision of ELCB/MCB. 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) Separate circuits for fire fighting 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.
- xii) Master switches controlling essential service circuits shall be clearly labelled.

9 FALSE CEILING (if provided):

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.

10. MATERIALS FOR INTERIOR DECORATION/FURNISHING

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

11 LIFTS:

A. PASSENGER LIFT:

- 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) One of the lift from each lift bank shall be converted into fire lift and shall be as per specifications laid down under the regulations, a toggle switch shall be provided to this lift for the use of Firemen.

B. FIRE LIFT:

- 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 one hour 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.

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

There shall be an alternate electric supply of an adequate capacity apart from vi) 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.

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

The words 'Fire lift' shall be conspicuously displayed in florescent paint on the viii)

lift landing door at each floor level.

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

The lift lobbies in the basement shall be enclosed and shall be pressurized X) with positive air pressure of 5mm W.G.

C. CAR LIFT:

ii.

All the structural steel members of the car lift well i.e. columns, beams etc shall be protected with the fire resisting/ retardant materials and methods as stipulated under relevant IS specification. A certificate to that effect shall be furnished from chartered structural Engineer.

The electrical cables used internally shall be fire retardant and heat resistant of

capacity 105 degree centigrade.

Emergency stop switch shall be installed inside the auto parking system at the top of iii. the car lift, near the driving unit and on the main control panel for activation in case of any emergency, for the power cut off to the main motor and all operations to stop.

Blue & Red display lamps indicating whether system is ready to accept the car shall iv. be installed at the entry point of the car. When the red lamp is on, car should not enter into the tower.

Threshold of non combustible material shall be provided at the entrance of each ٧.

landing door.

BASEMENT:-12

The basement shall be naturally 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 light or pavement lights or by way of shafts.

ii. The slab of the basement shall be reinforced suitably to bear the load of fire engine

weighing up to 48 M. tones each with point load of 10 kgs./sq.cms.

iii. The basement shall be provided with natural ventilation through the side 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 one hour fire resistance self closing door provided in the enclosed

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- wall of the staircase and through cut off lobby. The cut off lobby shall be mechanically pressurized.
- v. Exhaust duct shall be provided to draw out exhaust at ground level of the basement.
- vi. Suitable signages shall be provided in the basement showing exit direction, way to exits etc.
- vii. Automatic sprinkler system shall be provided in basement area. These systems shall be installed as per the standard laid down by T.A.C. and relevant I.S. specifications.
- viii. Cut off lobby, staircases, common passages & escape routes of the entire building shall be painted with fire retardant paint.
- ix. One Dry Chemical Powder fire extinguisher ABC type of 6 Kgs. Capacity each shall be kept for every 100 Sq.Mt. area in the basement.
- x. Staircase and lift lobby shall have illuminated by inverter operated exits signs with IP 54 enclosure. Luminance of the signage's shall be such that they are visible from a distance of 12 to 16 meters.

13. CAR PARKING:

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

14. PODIUM /CAR PARKING FLOORS:

- i) All the sides of the stilted / covered car parking shall be kept open except parapet walls of not more than 0.75 meters height.
- ii) Automatic sprinkler system to the entire parking floor & drencher system on the top of each podium floor shall be provided.
- iii) The driveways shall be properly marked and maintained unobstructed, proper illuminated signage shall be provided for escape route, ramps etc at prominent location.

15. STACKED CAR PARKING:

- i) Structural design shall be constructed of structural steel construction.
- ii) Vertical deck separation having multi-car parking level, vertical separation between the upper & lower decks by using the non-perforated and non-combustible materials. (Structural steel plate) shall be provided. This is to minimize direct impingement of flame to the car in the upper deck and also to prevent dripping of any possible leaking fuel to the lower deck.

- Elements of the staked car parking structure shall have 1 hr. fire resistance. iii)
- Each car parking deck shall have 1 hr. fire resistance. V)
- Parking area shall be accessible by trained staff when carrying out the maintenance vi)
- The parking system is to be ceased during the maintenance operation. vii)
- Stack car parking shall be protected with double line sprinkler system/ Medium viii) velocity water spray projector.

FIRE FIGHTING REQUIREMENTS:

A) <u>UNDERGROUND WATER STORAGE TANKS</u>: (Common)

An underground water storage tank of 4,00,000 liters capacity shall be provided at lower level basement 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.

B) OVERHEAD WATER STORAGE TANK: (each Bldg)

A tank of 50,000 liters capacity shall be provided at the terrace level . 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: (each Bldg.)

Wet riser of internal dia. of 15 cms. of G.I. 'C' Class pipe shall be provided in the duct adjoining the 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. The wet risers shall be extended from lower basement up to topmost floor/terrace level. Wet riser outlet and hose reel at a distance of 100 ft. shall be provided on periphery of all podium / parking floors.

D) FIRE SERVICE INLET: (Each Bldg)

- i) Fire service inlet shall be provided to refilled U.G. tank, to feed riser system by passing the fire pump & to feed sprinkler system.
- ii) Operating switches of fire pumps shall be also provided in glass fronted boxes at ground floor.

E) AUTOMATIC SPRINKLERS SYSTEM: (Each Bldg)

Provided Automatic sprinkler system in entire building including each flat , lift lobby, common corridor at each floor level, all basements, podium/ parking floors. As per the standards lay down by TAC or relevant IS specification.

F) DRENCHER SYSTEM: (Each Bldg)

Drencher system should be provided on the periphery of the top of each podium / car parking floors & Fire check floor of the building and should be connected to the main sprinkler pump as per the standard laid down in relevant I.S. Specifications.

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G) AUTOMATIC SMOKE DETECTION SYSTEM: (Each Bldg)

Automatic smoke detection system shall be provided in electric meter room & lift machine room, common corridor at each floor level.

H) RATE OF RISE DETECTORS: (Each Bldg)

Rate of rise detectors shall be installed in the hot areas i.e. kitchen, pantry, etc. and same shall be connected to main console at ground floor level.

I) FIRE PUMP, BOOSTER PUMP, SPRINKLER PUMP AND JOCKEY PUMP:

- (i) Wet-riser shall be connected to a fire pump at ground level of capacity of not less than 2800 liters/min. capable of giving a pressure of not less than 3.2 kgs/ sq. cms. at the top most hydrant.
- (ii) 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.
- (iii) Sprinkler pump of suitable capacity along with jockey pump shall be provided for automatic sprinkler system.
- (iv) Electric supply (normal) to these pumps shall be independent circuit.
- (v) Separate jockey pump shall be provided to Wet riser system to keep system pressurized.
- (vi) Operating switches for booster pumps shall be also provided in glass fronted boxes in lift lobbies on each floor.
- (vii) Operating switches of fire pumps shall be also provided in glass fronted boxes at ground floor.

J) STAND BY PUMP:

A Set fire pump, sprinkler pump and jockey pump pumps shall be kept as stand by pump Or Diesel operated stand pump shall be provided as per N.B.C.

K) EXTERNAL HYDRANTS.: (Each Bldg)

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.

L) <u>ALTERNATE SOURCE OF POWER SUPPLY:</u> (each Bldg.)

An alternate source of LV/HV supply from a separate substation as well as from a diesel generator with appropriate 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. It shall be housed in separate cabin.

M) PORTABLE FIRE EXTINGUISHERS: (Each Bldg)

(i) One dry chemical powder type fire extinguisher of 10 kgs. capacity having I.S. certification mark and two bucket filled with dry clean sand shall be kept in electric meter room as well as in lift machine room.

- (ii) Four dry chemical powder type fire extinguisher of 5 kgs capacity having I.S.I. certification mark and ten buckets filled with dry clean sand shall be kept at ground & basement.
- (iii) Two dry chemical powder type fire extinguisher of 5 kgs. capacity having I.S. certification mark shall be kept on each floor level & refuge area.
- (iv) One dry chemical powder type fire extinguisher of 5 kgs. capacity having I.S. certification mark shall be kept at alternate level on external staircase of mechanized car parking tower.

N) FIRE ALARAM SYSTEM / FIRE DETECTION SYSTEM : (Each Bldg)

- a) The building shall be provided with intelligent analog addressable fire alarm system with microprocessor based main control panel at ground floor level and addressable call points and hooters at each floor level. The design of fire alarm system shall be in accordance with I.S. specification and based on NFPA 72 guidelines (as per 2010 edition).
- b) The addressable fire alarm system shall be equipped with the latest evacuation features such as digital voice evacuation capabilities; fire fighters telephone system, directional sounders etc. The main entry / exit points shall be provided with fire fighters interactive interface to enable viewing of critical information in event of fire.
- c) All basements, podiums shall be provided with intelligent multi sensor detectors connected to the main fire alarm panel. This is to avoid nuisance alarm caused due to smoke emission from the vehicles of the car parking.
- d) Appropriate fire detection system shall be installed in kitchen area.
- e) Access control system, close circuit cameras shall be installed in the entire building & connected to B.M.S. control at reception.

O) PUBLIC ADDRESS SYSTEM: (Each Bldg)

The entire building shall be provided with the public address system in common areas as per the with main control operator at console panel at ground floor reception area.

P) <u>SIGNAGES: (Each Bldg)</u>

Self glowing/fluorescent exit signs in green color shall be provided showing the means of escape for entire building.

Q) BREATHING APPARATUS SETS: (Each Bldg)

Two Self contained Compressed Air Breathing Apparatus sets of 45 minutes duration each shall be kept in the fire control room & two Self contained Compressed Air Breathing Apparatus sets of same capacity shall be kept in refuge area in consultation with C.F.O.

R) <u>VOICE EVACUATION SYSTEM:</u> (Each Bldg)

The voice evacuation system shall be integrated to Fire Alarm system so as to facilitate the co-ordination activities in case of fire emergencies. The actuation of the

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fire alarm control panel shall automatically activate the Voice Evacuation system. A pre-recorded message shall be broadcast on the affected floor, one floor below & two floors above the affected floor.

S) <u>INTEGRATED SYSTEM:</u> (Each Bldg)

The entire fire fighting system shall be of the type "Integrated Building Automation System" combining all the systems. Flasher light shall be installed at the top of the building which will be switched on in case of incident of fire in that building to indicate involvement of building in fire. It will also help the incoming fire brigade appliances to reach the spot in time without delay.

T) FIRE DRILLS / EVACUATION DRILLS: (Each Bldg)

Fire Drills and evacuation drills shall be conducted regularly in consultation with Mumbai Fire Brigade and log of the same shall be maintained.

17 SERVICE DUCT:

- 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.
- d) All service duct shafts shall be sealed at each floor level with non combustible materials such as vermiculite concrete. No storage of any kind shall be done in the shaft.

18 FIRE CHECK FLOOR:

- a. Fire check floor shall be provided at every 70.00 mtrs.height of the building.
- b. Fire check floor shall be open on all sides which serves as fire separation floor
- c. Fire check floor shall be properly accessible from common areas.
- d. Fire check floor 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.
- e. Height of the fire check floor shall not be more than 1.8 mtrs.
- f. Periphery of the Fire Check floor shall not be enclosed.
- g. Fire Drenchers shall be provided at the periphery of the each fire check floor externally.

19 TRAINED OFFICER / SECURITY GUARDS: (Each Bldg)

- a. A qualified full time fire officer with experience of not less than 3 years shall be appointed who will be available on the premises at all times. Alternative full time qualified fire officers working in shift duty system shall be placed round the clock on the premises.
- b. The trained security / fire supervisor along with trained staff having basic knowledge of fire fighting & fix fire fighting installation shall be provided / posted in the building.
- c. Maintenance of all the first aid fire fighting equipments, fixed installations &

other fire fighting equipments / appliance in good working condition at all times.

d. Imparting training to the occupants of the building in the use of firefighting equipment provided on the premises & kept them informed about the fire & other emergency evacuation procedures.

e. To liaise with the City Fire Brigade on regular & continual basis.

20. <u>HYDRO-MECHANIZED ASCENDING & DESCENDING DEVICE:</u> (Each Bldg)

Controlled Lowering device or external evacuation system, as approved by CFO, shall be provided. Mechanical Ascending & Descending Device shall be installed along the external side of the staircase accessible from outside as well as through a lobby which is accessible from midlanding of the staircase, as shown in the plan.

- a) External electro hydraulically operated ascending and descending evacuation system having minimum 8 persons capacity with entry and exit at midlanding of staircase each floor level.
- b) The lowering device shall be installed on the external face of the building from terrace with guide line, along with cabin and should be used for ascending & descending.

c) The electric supply for the same shall be from emergency as well as alternate source of electric supply for separate back up emergency power supply

d) The said device shall be operational from the cabin as well as from ground level (preferably by remote control) by the operator.

e) Controlled lowering device/ external evacuation system shall confirm to the relevant NFPA Codes and shall be certified by U.L.

21. FIRE CONTROL ROOM: (Each Bldg)

- a) Separate Fire Control room with well qualified man power shall be established on ground floor.
- b) Plan of each floors indicating means of egress as well escape shall be maintained.
- c) Control panel of fire safety system shall be located in the control room.

22. REFUGE AREA: (Each Bldg)

(A) Refuge area provided as shown in plan & 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 "REFUGEAREA"
- 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:

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- 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 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.
- iii) Facilities to be provided at refuge area

 Adequate emergency lighting facility shall be provided.
- iv) 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 "REFUGEAREA".
- v) Excess refuge area (above 4%) shall be counted in FSI.

Architect vide his letter dated 13/4/16 has certified the gross built- up area as 1,62,400.00 sq mt. and the party has paid scrutiny fee of Rs 63,33,600=00 vide receipt no. 2277603 under SAP docket No. 1002538118 dated 29/4/16.

However, E.E.B.P (City) is requested to verify the total built-up area and inform this department, if the same is found to be more for the purpose of levying additional scrutiny fees, if required.

Note:

- (i) The schematic drawings/plans of sprinkler system, smoke detection System, Rate of rise detection system, Wet riser system, Public Address system etc. shall be got approved from CFO prior to installation.
- (ii) The passive and active fire safety measures / installation shall be carried out by approved licensed agency.
- (iii) Necessary permission if any for glass or any cladding / façade shall be obtained from concerned department & M.C.G.M.'s / C.F.O's department till then shall not be allowed to use.
- (iv) This NOC is issued from fire safety point of view only & all civil engineering side including area calculation shall be scrutinized, verify & confirm by the E.E.B.P.(city)
- (v) E.E.B.P.(City) requested to scrutinized the plans as per amended DCR &verify civil work and all other requirements pertaining to civil Engineering side including open spaces, corridors, staircases, amendments, height, refuge area in sq. mtrs. & floor occupancy of the building. E.E.B.P. (City) is also requested to verify 6.00 mtrs. wide open spaces & R.G. 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 & R.G. is not approvable then this NOC shall be treated as cancelled & refer back to this department for revised NOC also till then further process of issuing IOD & C.C. shall not be permitted.

(vi) There shall not be any trees obstructing fire appliances reach in compulsory open spaces, required as per DCR.

(vii) Necessary permission for club house, swimming pool, sub station shall be obtained from concern department and M.C.G.M. / C.F.O.'s department.

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

(ix) This NOC is subject to approval by High Rise technical committee.

__sd

CHIEF FIRE OFFICER MUMBAI FIRE BRIGADE.

Copy. To:

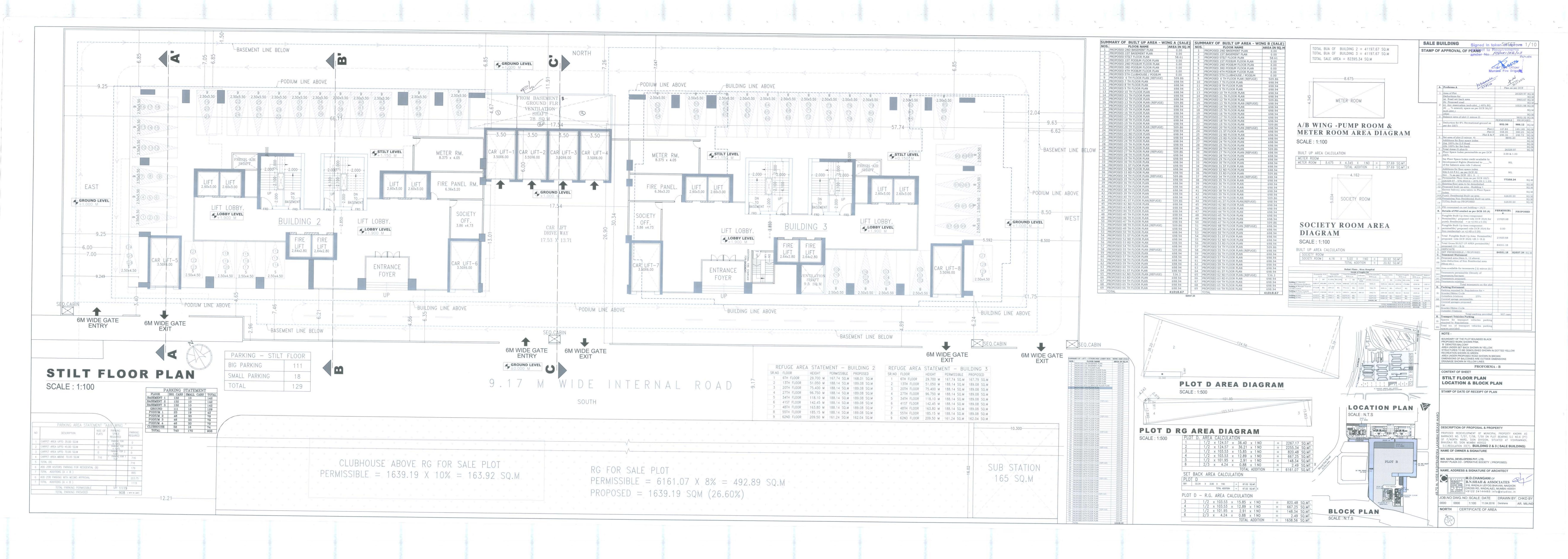
1. E.E.B.P (City)

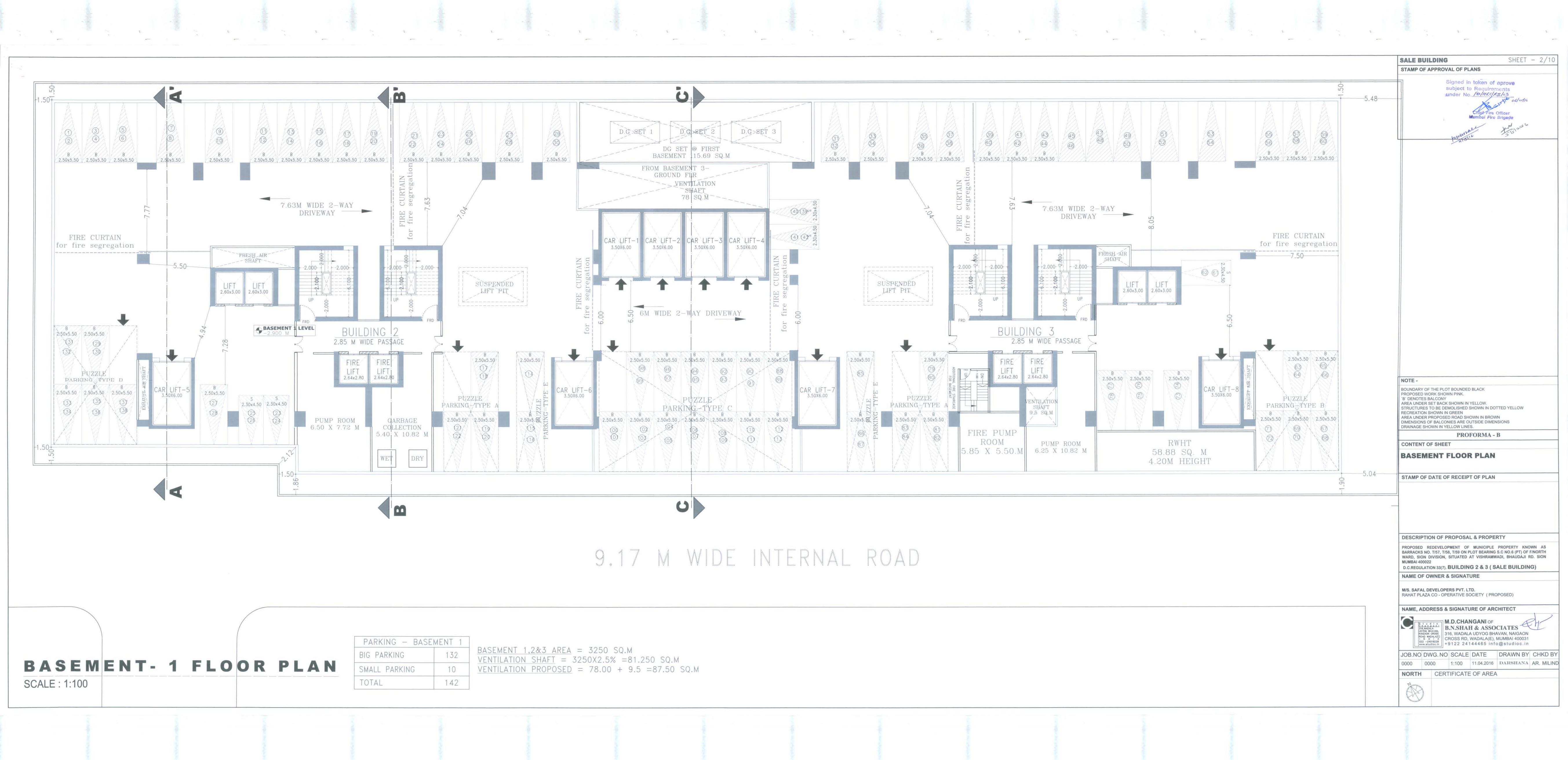
2. M/S B. N. Shah & Associates, Architect, Mumbai.

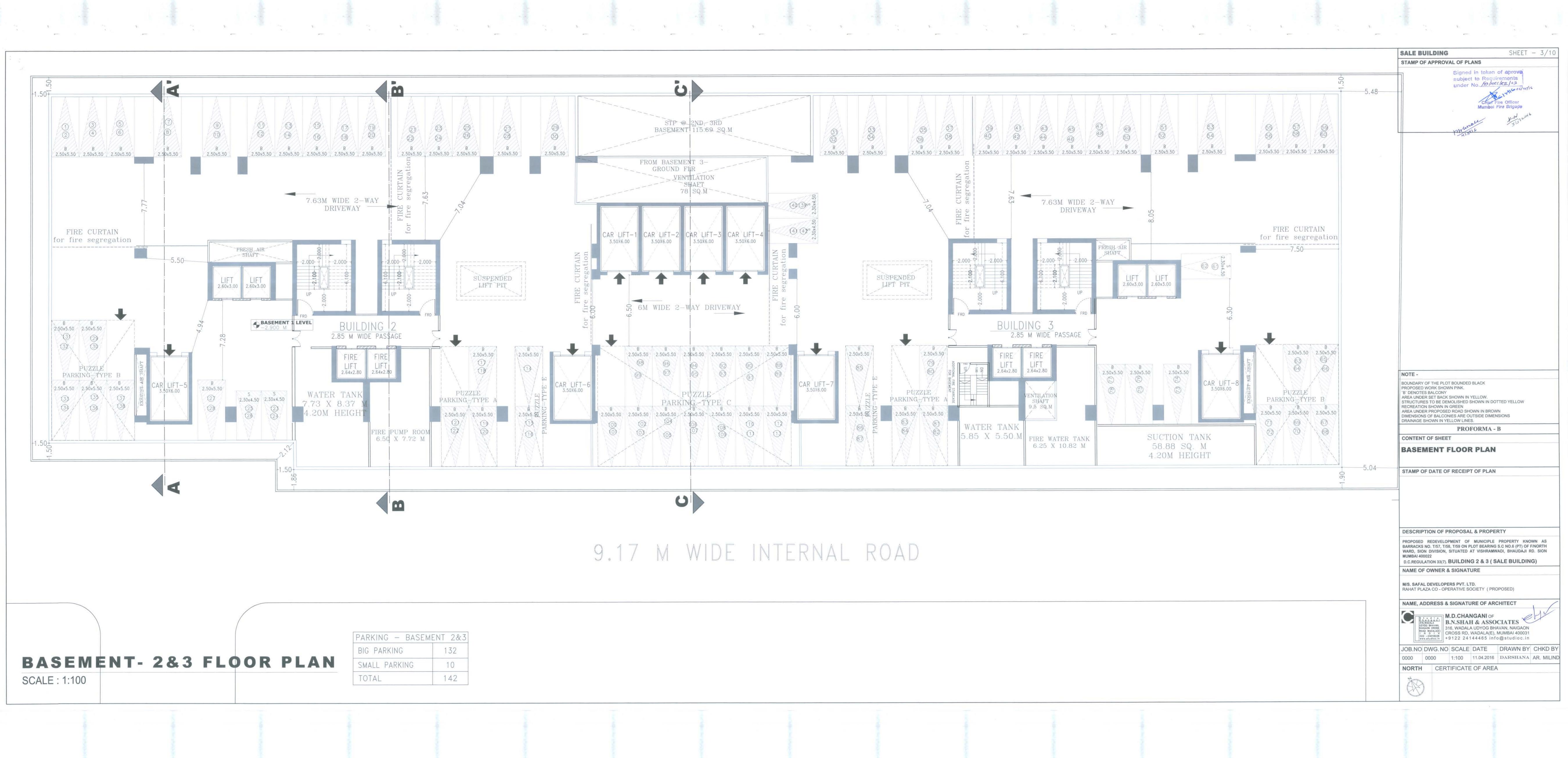
CHIEF FIRE OFFICER
MUMBAI FIRE BRIGADE.

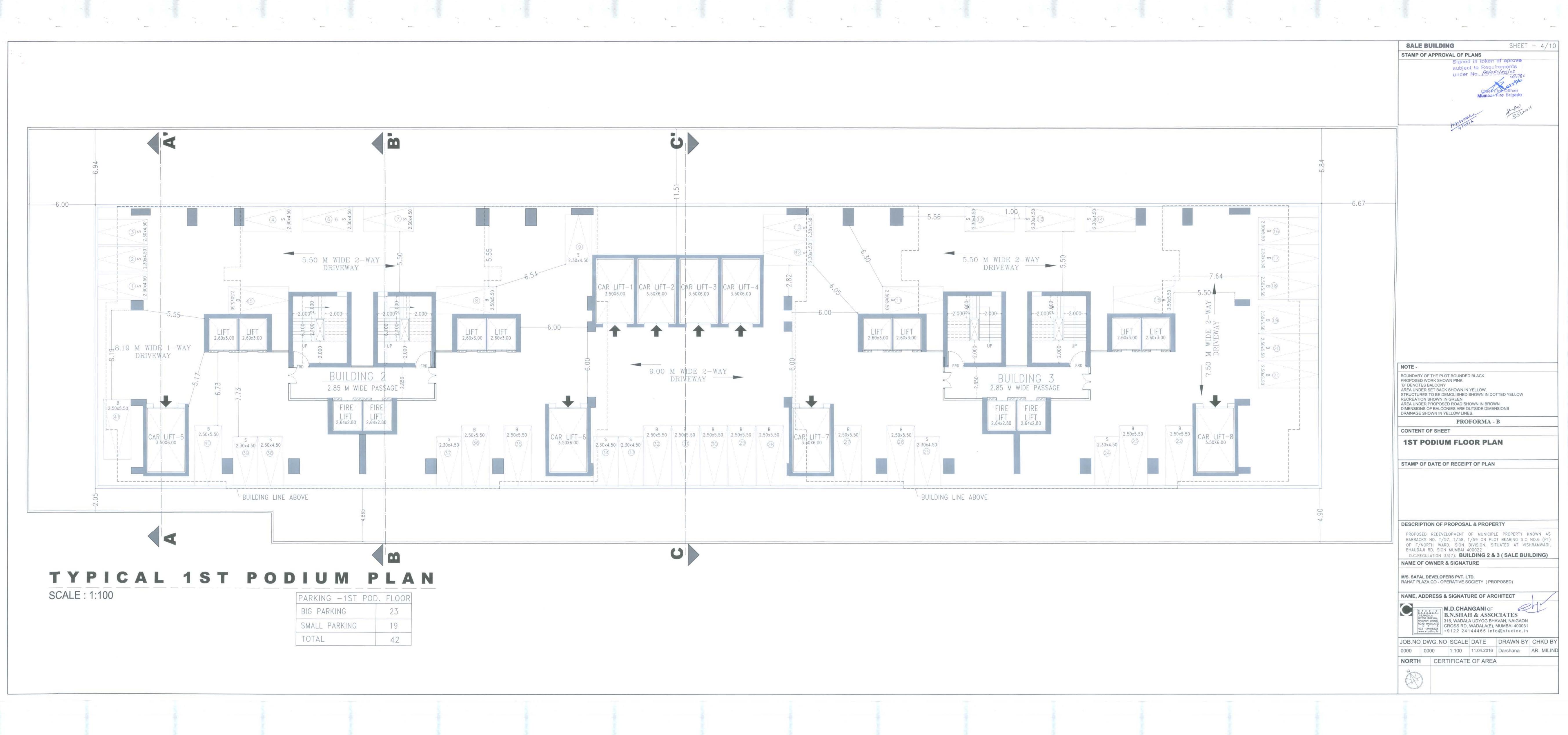
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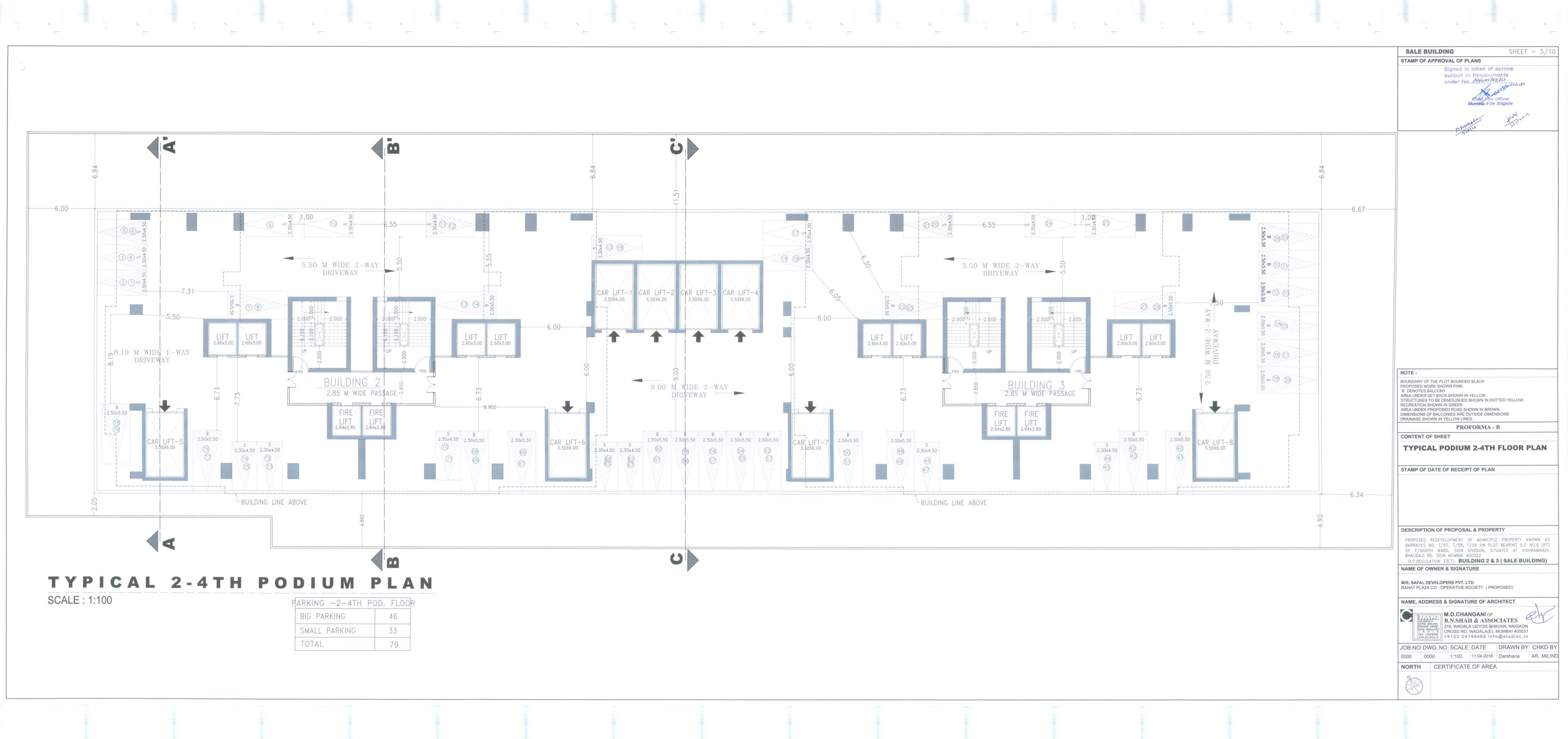
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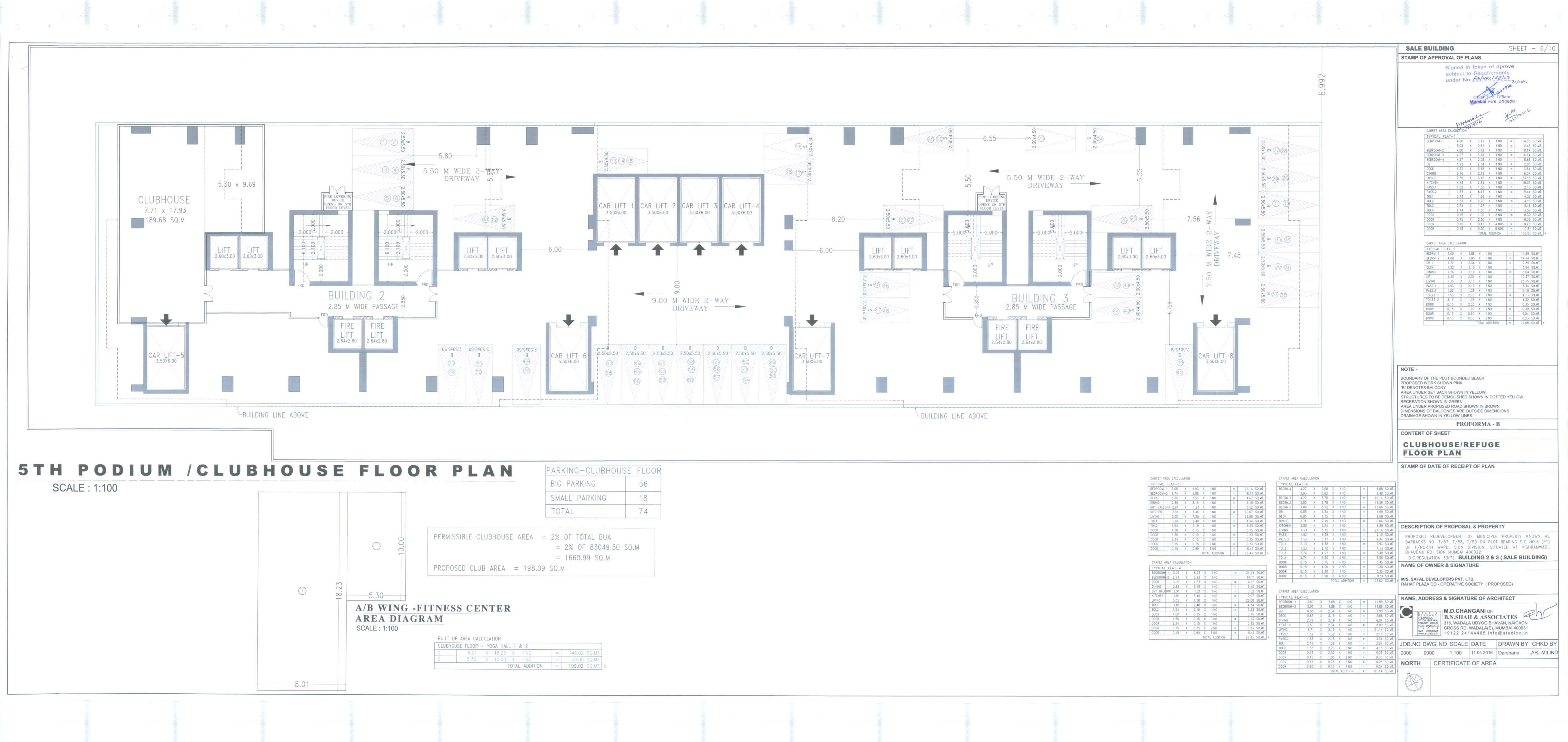


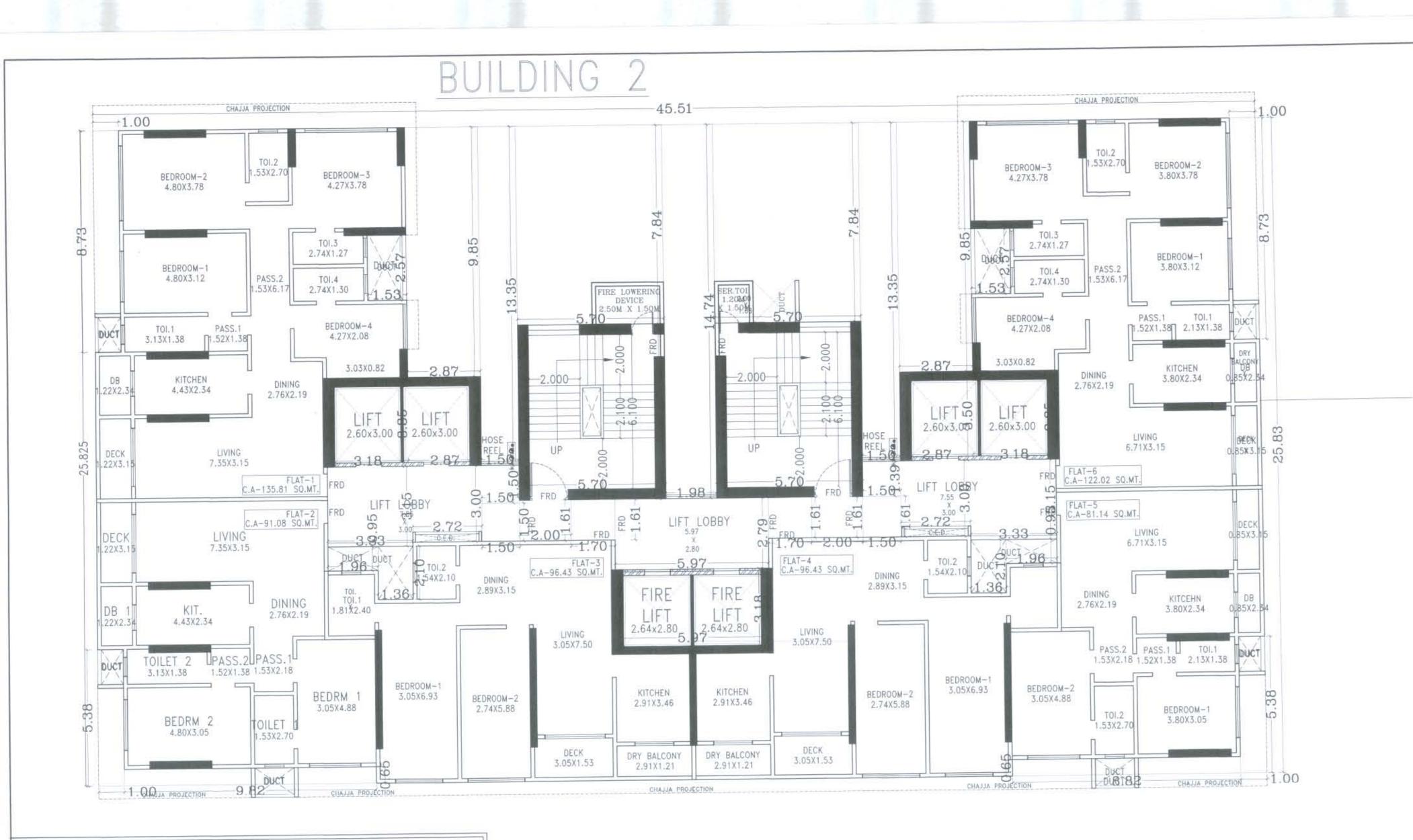






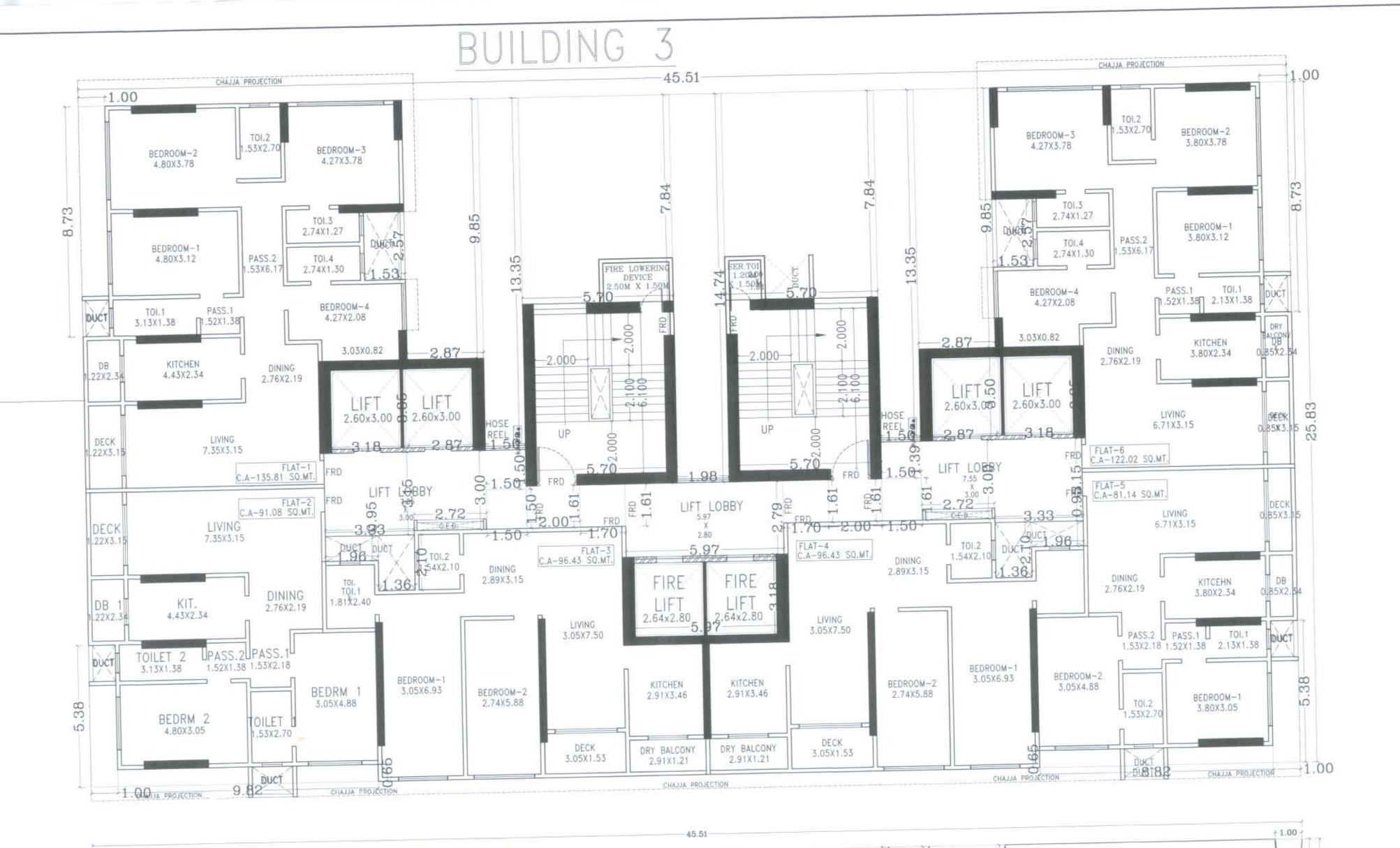






TYPICAL FLOOR PLAN 6TH TO 66TH (EXCEPT REFUGE FLOOR)

SCALE: 1:100



BUILT UP AREA CALCULATION

1	1.00	X	8.73	Χ	2 NOS	= 1	17.46 SQ.MT.
2	1.53	X	2.57	Χ	2 NOS	=	7.86 SQ.MT.
3	2.87	X	9.85	X	2 NOS	=	56.54 SQ.MT.
4	1.50	X	13.35	Х	1 NO	=	20.03 SQ.MT.
5	5.70	Х	7.84	X	2 NOS	=	89.38 SQ.MT.
6	1.98	Х	14.74	Χ	1 NO	=	29.19 SQ.MT.
7	1.50	Х	13.35	X	1 NO	=	20.03 SQ.MT.
8	1.00	X	5.38	Χ	2 NOS	=	10.76 SQ.MT.
9	8.83	Χ	0.65	Χ	1 NO	=	5.74 SQ.MT.
10	9.83	Х	0.65	Χ	1 NO	=	6.39 SQ.MT.
11	1.96	Х	0.95	X	1 NO	=	1.86 SQ.MT.
12	1.36	X	2.10	X	2 NOS	=	5.71 SQ.MT.
13	1.96	X	0.95	X	1 NO	=	1.86 SQ.MT.
				TOTA	L DEDUCTION	=	272.81 SQ.MT.
TOTAL	BUILT UP AF	REA I	X - Y1	1		= 1	902.71 SQ.MT.

3.18	X	3.35	X	1 NO	=	10.65	SQ.MT.
2.87	X	3.50	Χ	2 NOS	=	20.09	SQ.MT.
3.33	X	3.15	Χ	1 NO	=	10.49	SQ.MT.
2.72	X	3.00	Χ	1 NO	=	8.16	SQ.MT.
5.97	Χ	3.18	X	1 NO	=	18.98	SQ.MT.
5.97	Χ	2.79	Χ	1 NO	=	16.66	SQ.MT.
3.18	X	3.35	Χ	1 NO		10.65	SQ.MT.
3.33	Χ	3.15	X	1 NO	=	10.49	SQ.MT.
2.72	X	3.00	X	1 NO	=	8.16	SQ.MT
	3.33 2.72 5.97 5.97 3.18	3.33 X 2.72 X 5.97 X 5.97 X 3.18 X 3.33 X	3.33 X 3.15 2.72 X 3.00 5.97 X 3.18 5.97 X 2.79 3.18 X 3.35 3.33 X 3.15	3.33 X 3.15 X 2.72 X 3.00 X 5.97 X 3.18 X 5.97 X 2.79 X 3.18 X 3.35 X 3.33 X 3.15 X	3.33 X 3.15 X 1NO 2.72 X 3.00 X 1NO 5.97 X 3.18 X 1NO 5.97 X 2.79 X 1NO 3.18 X 3.35 X 1NO 3.33 X 3.15 X 1NO	3.33 X 3.15 X 1NO = 2.72 X 3.00 X 1NO = 5.97 X 3.18 X 1NO = 5.97 X 2.79 X 1NO = 3.18 X 3.35 X 1NO = 3.33 X 3.15 X 1NO =	3.33 X 3.35 X 1 NO = 10.49 2.72 X 3.00 X 1 NO = 8.16 5.97 X 3.18 X 1 NO = 18.98 5.97 X 2.79 X 1 NO = 16.66 3.18 X 3.35 X 1 NO = 10.49 3.33 X 3.15 X 1 NO = 10.49

STAIRCASE AREA CALCULATION

TYPICAL	FLOOR					
ST1	5.70	X	6.90 X 2 NOS	=	78.66 SQ.MT.	
55550	VIRCASE ARE	A PF	R FL. (TYPICAL FLOOR)	=	78.66 SQ.MT.	Y3

PASSAGE AREA CALCULATION PASSAGE1 1.50 X 1.50 X 1NO PASSAGEZ 2.00 X 1.61 X 2 NOS 6.44 SQ.MT. = 2.09 SQ.MT. PASSAGES 1.50 X 1.39 X 1NO TOTAL PASSAGE AREA PER FL. (TYPICAL FLOOR) = 10.78 SQ.MT. Y4

NET BUILT UP AREA	=	698.94 SQ.M
[X1 - (Y2+Y3+Y4)]		

соммо	N PASSAG	E					
P1	1.50	Χ	1.50	X	1 NO	=	2.25 SQ.MT.
P2	1.70	X	1.61	Χ	1 NO	=	2.74 SQ.MT.
P3	1.70	Χ	1.61	X	1 NO	=	2.74 SQ.MT.
P4	1.50	X	1.61	Χ	1 NO	=	2.42 SQ.MT
		0.00	W 00-4-11	TOT	TAL ADDITION	=	10.15 SQ.MT

BOUNDARY OF THE PLOT BOUNDED BLACK PROPOSED WORK SHOWN PINK. 'B' DENOTES BALCONY AREA UNDER SET BACK SHOWN IN YELLOW. STRUCTURES TO BE DEMOLISHED SHOWN IN DOTTED YELLOW RECREATION SHOWN IN GREEN
AREA UNDER PROPOSED ROAD SHOWN IN BROWN
DIMENSIONS OF BALCONIES ARE OUTSIDE DIMENSIONS
DRAINAGE SHOWN IN YELLOW LINES.

PROFORMA - B CONTENT OF SHEET

TYPICAL FLOOR PLAN 6TH TO 66TH (EXCEPT REFUGE FLOOR)

STAMP OF DATE OF RECEIPT OF PLAN

DESCRIPTION OF PROPOSAL & PROPERTY

OF F/NORTH WARD, SION DIVISION, SITUATED AT VISHRAMWADI, BHAUDAJI RD. SION MUMBAI 400022

D.C.REGULATION 33(7). BUILDING 2 & 3 (SALE BUILDING)

NAME OF OWNER & SIGNATURE

M/S. SAFAL DEVELOPERS PVT. LTD.
RAHAT PLAZA CO - OPERATIVE SOCIETY (PROPOSED) NAME, ADDRESS & SIGNATURE OF ARCHITECT

M.D.CHANGANI OF B.N.SHAH & ASSOCIATES UDYOG BHAVAN, NAIGAON
NAIGAON CROSS
ROAD WADALA(E)
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022 -24018228
www.mtudioc.in

316, WADALA UDYOG BHAVAN, NAIGAON
CROSS RD, WADALA(E), MUMBAI 400031
+9122 24144465 info@studioc.in

JOB.NO DWG.NO SCALE DATE DRAWN BY CHKD BY

0000 0000 1:100 11.04.2016 Darshana AR. MILIND

NORTH CERTIFICATE OF AREA

TYPICAL FLOOR PLAN 6TH TO 66TH AREA DIAGRAM

