GOVERNMENT OF TELANGANA
STATE DISASTER RESPONSE & FIRE SERVICES DEPARTMENT
NO OBJECTION CERTIFICATE

From	To,
The Director General State Disaster Response and Fire Services, Telangana, Hyderabad.	G.V.DISCOVERY CENTERSPVT.LTD REPBY SHRI SOHAM MODI, PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I, BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL, MEDCHAL MALKAJGIRI DIST, TELANGANA.,

ACK. No. **327470002020** Dated:**21/02/2020**

Sir,

Sub:	TELANGANA STATE DISASTER RESPONSE & FIRE SERVICE DEPARTMENT – Issue of Provisional No Objection Certificate for proposed construction of Multi storied Building of **Building A MAIN BUILDING 119 AND 191,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA./-Turkapally/Shamirpet/Medchal**, – Regarding.
Ref.	Report of the Multi storeyed building inspection committe Malkajgiri .

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1) The Multi Storeyed Building Inspection Committee, vide reference cited has inspected the site and scrutinized the plans/drawings of the proposed Multi Storeyed Building of **Building A MAIN BUILDING 119 AND 191,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA./-Turkapally/Shamirpet/Medchal**

2) The Multi-Storeyed Building Inspection Committee has recommended for the issuance of Provisional No Objection Certificate to the proposed Multi-Storeyed Building **Building A MAIN BUILDING 119 AND 191,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA./-Turkapally/Shamirpet/Medchal** with **1 Stilts, 3 Floors,** floors with a height of **18.90** meters for **INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)** Occupancy being constructed by **G.V.DISCOVERY CENTERSPVT.LTD REPBY SHRI SOHAM MODI,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA.**

3) The Provisional No Objection Certificate is issued to the proposed Multi-Storeyed Building **Building A MAIN BUILDING 119 AND 191,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA./-Turkapally/Shamirpet/Medchal** with **1 Stilts, 3 Floors,** floors with a height of **18.90** metres for **INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)** Occupancy being constructed by M/s. **G.V.DISCOVERY CENTERSPVT.LTD REPBY SHRI SOHAM MODI,PLOT N0.1 SHAPOORJI PALLONJI BIOTECH PARK PHASE-I,BEARING Sy Nos.234 & 235, TURKAPALLY VILLAGE, SHAMIRPET MANDAL,MEDCHAL MALKAJGIRI DIST,TELANGANA.**, as per Section 13 (1) of Telangana Fire Service Act, 1999.

4) The Builder has to follow the following Act/Rules/Regulations :

I. Telangana Fire Service Act, 1999 :

As per Section 31 of "whoever willfully contravenes any provisions of this Act or the rules made there under or fails to comply with any requisition lawfully made upon him under any provisions of this Act shall, without prejudice to any other action taken against him under Section 22 be punishable with imprisonment for a term which may extend to three

months or with fine which may extend to twenty five thousand rupees or with both; and where the offence is a continuing one, with a further fine which may extend to three thousand rupees for every day during which such offence continues after the conviction for the first such offence..
Rule 15(4) During the process of construction, the Director General shall depute a member of the service to conduct such inspection of the construction and note the deviations from Provisional No-Objection Certificate or National Building Code or any other rules for the time being in force that may be observed and instruct for necessary corrections, without relaxing any rule. Such deviations shall be brought to the notice of the party, acknowledgement obtained and copy of same sent to the Director General of Fire Service. The responsibility of full compliance with the rules remains with the owners/technical persons as stipulated in National Building Code on Building rules or any other rules for the time being in force.

II. Municipal Corporation Building Bye-Laws, 1981 :
As per Bye-Law 12 "On completion of the building work, the licensed technical personnel shall give notice to the Authority in prescribed form in pursuance of sub-section (1) of Section 455 of the Act.
"The Builder, on completion of the Building and before occupation, should intimate the Director General of Fire Services for inspection and issue of "No Objection Certificate".
As per Bye-law 13.1 "No building erected, re-erected or altered materially shall be occupied in whole or in part until the issue of an Occupancy Certificate by the authority affirming that such building is fit for occupation".

III. National Building Code of India :
As per Clause 13.1 of Part-II of the National Building Code of India "Neither the granting of the permit nor the approval of the drawings and specifications, nor inspections made by the Authority during erection of the building shall in any way relieve the owner of such building from full responsibility for carrying out the work in accordance with the requirements of the National Building Code of India.
"The building should not be occupied without "No Objection Certificate" from the Fire Services Department.

IV.The building should not be occupied without "No Objection Certificate" from the Fire Services Department :
The registered architect, engineer, structural engineer, supervisor, town planner, landscape architect, urban designer and utility service engineer (see Annex A) responsible for the services rendered for supervision of the construction/development and for the completion certificate; in the event of violation of the provisions of the Code, shall be liable to penalties as prescribed by the Authority including cancellation of registration done by it or make such recommendation to the statutory body governing such profession.

V. G.O.Ms.No.75 HOME (LEGAL) DEPARTMENT, dt.17-11-2015 :
The Director General or any member of the Service duly authorized by him in this behalf,shall within sixty days of receipt of such application or on inspection being satisfied about the provision of Fire prevention and Safety measures as stipulated in the National Building Code of India, as amended from time to time and for ensuring heights and setbacks as per the Hyderabad Municipal Corporation Act,1955,Telangana Urban areas (Development) ,1975,Hyderabad Metropolitan Development Authority (HMDA) Act,2008,Telangana Municipal Corporations Act,1994,Telangana Muncipalities Act,1965,Andhra Pradesh Town Planning Act,1920 and Rules, made there under as amended from time to time shall issue a no objection certificates with such conditions as may be considered necessary and if not so satisfied, reject the same for reasons to be recorded in writing

VI. G.O.Ms.No.168 MA&UD (M1) Department, dt. 07/04/2012.:
Rule 15 (b) (ii) Such buildings shall be undertaken by owners by engaging registered architect, licenced builders / developers and licenced structural engineers. The designs and building plans shall be countersigned by the owner, licenced developer, registered architect, licenced engineer and a qualified & licenced Structural Engineer who shall be responsible for the supervision, structural safety, fire safety and specifications compliance of such buildings. Rule 15 (b)(iv) These buildings shall be planned,designed and constructed to ensure fire safety requirements are met and maintained and shall comply in accordance with the Fire Protection Requirements of National Building Code of India (NBC)/Telangana Fire Services Act,1999 Rule 15 (b) (v) The Facilities for providing Fire protection and Fire Fighting facilities in such buildings should be in compliance with the stipulations laid down and clearance issued by the Telangana State Disaster Response & Fire Services Department from time to time. No Objection Certificate (NOC) from the Telangana State Disaster Response & Fire Services Department shall be obtained from time to time regarding the fire safety requirements and facilities installed. The designs and installations regarding fire protection and safety measures including exit requirements and smoke containment and smoke management shall be undertaken through a

Fire Engineer/Fire Consultant. The builder has requested to issue Provisional No Objection certificate vide reference cite for construction of Multi Storeyed Building with **1 Stilts, 3 Floors,** with a height of **18.90** Meters for **INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)**.

5) Open Spaces & Gate Width:

	Sl.No	Open Spaces (in Meters as per GO.MS.No.168)	Required	Proposed
a)	1	North	6.00	12.20
	2	South	6.00	9.39
	3	East	6.00	11.05
	4	West	5.00	8.92

This is not stepped type building.

b	Sl. No	Gate Width As per NBC 2016	Required	Proposed
	1	Entry gate width	6.00	7.0
	2	Entry Gate Head Clearance	4.50	5.0
	3	Exit Gate Width	6.00	7.0
	4	Exit Gate Head Clearance	4.50	5.00

6. Travel Distance

Sl. No.	Item / Description	Required (Not More than in Mtrs.)	Proposed
1	Farthest point (Most Remote Point) With in a storey or a mezzanine floor to the door to an Exit.	45.00	33.24
2	The Dead end of the corridor length in exit access. (6 mtrs for Educational, Institutional and Assembly, 15mtrs for other Occupancies)	15.00	15.00

7. Stair Cases (As per NBC 2016)

Sl.no.	Type of staircases	Width (In Mtrs)	No of staircases	Floors from	Floors to
1	Internal staircases	1.50	2	Stilt	Terrace
2	External staircases	1.50	1	Stilt	Terrace

8)Means of Escape (Stair Cases) Floor Wise Details

Sl.no.	Floor type	Buil-up Area in Sq.Mtrs	Type of Occupancy	Occupant Load	Means of escape required as per table 21 of NBC	Means of escape proposed
1	Stilt	3253.20	Parking	108.00	1.08	4.50
2	1st Floor	3954.36	INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)	395.00	3.95	4.50
3	2nd Floor	3954.36	INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)	395.00	3.95	4.50
4	3rd Floor	3954.36	INDUSTRIAL BUILDINGS (G2)(Moderate Hazard)	395.00	3.95	4.50

9).Fire Shaft as per clause 2.24 and ANNEX E (E-2) of part 4 NBC 2016.

Item / Description	Required	Proposed
Fire Shaft	2	2

10). Floor Wise details of Fire Fighting Installations Proposed.

Sl.no	Floor Details	Fire Extinguisher	Hose Reel	Automatic Sprinklers System	Manually Operated Electronic Fire Alarm System	Automatc detection and alarm system
1	Stilt	17.00	4.00	272.00	4.00	40.00
2	1st Floor	20.00	4.00	330.00	4.00	49.00
3	2nd Floor	20.00	4.00	330.00	4.00	49.00
4	3rd Floor	20.00	4.00	330.00	4.00	49.00

11). Fire Fighting Installations as per Table 7 of NBC 2016:

Fire Fighting System.	Required As per NBC	Proposed
Fire Extinguishers	77.00	80
First Aid Hose Reel	16.00	16
Wet Riser	4.00	4
Automatic Sprinkler System	1262.00	1262
Manually Operated Electronic Fire Alarm Systems	16.00	16
Automatic Detection and Alarm System	187.00	300
Under-ground Static Water Storage Tank Combined Capacity for Wet Riser,Yard Hydrant and Sprinklers per Set of Pumps in Litres	150000.00	200000
Terrace Tank over Respective Tower Terrace in Litres	20000.00	25000
Number of Pump Near Underground Static Water Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm^2 at Remotest Location (Electrical)	2	2
Capacity of Electrical Pump in LPM	2280.00	2280
Number of Pump Near Underground Static Water Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm^2 at Remotest Location (Diesel)	1	1
Capacity of Diesel Pump in LPM	2280.00	2280
Number of Pump Near Underground Static Water Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm^2 at Remotest Location (Electrical/Jockey)	2	2
Capacity of Electrical (Jockey) Pump in LPM	180.00	180

12). The builder should provide the following additional Fire Safety Requirements as per NBC part 4 of India 2016:

Sl.No	Fire safety Item
1.	**Floor Openings Fire Protection should be As per Clause 3.4.5.4** a) Openings in Service ducts and shafts allowing building services like cables, Electrical wirings, Telephone cables, plumbing pipes etc., shall be protected by enclosure in the form of ducts / shaft having a fire resistant's not less than 120 min.
	b) The inspection door for electrical shafts / ducts shall be not less than 120 min.
	c) Medium and low voltage wiring running in shafts / ducts shall either be armoured type or run through metal conduits.
	d) 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.
	e) 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.
2.	vertical opening fire protection as per clause 3.4.5.6. **Every vertical opening between the floors of a building shall be suitably enclosed or protected, as necessary, to provide the following:** a) Reasonable safety to the occupants while using the means of egress by preventing spread of fire, smoke, or fumes through vertical openings from floor to floor to allow occupants to complete their use of the means of egress. Further it shall be ensured to provide a clear height of 2 100 mm in the exit access.
	b) Limitation of damage to the building and its contents.
3.	**Electrical Installation are provided complies with as per Clause – 3.4.6** (For requirements regarding installations from the point of view of fire safety, reference may be made to good practice [4(6)] and Part- 8. Building Services, Section 2 Electrical and Allied Installations. Of the Code.) a) In general, it is desirable that the wiring and cabling are with flame retardant property. Medium and low voltage wiring running in shafts and within false ceiling shall run in metal conduit. Any 230 V wiring for lighting or other services, above false ceiling, shall have 660 V grade insulation.
	b) 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.
	c) 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.
	d) All metallic items like steel structural members, etc, shall be bonded properly to the earthing system.
4.	**Emergency power for fire and life safety systems should be as per Clause- 3.4.6.2** (Emergency power supplying distribution system for critical requirement for functioning of fire and life safety system and equipment planned for efficient and reliable power and control supply to the following systems and equipment is provided) a) Fire pumps.
	b) Pressurization and smoke venting; including its ancillary systems such as dampers and actuators.

	c) Fire mans 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.
	i) Lighting in fire command centre and security room
	j) 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.
	k) Wherever transformers are installed at higher levels in buildings 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.
	l) The generator shall be capable of taking starting current of all the fire and life safety systems and equipment as above.
	l) 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.
	m) The power supply to the panel/distribution board of these fire and life safety systems shall be through fire proof enclosures or circuit integrity cables or through alternate route in the adjoining fire compartment to ensure supply of power is reliable to these systems and equipment
	n) It shall be ensured that the cabling from the adjoining fire compartment is protected within the compartment of vulnerability. The location of the panel/ distribution board feeding the fire and life safety system shall be in fire safe zone ensuring supply of power to these systems. Circuits of such emergency system shall be protected at origin by an automatic circuit breaker with its no-volt coil removed. Master switches controlling essential service circuits shall be clearly labeled.
	o) Cables for fire alarm and PA system shall be laid in metal conduits or armoured to provide physical segregation from the power cables
5.	**Substation/Transformers fire safety should be as per Clause – 3.4.6.3**
	i) The substation area should be adequately ventilated.
	ii) An independent, ventilated or air conditioned MV panel room shall be provided on the ground level or first basement. This room shall be provided with access from outside (or through exit passageway accessible from outside). The MV panel room shall be provided with fire resistant walls and doors of fire resistance of not less than 120 min.
	iii) If the licensees agree to provide meters on upper floors, the licensees' cables shall be segregated from consumers. Cables by providing a partition in the shaft. Meter rooms on upper floors shall not open into staircase enclosures and should be ventilated directly to open air outside or in electrical room of 120 min fire resistant walls.
	iv) Electrical MV main distribution panel and lift panels shall be provided with CO2/inert gas flooding system for all panel compartments with a cylinder located beside the panel.
6.	**Oil filled substation fire safety should be as per Clause – 3.4.6.3.1** A substation or a switch-station with oil filled equipment shall be limited to be installed in utility building or in outdoor location. Such substation/utility building shall be at least 7 m away from the adjoining building(s). Substation equipment (exceeding oil capacity of 2 000 litre) in utility building shall have fire rated baffle walls of 240 min rating constructed between such equipment, raised to at least 600 mm above the height of the equipment (including height of oil conservators) and exceeding 300 mm on each side of the equipment. All transformers where capacity exceeds 10 MVA shall be protected by high velocity water spray systems or nitrogen injection system.
7.	**Dry type substation fire safety should be as per Clause – 3.4.6.3.2** Transformers located inside a building shall be of dry type and all substation/switch room walls, ceiling, floor, opening including doors shall have a fire resistance rating of 120 min. Access to the substation shall be provided from the nearest fire exit/exit staircase for the purpose of electrical isolation.
8.	**Standby supply should be as per clause -3.4.6.4** i) Diesel generator set(s) shall not be installed at any floor other than ground/first basement. If the same are installed indoors, proper ventilation and exhaust shall be planned. The DG set room shall be separated by 120 min fire resistance rated walls and doors.
	ii) 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.
9.	**Lightning protection of buildings should be as per clause – 3.4.6.5**

	Routing of down conductors (insulated or uninsulated) of lightning protection through electrical or other service shafts are not allowed as it can create fire and explosion during lightning. For details, see Part 8 .Building Services, Section 2 Electrical and Allied Installations' of the Code.
10.	**Escape Lighting and Exit Signage should be as per Clause 3.4.7** 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.
11.	**Lighting should be as per Clause – 3.4.7.1** a) The exit, exit access and exit discharge systems shall be illuminated continuously. The floors of the means of egress shall be illuminated at all points, including angles and intersections, in corridors and passageways, stairwells, landings of stairwells and exit.
	b) Emergency lighting shall be powered from a source independent of that supplying the normal lighting.
	c) Escape lighting shall be capable of,
	1) indicating clearly and unambiguously the escape routes;
	2) providing adequate illumination along such routes to allow safe movement of persons towards and through the exits; and
	3) ensuring that fire alarm call points and firefighting 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/m2. 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/m2. In auditoriums, theatres, concert halls and such other places of assembly, the illumination of floor exit/access may be reduced during period of performances to values not less than 2 lux
	e) Required illumination shall be arranged such that the failure of any single lighting unit, such as the burning out of one luminaire, will not leave any area in darkness and does not impede the functioning of the system further.
	f) The emergency lighting shall be provided to be put on within 5 s of the failure of the normal lighting supply. Also, emergency lighting shall be able to maintain the required illumination level for a period of not less than 90 min in the event of failure of the normal lighting even for smaller premises.
	g) Battery pack emergency lighting, because of its limited duration and reliability, shall not be allowed to be used in lieu of a diesel engine driven emergency power supply.
	h) Escape lighting luminaires should be sited to cover the following locations: 1) Near each intersection of corridors,
	2) At exits and at each exit door,
	3) Near each change of direction in the escape route,
	4) Near each staircase so that each flight of stairs receives direct light,
	5) Near any other change of floor level,
	6) Outside each final exit and close to it,
	7) Near each fire alarm call point,
	8) Near firefighting equipment, and
	9) To illuminate exit and safety signs as required by the enforcing authority.
	j) The luminaires 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
12.	**Exit passageway (at ground) and staircase lighting should be as per clause – 3.4.7.2.** It is to be connected to alternative supply. The alternative source of supply may be provided by battery continuously trickle charged from the electric mains
13.	**Suitable arrangements** are 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 as per clause – 3.4.7.3.
14.	**Air Conditioning, Ventilation and Smoke Control should be as per clause – 3.4.8** 3.4.8.1 Air conditioning and ventilating systems shall be so installed and maintained as to minimise the danger of spread of fire, smoke or fumes from one floor to other or from outside to any occupied building or structure. Wherever batteries are provided, the same shall be segregated by 120 min fire rated construction. Ventilation to the room shall be provided as per manufacturer's instructions.
15.	**Air Handling unit should be as per clause.3.4.8.2** I)**3.4.8.2.1** From fire safety point of view, separate air handling units (AHU) for each floor shall be provided so as to avoid the hazards arising from spread of fire and smoke through the air conditioning ducts. The air ducts shall be separate from each AHU to its floor and in no way shall interconnect with the duct of any other floor. Within a floor it would be desirable to have separate air handling unit provided for each compartment. Air handling unit shall be provided with effective means for preventing circulation of smoke through the system

	in the case of a fire in air filters or from other sources drawn into the system, and shall have smoke sensitive devices for actuation in accordance with the accepted standard [4(8)] and control.
	II)**As per clause 3.4.8.2.2** Shafts or ducts, if penetrating multiple floors, shall be of masonry construction with fire damper in connecting ductwork or shall have fire rated ductwork with fire dampers at floor crossing. Alternatively, the duct and equipment may be installed in room having walls, doors and fire damper in duct exiting/entering the room of 120 min fire resistance rating. Such shafts and ducts shall have all passive fire control meeting 120 min fire resistance rating requirement to meet the objective of isolation of the floor from spread of fire to upper and lower floors through shaft/duct work.
	III)**As per clause 3.4.8.2.3** The air filters of the air handling units shall be made of non-combustible materials.
	IV) **Duct work should be as per clause 3.4.8.3** 3.4.8.3.1 Air ducts serving main floor areas, corridors, etc, shall not pass through the exits/exit passageway/ exit enclosure. Exits and lift lobbies, etc, shall not be used as return air passage.
	V)**As per clause 3.4.8.3.2** As far as possible, metallic ducts shall be used even for the return air instead of space above the false ceiling.
	VI)**As per clause 3.4.8.3.3** Wherever the ducts pass through fire walls or floors, the opening around the ducts shall be sealed with materials having fire resistance rating of the compartment. Such duct shall also be provided with fire dampers at all fire walls and floors unless such ducts are required to perform for fire safety operation; and in such case fire damper may be avoided at fire wall and floor while integrity of the duct shall be maintained with 120 min fire resistance rating to allow the emergency operations for fire safety requirements.
	VII) **As per clause 3.4.8.3.4** The ducting within compartment would require minimum fire resistance rating of 30 min. Such ducting material in substantial gauge shall be in accordance with good practice [4(9)]. If such duct crosses adjacent compartment/floor and not having fire dampers in such compartment/floor, it would require fire resistance duct work rating of 120 min. The requirements of support of the duct shall meet its functional time requirement as above.
	VIII)**As per clause 3.4.8.3.5** The materials used for insulating the duct system (inside or outside) shall be of non-combustible type. Any such insulating material shall not be wrapped or secured by any material of combustible nature.
	IX) **As per clause 3.4.8.3.6** Inspection panels shall be provided in the ductwork to facilitate the cleaning accumulated dust in ducts and to obtain access for maintenance of fire dampers.
	X)**Fire or fire/smoke dampers should be as per clause 3.4.8.4** 3.4.8.4.1 These dampers shall be evaluated to be located in supply air ducts, fresh air and return air ducts/ passages at the following points:
	a) At the fire separation wall,
	b) Where ducts/passages enter the vertical shaft,
	c) Where the ducts pass through floors, and
	d) At the inlet of supply air duct and the return air duct of each compartment on every floor.
	XI)**3.4.8.4.2** Damper shall be of motorized type/fusible link. Damper shall be so installed to provide complete integrity of the compartment with all passive fire protection sealing. Damper should be accessible to maintain, test and also replace, if so required. Damper shall be integrated with Fire Alarm Panel and shall be sequenced to operate as per requirement and have interlocking arrangement for fire safety of the building. Manual operation facilities for damper operation shall also be provided.
16.	**Glazing should be as per Clause – 3.4.10** i) 3.4.10.1 The glazing shall be in accordance with Part 6 .Structural Design, Section 8 Glass and Glazing‘ of the Code. The entire glazing assembly shall be rated to that type of construction as given in Table 1. This shall be applicable along with other provisions of this Part related to respective uses as specified therein.
	ii) The use of glass shall not be permitted for enclosures of exits and exit passageway.
17.	**Fire Command Centre (FCC) should be as per Clause- 3.4.12** 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 firefighting 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 firefighting equipment and installations in coordination with security, electrical and civil staff of the building.

18.	**General Exit Requirements should be as per clause – 4.2** i) **As per Clause 4.2.3** Every exit, exit passageway and exit discharge shall be continuously maintained free of all obstructions or impediments to full use in the case of fire or other emergency.
	ii)**As per Clause 4.2.7** For non-naturally ventilated areas, fire doors with 120 min fire resistance rating shall be provided and particularly at the entrance to lift lobby and stair well where a .funnel or flue effect' may be created, inducing an upward spread of fire, to prevent spread of fire and smoke.
	iii)**As per Clause 4.2.9** Doors in exits shall open in the direction of exit. In case of assembly buildings (Group D) and institutional buildings (Group C-1), exit door shall not open immediately upon a flight of stair and all such entries to the stair shall be through a landing, so that such doors do not impede movement of people descending from a higher floor when fully opened (see Fig. 4A). While for other occupancies, such doors shall not reduce the pathway in the landing by more than half the width of such staircase (see Fig. 4B). Over- head or sliding doors shall not be installed.
	iv) **As per Clause 4.2.11** Unless otherwise specified, all the exits and exit passageways to exit discharge shall have a clear ceiling height of at least 2.4 m. However, the height of exit door shall be at least 2.0 m .
	v) **As per Clause 4.2.16** Suitable means shall be provided so that all access controlled exit doors, turnstiles, boom barriers and other such exits shall automatically operate to open mode during emergencies like fire, smoke, acts of terrorism, etc, so that people can safely and quickly egress into safe areas outside. If required, a master controlling device may be installed at a strategic location to achieve this.
	vi) **As per Clause 4.2.17** Penetrations into and openings through an exit are prohibited except those necessary like for the fire protection piping, ducts for pressurization and similar life safety services. Such openings as well as vertical passage of shaft through floors shall be protected by passive systems.
19.	**Exit Access should be as per Clause – 4.4.1**
	i) In order to ensure that each element of the means of egress can be effectively utilized, they shall all be properly lit and marked. Lighting shall be provided with emergency power back-up in case of power failures. Also, exit signs of adequate size, marking, location, and lighting shall be provided so that all those unfamiliar with the location of the exits may safely find their way.
	ii) Exit access to fireman's lift and refuge area on the floor shall be step free and clearly signposted with the international symbol of accessibility.
	iii) Exit access shall not pass through storage rooms, closets or spaces used for similar purpose.
20.	**Smoke control of exits should be as per Clause – 4.4.2.5** 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.
21.	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.
22.	For pressurized stair enclosure systems, the activation of the systems shall be initiated by signalling from fire alarm panel.
23.	Pressurization system shall be integrated and supervised with the automatic/manual fire alarm system for actuation.
24.	Wherever pressurized staircase is to be connected to unpressurized area, the two areas shall be segregated by 120 min fire resistant wall.
25.	Fresh air intake for pressurization shall be away (at least 4 m) from any of the exhaust outlets/grille.
26.	**Smoke Control should be as per clause – 4.6** i) 4.6.1 Smoke Exhaust and Pressurization of Areas Above Ground 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.
	ii) 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.
	iii) 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.
	iv) 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 large lobbies and which have exit through staircase leading to exit discharge. This would enable eased exit of people through smoke controlled area to exit discharge.
	v) 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.
	vi) 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.
	vii) 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.
27.	**Smoke Exhaust and Pressurization of Areas Below Ground should be as per clause – 4.6.2** a) 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.
	b) Alternatively, a system of mechanical ventilation system may be provided with following requirements:
	c) Mechanical ventilation system shall be designed to permit 12 air changes per hour in case of fire or distress call. However, for be as given in Part 8 Building Services, Section 3 Air conditioning Heating and Mechanical Ventilation of the Code.
	d) 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.
	e) 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.
	f) Smoke from any fire in the basement shall not obstruct any exit serving the ground and upper floors of the building.
	g) The smoke exhaust fans in the mechanical ventilation system shall be fire rated, that is, 250°C for 120 min.
	h) 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)].
	i) 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
	. j) Visual indication of the operation status of the fans shall also be provided with the remote control.
	k) No system relating to smoke ventilation shall be allowed to interface or cross the transformer area, electrical switchboard, electrical rooms or exits.
	l) 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.

	m) Supply air shall not be less than 5 m from any exhaust discharge openings.
28.	**Fire Drills and Fire Orders should be as per clause – 4.11** Fire notices/orders shall be prepared to fulfil the requirements of firefighting and evacuation from the buildings in the event of fire and other emergency. The occupants shall be made thoroughly conversant with their action in the event of emergency, by displaying fire notices at vantage points and also through regular training. Such notices should be displayed prominently in bold lettering. For guidelines for fire drills and evacuation procedures for high rise buildings, see Annex D.
29.	**Fire Extinguishers/Fixed Firefighting Installations should be as per clause – 5.1 5.1.1** All buildings depending upon the occupancy use and height shall be protected by fire extinguishers, hose reels, wet riser, down-comer, yard hydrants, automatic sprinkler installation, deluge system, high/medium velocity water spray, foam, water mist systems, gaseous or dry powder system, manual/automatic fire alarm system, etc, in accordance with the provisions of various clauses given below, as applicable:
	a) These fire extinguishing equipment and their installation shall be in accordance with accepted standards [4(17)]. The extinguishers shall be mounted at a convenient height to enable its quick access and efficient use by all in the event of a fire incidence. The requirements of fire extinguishers/yard hydrant systems/wet riser/down-comer installation and capacity of water storage tanks and fire pumps, etc, shall be as specified in Table 7. The requirements regarding size of mains/risers shall be as given in Table 8. The typical arrangements of down-comer and wet riser installations are shown in Fig. 13. The wet riser shall be designed for zonal distribution ensuring that unduly high pressures are not developed in risers and hose- pipes.
	b) First-aid firefighting appliances shall be provided and installed in accordance with good practice [4(18)]. The firefighting equipment and accessories to be installed in buildings for use in firefighting shall also be in accordance with the accepted standard [4(17)] and shall be maintained periodically so as to ensure their perfect serviceability at all times.
	c) Valves in fixed firefighting installations shall have supervisory switch with its signalling to fire alarm panel or to have chain(s), pad lock(s), label and tamper-proof security tag(s) with serial number to prevent tampering/unauthorized operation. These valves shall be kept in their intended open position.
	d) In addition to wet riser or down-comer, first- aid hose reels shall be installed in buildings (where required under Table 7) on all the floors, in accordance with accepted standard [4(19)]. The first-aid hose reel shall be connected directly to the riser/down-comer main and diameter of the hose reel shall not be less than 19 mm.
	e) Wet risers shall be interconnected at terrace level to form a ring and cut-off shall be provided for each connection to enable repair/ maintenance without affecting rest of the system.
	f) Pressure at the hydraulically remote hydrant and at the highest hydrant shall not be less than 3.5 bar. The pressure at the hydrants shall however not exceed 7.0 bar, considering the safety of operators. It may be planned to provide orifice plates for landing valves to control pressure to desired limit especially at lower levels; this could also be achieved through other suitable means of pressure reducing devices such as pressure controlled hydrant valves.
	g) Hydrants for firefighting and hose reels shall be located in the lobby in firefighting shaft. Those hydrants planned to be provided near fire exit staircase on the floor shall be within 5 m from exit door in exit access. Such hydrant cabinet may finish with doors to meet interior finishes with requirement of glass panel to provide visibility to the installations inside and inscribed with the word: FIRE HOSE CABINET of letter size 75 mm in height and 12 mm in width. Such door of the fire hose cabinet need not be fire resistant rated. The location of such cabinets shall be shown on floor plan and duly displayed in the landing of the respective fire exit staircase.
30.	**Static water storage tanks should be as per clause – 5.1.2.1** i) firefighting shall always be available in the form of underground/terrace level static storage tank with capacity specified for each building with arrangements or replenishment.
	ii) Water for the hydrant services shall be stored in an easily accessible surface/underground lined reservoir or above ground tanks of steel, concrete or masonry. The effective capacity of the reservoir above the top of the pump casing (flooded suction) for various types of occupancies shall be as indicated in Table 7.
	iii) Water for firefighting shall be stored in two or more interconnected compartments of equal size to facilitate cleaning and maintenance of the tanks without interrupting the water availability for firefighting.
	iv) To prevent stagnation of water in the static water storage tank, the suction tank of the domestic water supply shall be fed only through an overflow arrangement from the fire water storage tanks to maintain the level therein at the minimum specified capacity.
	v) Alternatively, domestic and fire water can be stored in two interconnected compartments as mentioned above. The suction inlet(s) for the domestic water pumps shall be so located at an elevation that minimum water requirements for firefighting as stated in Table 7 will be always available for fire pumps.
	vi) The static storage water supply required for the above mentioned purpose shall entirely be accessible to the fire engines of the local fire service. Suitable number of manholes shall be provided for inspection, repairs, insertion of suction hose, etc. As an alternative to the arrangement of manholes to allow access from the top, suitable arrangement to enable efficient access to the tank by the firemen from the adjoining fire pump room

	having direct access from the ground level, shall be made. The underground fire water storage tank(s) shall not be more than 7 m in depth from the level having fire brigade draw-out connection, while the draw-out connection shall not be more than 5 m away from the tank wall.
	vii) The covering slab shall be able to withstand a total vehicular load of 45 t (or as applicable) equally divided as a four-point load when the slab forms a part of pathway/driveway.
	viii) The static water storage tank shall be provided with a fire brigade collecting head with 4 number 63 mm diameter (2 number 63 mm diameter for pump with capacity 1 400 litre/min) instantaneous male inlets arranged in a valve box at a suitable point at street level.
	ix) The same shall be connected to the static tank by a suitable fixed galvanized iron pipe not less than 150 mm in diameter to discharge water into the tank when required at the rate of 2 250 litre/min, if tank is in the basement or not approachable for the fire engines.
	x) Each of the static water storage tanks shall also be provided with a fire brigade draw out collecting head with 63 mm diameter instantaneous male draw out arranged in a valve box at a suitable point at street level. This draw out shall be connected to galvanized iron pipe of 100 mm diameter with foot valve arrangement in the tank.
31.	**Firefighting pump house should be as per clause 5.1.2.2** The requirements shall be as given below: a) It is preferable to install the pump house at ground level. Pump house shall be situated so as to be directly accessible from the surrounding ground level.
	b) Pump house shall be installed not lower than the second basement. When installed in the basement, staircase with direct accessibility (or through enclosed passageway with 120 min fire rating) from the ground, shall be provided. Access to the pump room shall not require tonegotiate through other occupancies within the basement.
	c) Pump house shall be separated by fire walls all around and doors shall be protected by fire doors (120 min rating).
	d) Pump house shall be well ventilated and due care shall be taken to avoid water stagnation.
	e) No other utility equipment shall be installed inside fire pump room.
	f) Insertions like flexible couplings, bellows, etc, in the suction and delivery piping shall be suitably planned and installed.
	g) Installation of negative suction arrangement and submersible pumps shall not be allowed.
	h) Pump house shall be sufficiently large to accommodate all pumps, and their accessories like PRVs, installation control valve, valves, diesel tank and electrical panel.
	i) Battery of diesel engine operated fire pump shall have separate charger from emergency power supply circuit..
	j) Exhaust pipe of diesel engine shall be insulated as per best engineering practice and taken to a safe location at ground level, considering the back pressure.
	k) Fire pumps shall be provided with soft starter or variable frequency drive starter
32.	**Automatic Sprinkler Installation should be as per clause – 5.1.3** **The requirements shall be as given below:** a) Automatic sprinklers shall be installed wherever required in terms of Table 7 throughout the building in accordance with good practice [4(20)].
	b) If selective sprinklering is adopted, there is a real danger of a fire starting in one of the unsprinklered area gathering momentum spreading to other areas and reaching the sprinklered areas as a fully developed fire. In such an event, the sprinklers can be rendered useless or ineffective.
	c) Automatic sprinklers shall be installed in false ceiling voids exceeding 800 mm in height.
	d) Installation of sprinklers may be excluded in any area to be used for substation and DG set.
	e) In areas having height 17 m or above such as in atria, sprinkler installations may be rendered ineffective and hence may be avoided.
	f) Pressure in sprinkler system shall not exceed 12 bar or else high pressure sprinkler to be installed for above 12 bar operations.
	g) The maximum floor area on any one floor to be protected by sprinklers supplied by any one sprinkler system riser from an installation control valve shall be based on system protection area limitations considering maximum floor area on any one floor to be 4 500 m2 for all occupancies except industrial and hazardous occupancies, where Authorities shall be consulted for advice based on type and nature of risk.
	h) Sprinkler installation control valves, shall be installed inside the fire pump room.
	i) For industrial buildings, such installation control valves may be installed outside the building and Authorities shall be consulted in situations where it is not possible to locate them inside the buildings. It is advisable to provide lectrically operated siren for each valve outside the buildings in addition to water gongs in such case.
	j) The sprinkler flow switches provided shall be monitored by fire alarm panel.
	k) It is essential to make provisions for avoiding water from sprinkler/hydrant operation entering lifts and electrical rooms. l) Ramps at all levels shall be protected with sprinklers.
33.	**Automatic High Velocity and Medium Velocity Water Spray Systems should be as per clause 5.1.4**

	Automatic high velocity water spray or emulsifying system shall be provided for protection of outdoor and/ or indoor oil-cooled transformers as applicable in accordance with good practice [4(21)] where applicable (see Annex E). Also, medium velocity water spraysystem shall be provided for tankage (where applicable), conveyors, cable galleries and other occupancies listed in good practice [4(21)].
34.	**Fire Fighting shaft should be as per E-2 of Annexure E of part 4 NBC of India 2016 EGRESS AND EVACUATION STRATEGY** I) One firefighting shaft shall be planned for each residential building/tower, in an educational building/ block, and for each compartment of institutional, assembly, business and mercantile occupancy types. For other occupancy types, requirement of fire fighting shaft shall be ascertained in consultation with the local fire authority. The firefighting shaft shall necessarily have connectivity directly to exit discharge or through exit passageway (having 120 min fire resistance walls) to exit discharge.
	II)Staircase and fire lift lobby of a firefighting shaft shall be smoke controlled as per 4.4.2.5 and Table 6. It is recommended that the pressurization requirement for staircase in firefighting shaft and for other fire exit staircases in buildings greater than 60 m in height be evaluated to limit the force required to operate the door assembly (in the direction of door opening) to not more than 133 N to set the door leaf in motion. The aspect of pressurization, door area/width and door closure shall be planned in consideration to the above.
35.	**E-2 EGRESS AND EVACUATION STRATEGY** the firefighting shafts have connectivity directly to exit discharge or through exit passageway (having 120 min fire resistance walls) to exit discharge.
36.	**Smoke control should be as per clause 4.4.2.5** Staircase and fire lift lobby of a firefighting shaft shall be smoke controlled as per 4.4.2.5 and Table 6. the pressurization requirement for staircase in firefighting shaft and for other fire exit staircases in buildings greater than 60 m in height be evaluated to limit the force required to operate the door assembly (in the direction of door opening) to not more than 133 N to set the door leaf in motion. The aspect of pressurization, door area/width and door closure shall be planned in consideration to the above.
37.	**FIRE SAFETY REQUIREMENTS FOR LIFTS** should be as per clause E-3 of Annexure E of part – 4 NBC of India 2016 The provisions as given in 7.1 to 7.2.4 under fire safety requirements of lifts in high rise buildings in Part 8 .Building Services, Section 5 Installation of Lifts, Escalators and Moving Walks, Subsection 5A Lifts. Of the Code shall be applicable.
38.	**E-4 HORIZONTAL EXITS/REFUGE AREA** Horizontal exits are through a fire door of 120 min rating in a fire resistant wall ? 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 m2 per person for accommodating occupants of two consecutive floors, where occupant load shall be derived on basis of 12.5 m2 of gross floor area and additionally 0.9 m2 for accommodating wheel chair requirement or shall be 15 m2, whichever is higher.
39.	**E-5 ELECTRICAL SERVICES** I) the specific requirements for electrical installations in multi-storeyed buildings given in Part 8 .Building Services, Section 2 Electrical and Allied Installations of the Code and Section 7 of National Electrical Code 2011 are complied.
	II) Wherever transformers are planned at higher floors,the HT cables shall be routed through a separate shaft having its own fire resistance rating of 120 min. Wherever HT generators are planned centrally at ground or first basement level, redundant transformers and HT cables shall be planned for buildings above 60 m in height.
40.	**E-6 FIRE PROTECTION** I) for residential occupancies above 120 m in height and other occupancies above 60 m in height, the sprinklers are fed from the main and an alternate/standby riser with suitable isolation valves. (The entire sprinkler system shall be designed in accordance with good practice [4(20)].)
	II) Where the height of the building exceeds 150 m to 175 m, fire water static storage and pumps shall be required to be provided at 160 m to 180 m and thereafter at intermediate floors at higher levels enabling efficient and functional firefighting installations. The static fire water storage tanks located at such levels shall have capacity at minimum half of the storage of underground static water storage tank prescribed in Table 7. Such tanks shall be supplemented with water supplies through one working and one standby pump of capacity 2 850 litre/min with two risers at alternate locations feeding to such fire water static storage tanks. The fire pump's requirement and capacity shall also be derived for occupancy type as per Table 7 substituting the diesel pump with electrical pump. The fire pump room at such level shall have dedicated connectivity through passageway (with 120 min integrity) from the firefighting shaft. Such fire pump room shall have 120 min fire resisting wall and provided with adequate ventilation with talk-back connectivity to the main fire pump room and Fire Command Centre.
	III) The builder shall submit the compliance certificate by the respective technical consultant, Architect,

<table>
<tr><td></td><td>structural, Electrical, HVAC Engineers and fire safety consultants.</td></tr>
<tr><td>41.</td><td>As per 3.4.10.2 Glass facade shall be in accordance with the following:
a) For fully sprinklered buildings having fire separation of 9 m or more, tempered glass in a non-combustible assembly, with ability to hold the glass in place, shall be provided. It shall be ensured that sprinklers are located within 600 mm of the glass facade providing full coverage to the glass. NOTE . In case of all other buildings, fire resistance rating of glass facade shall be in accordance with Table 1.</td></tr>
<tr><td></td><td>b) All gaps between floor-slabs and façade assembly shall be sealed at all levels by approved fire resistant sealant material of equal fire rating as that of floor slab to prevent fire and smoke propagation from one floor to another.</td></tr>
<tr><td></td><td>c) Openable panels shall be provided on each floor and shall be spaced not more than 10 m apart measured along the external wall from centre-to-centre of the access openings. Such openings shall be operable at a height between 1.2 m and 1.5 m from the floor, and shall be in the form of openable panels (fire access panels) of size not less than 1 000 mm × 1 000 mm opening outwards. The wordings, .FIRE OPENABLE PANEL. OPEN IN CASE OF FIRE, DO NOT OBSTRUCT. of at least 25 mm letter height shall be marked on the internal side. Such panels shall be suitably distributed on each floor based on occupant Concentration. These shall not be limited to cubicle areas and shall be also located in common areas/corridors to facilitate access by the building occupants and fire personnel for smoke exhaust in times of distress.</td></tr>
<tr><td>42.</td><td>ATRIUM Fire safety should be as per Annexure-F (Clause-6) of part – 4 NBC of India 2016</td></tr>
<tr><td>43.</td><td>Compartmentation should be as per clause - 4.5
4.5.2 All floors shall be compartmented/zoned with area of each compartment being not more than 750 m2. The maximum size of the compartment shall be as follows, in case of sprinklered basement/building:
<table>
<tr><td>Sl. No</td><td>Use</td><td>Compartment-ation Area m2</td></tr>
<tr><td>1</td><td>Basement car parking</td><td>3000</td></tr>
<tr><td>6</td><td>Business buildings</td><td>3000</td></tr>
</table>
In addition, there shall be requirement of a minimum of two compartments if the floor plate size is equal or less than the areas mentioned above. However, such requirement of minimum two compartments shall not be required, if the floor plate is less than 750 m2.
Compartmentation shall be achieved by means of fire barrier having fire resistance rating of 120 min.</td></tr>
<tr><td></td><td></td></tr>
</table>

13. You may please note that the Builder along with Architect and Site Engineer shall be held responsible for any deviations from the Provisional No Objection Certificate issued and necessary Legal Action will be initiated as per provisions of Fire Service Act.

14.Additional Fire Safety Measures Recommended by the Department:

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15 . The Provisional No Objection Certificate is issued with an advice that Multi Storied Building should not be occupied and the operation should not be commenced without obtaining the No Objection certificate for Occupancy from this Department about the satisfactory installation of above fire safety measures.

"THIS IS COMPUTER GENERATED DOCUMENT AND DO NOT REQUIRE ANY STAMP OR SIGNATURE"