भारतीय स्टेट बैंक
State Bank of India

UKA Consulting & Engineers Pvt. Ltd.
FIRE PROTECTION & MEP CONSULTANTS

Project	FIRE PROTECTION SYSTEM - REVAMPING & UPGRADATION			Date: 22-06-2026
Location	State Bank Bhavan, Corporate Centre, Madame Cama Road, Nariman Point,Mumbai -400021			REV. : 0

SECTION- 3 - FIRE PUMP HOUSE, FIRE HYDRANT, SPRINKLER SYSTEM & PIPING FOR FIRE PROTECTION SYSTEM

PART-A

Sr.No.	System	Annexures	Total Amount (Rs.)
1	FIRE FIGHTING PUMP HOUSE	Annexure-I	
2	HYDRANT SYSTEM	Annexure-II	
3	SPRINKLER SYSTEM	Annexure-III	
4	TESTING OF EXISTING SYSTEM INTEGRATE TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS	Annexure-IV	
5	PUMP HOUSE CONSTRUCTION	Annexure-V	
A	**SUB TOTAL OF THE ABOVE (WITHOUT GST)**		
6	MINUS - BUYBACK (Minimum value **is Rs 2.5 lakhs)**	Annexure-VI	
B	**TOTAL (WITHOUT GST) SECTION -3**		

ITY FOR FIRE FIGHTING PUMP HOUSE				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Supply, Installation, Testing and Commissioning (SITC) of the following:				
	The scope includes design, manufacture, assembly, testing, installation of new systems, revamping of old systems, completing the erection, testing and commissioning of the system and obtaining approval for the system from client, statutory authorities and insurance agency of client.				
	The scope includes comprehensive maintainance of the system in full working condition for a period of two year from date of commissioning of the system in writing.				
	The particulars mentioned herein in this section are also applicable to other sections and systems as well. Any point specifically divergent shall be brought to notice during the tender stage itself. Any extra item brought to site shall be taken back by the contractor without any cost implications after due verification by the concerned department.				
	The fire water pumphouse shall be designed to Indian Standards. International guidelines like of NFPA shall be adopted where necessary. This includes the product standards as well. In all cases, the contractor is responsible for the successful performance of the system and obtaining approval from statutory authorities and client.				
	The project is on Unit Rate Basis only. Any excess materials brought to site shall be taken back by the successful contractor without any cost implication to the client after due technical and commercial clearances from client.				
	Any power supply or water connection or structural support etc. taken in existing structures shall be done with prior concurrence of the client/Consultant.				
	PARTICULARS OF FIRE FIGHTING PUMPSETS				
	The project requirement is for Horizontal centrifugal pumpsets only.				
	The main pumpsets including the pump, motor, baseplate, coupler, coupler guard, controllers, pumpsets can be to Indian Standard. The power distribution board with electrical accessories, diesel engine control panel, power and control cables, cable trays, glands, lugs, could be to Indian Standards. The piping, isolation valves, non return valves, strainers to be Indian Standards. The PRV, Pressure gauges, pressure switches, flow meter to be UL Listed / FM approved.				
	The churn pressure of the pumpset shall not exceed 25% more than the high lift pressure indicated.				
	The pumpsets shall be supplied complete with drives, common base plate, coupling, coupling guard, power & control cables, foundation bolts, earthing etc. complete.				
	The water suction to be considered partially positive and negative with the maximum water level above suction nozzle of pumpset at one meter above adn minimum water level below suction nozzle of pumpset at (-) 2 m.				
	The pumpset shall be factory supplied complete with the drives etc. In case the pumpset is sourced from the manufacturer's authorised dealers, then inspection certificate and clearance from the manufacturer is required. The pumpset performance will be witness tested at manufacturer's works. However, guarantee of performance rests on the Contractor.				
	The motor and diesel engine driven pumpset should be suitable for parallel operation with each other.				
	The power rating for the motor and diesel engine driven pumpset shall be higher of the requirement at duty point or at 150% of discharge at not less than 65% of the head. In addition the derating for the auxiliary loads, ambient conditions and site elevation to be considered.				
	The rpm of the pumpset not to exceed 2900.				
	The pump shall have gland packing and drain piping shall be connected suitably from the gland drain to the nearest pumphouse drain point.				
	The motor shall be NEMA 4, IP 55 rated / 6 Pole / 415 V / 3 Ph. NEMA 4 is for indoor or outdoor use to provide a degree of protection to personnel against to access to hazardous parts. IE2 motor is an energy-efficient electric motor classified under the IEC (International Electrotechnical Commission) standards as "High Efficiency," You have to provide the motor which confirms to both the above two categories.				

	The motor shall be of Energy Efficient Type to enable client to qualify for Green Building Certification in future				
	The motor for the main pumps shall be suitable for Star-Delta Starting and the motors for the jockey and booster pumpsets shall be suitable for DOL starting.				
	The color of the pumpsets complete shall be "FIRE RED" as per IS-5.				
1.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **Diesel Driven Pump for sprinkler system and hydrant system** Multi stage, Muiti outlet (MSMO) - Split Casing type, capable of delivering in low stage 171 cum/hr., in low stage 100 mwc, in high stage 140 mwc. Complete with dual earthing.	2	No.		
	The fuel tank capacity to be suitable for 6 hours pumping of the pumpset along with stand & gauge glass, Fuel piping with valves etc..,				
	The pump shall coupled to suitable HP of Diesel engine of recirculating water cooled type and complete set shall be mounted on common base frame.				
	The rpm of the pumpset not to exceed 2000.				
	The Diesel Engine shall be complete with a battery charger panel complete with boost and trickle charging facility, auto-manual selector switch, two sets of maintenance free Lead Acid Batteries, (Batteries to be of sufficient Ampere Hour to be adequate for 10 consecutive starts without recharging with a cold engine under compression) & battery leads with stand. Cost to include the fill of diesel and all consumables until handing over.				
	An additional canopy consisting of 2 mm thick CRCA sheet steel extending 300 mm on the sides and front with appropriate cutout to route the cables shall be provided to prevent inadverdent excess water entry into the controller if it was to be open and ceiling sprinklers were to operate at that time.				
	The fuel tank shall be in or more tanks with each tank limited maximum 950 litres to fulfil the number of hours of continuous operation as per standards, but not less than six hours.				
	The diesel tank level gauge shall be of magnetic type and not of glass tube type.				
	The diesel engine exhaust to be suitably taken out from the lower basement upto the terrace floor and also properly insulated. The size of the pipe should not cause undue back pressure on the diesel engine.				
	All pump testing facilities in accordance with standards to be provided.				
2.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **Electric motor driven fire water pump for Sprinkler system and Hydrant system** of Multi stage, Muiti outlet-Split Casing type, capable of delivering in low stage 171 cum/hr., 100 mwc, in high stage 171 cum/hr., 140 mwc. complete with the TEFC motor with minimum IP55 degree of protection, common base plate, coupling, coupling guard, foundation bolts, earthing etc. complete.	2	Nos.		
3.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **Electric motor driven fire water Jockey pump for sprinkler system and hydrant system** of Multi stage, Muiti outlet type, capable of delivering in low stage 15 cum/hr., 110 mwc, in high stage 15 cum/hr., 150 mwc. complete with the TEFC motor with minimum IP55 degree of protection, common base plate, coupling, coupling guard, foundation bolts, earthing etc. complete.	2	Nos.		
4.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **Electric motor driven fire water booster pumpset** of end suction / inline type single outlet type capable of delivering 30 cum/hr., 20 mwc complete with the TEFC motor with minimum IP55 degree of protection, common base plate, coupling, coupling guard, foundation bolts, earthing etc. complete.	3	Nos.		
5.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **diesel engine control panel** as per spec.of local fireauthority & as per requirement for the operation of the pumps along with the battery charger, Suitable power cabling & Control cabling from the engine to control panel and earthing (as per BIS 3043) with inter locking alarm and indicating lamps etc. complete.	0	No.		
	24 V battery with cable , 300 lit single walled tank , 10 lit oil , 30 lit coolant	1	No.		
6.0	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of **electric power distribution cum control panel** as per BIS & as per requirement for the operation of the pumps along with the Suitable power cabling & Control cabling from the pumps to control panel and earthing with inter locking alarm and indicating lamps etc.for electric pump & jockey pump complete.	2	No.		
	Provide the necessary Power and Controls for motor driven pumpsets, diesel engine driven pumpset, jockey pumpsets, booster pumpsets, pressure switches and other controls as required for running of the system as per fire norms				
	The jockey pumpsets shall have facility for automatic starting and stopping as well as manual starting and stopping.				
	The main motor driven pumpset, the diesel engine driven pumpset shall have facility for automatic starting and manual starting but only manual stopping.				
	The booster pumpsets shall have facility for automatic and manual starting but automatic stopping.				
	The water tanks of the fire water pump and the booster pump shall be annunicated for water level and low water level shall be annunciated in the PDB as well as in the fire alarm panel.				
	Two pressure switches will be provided for the jockey pumpset for individual setting for start and stop. One pressure switch shall be provided for the other pumpsets for starting.				
	Inter locking alarm and indicating lamps etc. for electric pump & jockey pump complete to be provided and included by the Contractor in this scope.				
	The panel shall be suitable for floor mounting type with cable entry from the top.				

	The panel shall be complete with all accessories to provide power and control to the Main Motor Driven Pumpset, Diesel Engine driven pumpset and jockey pumpset as well the power and control to the booster pumpsets. In addition key lockable pushbuttons to be provided as required by the authority having jurisdiction, the electrical inspectorate and also for the remote stopping and starting of the booster pumpsets.				
	The panel shall be minimum rated for IP 55 and a 2 mm thick CRCA sheet steel canopy shall be provided over the panel, extending atleast 300 mm on all sides in order to avoid any inadverdent entry of water into the panel.				
	Provide the necessary dual Earthing System for the entire system and terminate in the Earthing Station provided by Client.				
	The type of panel should be front afront access only.				
	The panel manufacturer to be CPRI approved.				
	Power & control Cable, earthing, cable trays, etc. complete inside the pump house. The cables shall be of FRLS PVC / XLPE type with copper / Aluminium multi-stranded conductor and armoured type. Cables to the motors shall be minimum 3 1/2 core type. The cable trays shall be of GI prefab / hot dipped galvanised type along with cover plates, couplers, coupling guards, brackets, inside and outside bends, tees, etc. complete. The earthing shall consist of minimum 50 mm x 6 mm thick GI strips connecting independently to both sides of each electrical item like motor, PDB, etc. and led to the client's earthing station which shall be considered 150 m away from the fire water pumphouse.				
	The Electrical Panel shall be powder coated (7 tank process) and suitable for 430 Volts, 50 cycles, 4 wire supply. (Necessary automatic change over switch between multiple power sources will be provided by the client and terminated in this panel.). The panel color shall be Fire Red.				
	The panel shall have separate compartments for bus bar and cable alleys. the following components and accessories shall be mounted within each control panel.				
	Provision of suitably rated MCCBs complete including 0-500 volts 96 x 96 mm square digital electronic voltmeter with selector switches.				
	Digital electronic ammeter of minimum size 96 x 96 mm with working range as required with selector switch.				
	Phase indication lamps through 430 / 110 V PT, primary & secondary of PTs shall be protected by 2 amps SP MCB for all motors individually.				
	Aluminium bus bar sleeves type, suitably rated for three phase & neutral phase bus bar shall have maximum current density of 1 amps per sq.cm. and the neutral bus bar of not less than 50% capacity				
	Outgoing TPN MCCB for main pump suitable for Star Delta starting, Jockey pumpsets, booster pumpsets suitable for DOL starting, spare 15 A MCB etc. The compartment shall contain CT operated digital electronic ammeter of suitable range with selector switch and indicating lamps with MCBs for ON/OFF TRIP status of motor.				
	All terminals shall be properly shrouded including the bolted terminals so that inadverdent contact with the terminals can be avoided.				
	Necessary rubber mats, wooden board etc. shall be provided as per the electrical statutory requirements.				
	Remote indication of pump starting, pump fails to start, etc. shall be annunciated by client in their fire alarm / BMS system. For this, necessary potential free relay contacts to be available and pumpset bidder to indicate such features available in his tender document.				
	Instrumentation				
7.0	Supplying, installing, testing and commissioning of pressure gauges, glycerine filled with SS siphon tube, globe valve and cock 150mm dial, range - 0 to 20 kg/cm2 complete with all fittings.	14	Nos.		
	Of make, size and MOC as listed part of the FM approved Alarm Valve, Deluge Valve, pumpsets etc. is preferred. Alternatively makes are otherwise indicated.				
8.0	Supplying, installing, testing and commissioning of pressure switches suitable for with the maximum pressure rating atleast twice the normal working pressure rating of the pipeline with tubing, isolation stop cock etc. complete complete.	8	Nos.		
9.0	**Suction & Delivery Piping**				
	Supplying, installing, testing and commissioning of piping GI pipe as per IS 3589 6.3mm thick Gr. Fe 330 / IS 1239 Class C, heavy grade complete with grooved fittings, supports, painting, etc. complete.				
	All fitting connections shall be grooved fittings.				
	Grooved fittings shall be of DI rolled grooved type which shall be UL Listed / FM approved including the grooved components of Tees, Bends, reducers, Flow Switch Connections, Alarm Valve Connection, etc. complete. Sprinkler connections shall be of grooved, forged, threaded connection as required.				
	All companion flanges and dummy flanges to be of M.S Butt-welded of MOC Carbon Steel as per ASTM A 105N, class 150 / 300 respectively with dimensions as per ANSI B 16.5. Companion flanges to be of Slip on, Flat face type.				
	All gaskets shall be EPDM constuction dimensioned to ANSI B16.5.				
	All bolts and nuts to be to ASTM A 193 Gr. B7 and ASTM A 194 Gr. 2H respectively				
	Coating and wrapping shall consist of 4 mm of single wound of tape or 2 wounds of 2 mm thickness of tape as per IS:10221 complete with primer, surface preparation etc.				
	All anchor fasteners to be of GI finish of Sleeve bullet (Flush type) / Stud type. Chemical anchor fasteners as required for brick work to be supplied and installed. Anchor fasteners dimension to consider the loading, surface finish depth etc. Setting tool from the anchor fastener manufacturer, drill bit of the proper size, etc. should be used at site.				

	Surface protection shall be ensured by cleaning the surface of pipes thoroughly of rust, scales, dust etc. Then two Coats of red oxide zinc chromate primer of not less than 70 DFT total with 2 coat of synthetic enamel paint of fire red colour with not less than 50 DFT total to be applied.				
	Underground pipes shall be buried with top of pipe minimum 1 m below the finished ground level.				
	For all the systems the headers and drain pipes have to be accomodated within the ducts for which sutiable planning and materials to be done by the Contractor				
	Where necessary, the pipes shall be laid below the flooring with necessary protection.				
10.0	**ABOVE GROUND PIPING PASSING ALONGWITH THE WALL**				
a	300mm NB	30	RMT		
b	250mm NB	0	RMT		
c	200mm NB	24	RMT		
d	150mm NB	50	RMT		
e	100mm NB	0	RMT		
f	80mm NB	20	RMT		
g	65mm NB	30	RMT		
h	50mm NB	0	RMT		
i	40mm NB	0	RMT		
j	32mm NB	0	RMT		
k	25mm NB	24	RMT		
11.0	**UNDERGROUND PIPING WITH COATING AND WRAPPING / WALL PENETRATION.**				
a	200mm NB	0	RMT		
b	150mm NB	0	RMT		
c	65mm NB	0	RMT		
12.0	**DIESEL ENGINE EXHAUST WITH SUITABLE INSULATION CLADDING ETC. SIZE SUITABLE FOR EXTENDED LENGTHS OF EXHAUST. THE DIAMETER INDICATED HEREIN IS ONLY INDICATIVE AND TO BE CONFIRMED WITH THE DIESEL ENGINE MANUFACTURER. THE EXCAUST TO BE TAKEN THROUGH SHAFT UPTO THE TERRACE AND SHOULD BE EXTENDED FOR ONE AND HALF MTR. ABOVE THE TERRACE LEVEL.**				
a	200mm NB	100	RMT		
13.0	**VALVES AND MECHANICAL EQUIPMENT PARTICULARS (SPEC APPLICABLE FOR ALL WATER BASED FIRE PROTECTION SYSTEM UTILISING ONLY PLAIN WATER AND FOAM SOLUTION LINE)**				
	Valve selection shall be as follows: - Valves of nominal dia upto and including 50 mm dia – Globe valve and ball valve - Valves of nominal dia 65 mm and above – Butterfly valve and OS&Y valve for above ground piping application. - Valves of nominal dia 65 mm and above - Gate valve with indicator post for underground piping application.				
	Butterfly valves shall be adopted preferably for places with space restriction like inside the building. Otherwise, OS&Y valves are preferable.				
	The valve shall be angled and installed suitably at site to enable easy operation.				
	Bronze Globe Valve shall be of screwed type with female ends, inside screw, rising stem, handwheel operated, rated for minimum working pressure of 16 kg(f)/sq.cm and 24 kg(f)/sq.cm, to Indian Standards				
	Isolation valve of OS&Y type suitable for working pressure of working pressure of 16 kg(f)/sq.cm and 24 kg(f)/sq.cm minimum with matching flanges, chain and lock complete.				
	Isolation valve of Butterfly valve type to be of Wafer type design, suitable for working pressure of working pressure of 16 kg(f)/sq.cm and 24 kg(f)/sq.cm. Valves of sizes 150 mm nominal dia and below to be provided with throttling lever and valves for sizes above 150 mm nominal dia to be of gear operated type. Matching Drilling flanges to ANSI B 16.5 class 150 / 300 respectively. The valves to be UL Listed / FM approved where suitable Indian valves are not available.				
	The butterfly valves and OS&Y valves shall be provided with a lock and chain with common keys. Tamper switch which shall be UL Listed / FM approved and acceptable to the valve manufacturer shall be quoted as optional.				
	Any variation in the specification to be brought in the tender stage itself.				
13.1	Providing and Fixing of C.I. / D.I. double flanged OS&Y Sluice Valve with matching flanges , PN 16 rising spindle with matching Drilling as per ASA 150 lbs flanges				
a	300mm NB	0	Nos.		
b	250mm NB	0	Nos.		
c	200mm NB	4	Nos.		
d	150mm NB	8	Nos.		
e	100mm NB	0	Nos.		
f	80mm NB	2	Nos.		
g	65mm NB	4	Nos.		
13.2	Providing and Fixing of D.I. double flanged OS&Y Sluice Valve with matching flanges , PN 24 rising spindle with matching Drilling as per ASA 300 lbs flanges.				
a	150mm NB	5	Nos.		
b	80mm NB	2	Nos.		

13.3	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of D.I. non return valves PN 24 rating with matching flanges as per IS specifications.Drilling as per ASA 150 lbs / 300 lbs flanges.				
a	150mm NB	5	Nos.		
b	80mm NB	2	Nos.		
c	50mm NB	0	Nos.		
13.4	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of D.I. non return valves PN 24 rating with matching flanges as per IS specifications.Drilling as per ASA 150 lbs / 300 lbs flanges.				
a	150mm NB		Nos.		
b	50mm NB		Nos.		
13.5	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of D.I. pressure relief valves PN 24 / 300 psi rating with matching flanges as per IS specifications.Drilling as per ASA 300 lbs flanges.				
a	150mm NB	2	Nos.		
b	80mm NB	0	Nos.		
c	65mm NB	0	Nos.		
13.6	Design, Manufacture, Assembly, Supply, installation, testing & commissioning of ball type Foot valve with strainer as per specification suitable for the pumpset manufacturer.				
a	300mm NB	2	Nos.		
b	100mm NB	2	Nos.		
13.7	Providing and Fixing of Strainers on the delivery line shall be of "Y" type / basket type suitable for the specification below.				
	The material of construction shall be as per ASTM A 351 Gr. CF8M with SS316 screens of maximum 5 mm perforations. Flanges to be to ANSI B 16.5 Class 300. The strainer shall be hydrotested to a pressure of 30 kg(f)/sq.cm.				
a	250mm NB	1	Nos.		
b	200mm NB	2	Nos.		
c	100mm NB	1	Nos.		
13.8	Providing and Fixing of Brass chrome plated Ball Valve, suitable for seat working pressure of minimum 24 bars, threaded, quarter turn, lever operated.				
a	50 NB		Nos.		
b	40 NB		Nos.		
	25 NB	10			
14.0	Providing and Fixing of Capacitance type level / float operated level transmitter / switch complete with level indicator / ultrasonic level transmitter respectively suitable for water upto maximum temperature of 50 deg C complete with rod type / rope type / float probe suitable for tank depth upto 3 m for annunciation of levels of makeup water tank, fire water tank and booster tank complete with mounting flanges, stilling basin, cabling, etc. and connected to the power distribution board.	3	sets		
15.0	Providing and laying of Cables - FRLS, PVC / XLPE outer sheath, armoured, multi strand, copper / aluminium conductor cables complete with glands, ferrule etc. complete.	1	LOT		
a	1C X 4 sq.mm copper armoured Cable	25	Mtr.		
b	2C X 1.5 sq.mm copper armoured Cable	360	Mtr.		
c	2C X 2.5 sq.mm copper armoured Cable	25	Mtr.		
d	3C X 2.5 sq.mm copper armoured Cable	576	Mtr.		
e	3C X 240 sq.mm Al. armoured Cable	145	Mtr.		
f	4C X 2.5 sq.mm copper armoured Cable	36	Mtr.		
g	4C X 6 sq.mm copper armoured Cable	480	Mtr.		
16.0	Providing and Fixing of Interconnection to the existing priming tank of all the pumpsets complete	1	lot		
17.0	Providing and Fixing of Cable tray of suitable width in GI MOC Complete with top cover, structural supports, coupler plate, anchor fastner, hat clamp, etc complete.	500	mtr		
18.0	Providing and Fixing of Structural supports.	500	kg		
19.0	Providing and Fixing of Structural steel for the purpose of rectifying the access to shafts etc.	6000	kg		
	TOTAL AMOUNT (WITHOUT GST) OF FIRE FIGHTING PUMP HOUSE				
	2. SCHEDULE OF QUANTITY FOR HYDRANT SYSTEM			**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Supply, Installation, Testing and Commissioning (SITC) of the following:				
1.0	GI ERW pipe as per IS 1239 heavy gauge upto 150 mm dia and as per IS 3589 6.3mm thick FE330 grade above 150 mm dia complete with grooved fittings, supports, fire resistant silicon epoxy coating etc. complete as per drawing.				
a	150 mm	500.0	R.M		
b	100 mm	60.0	R.M		
c	80 mm	60.0	R.M		

2.0	GI ERW as per IS 1239 heavy gauge upto 150 mm dia and as per IS 3589 6.3mm thick FE330 grade above 150 mm dia complete with grooved fittings, supports, coating and wrapping etc. complete / wall penetration.				
a	150 mm	12.0	R.M		
b	100 mm	48.0	R.M		
c	80 mm	60.0	R.M		
3.0	D.I. OS&Y Sluice Valve, grooved type. The pressure rating should be PN 16 rising spindle. For Riser.				
a	150 mm	4.0	Nos.		
4.0	D.I. OS&Y Sluice Valve, grooved type. The pressure rating should be PN 24 rising spindle. For Riser.				
a	150 mm	2.0	Nos.		
5.0	External & Internal Hydrants				
	63mm Dia. Oblique type double headed GM Hydrant valve with female type instantaneous coupling including rubber gasket, nuts, bolts,washers etc. with matching flanges as per IS 5290 complete. along with pressure relief arrangement.				
a	Yard Hydrant at the Mushroom openings	8.0	Nos.		
b	Internal Hydrant for the basemnt	20.0	Nos.		
	63mm Dia. Oblique type single headed GM Hydrant valve with female type instantaneous coupling including rubber gasket, nuts, bolts,washers etc. with matching flanges as per IS 5290 complete. along with pressure relief arrangement.				
a	Fire Escape Hydrant (Internal)	30.0	Nos.		
6.0	FRP hose boxes suitable for storing 2 Nos. hoses and 1 No. GM branch pipe, hose boxes shall be made of fibre & duly painted with two coats of Fire red colour from outside & white from inside with locking arrangement & front glass				
a	Yard Hydrant	8.0	Nos.		
b	Internal Hydrant	20.0	Nos.		
c	Fire Escape Hydrant (Internal)	50.0	Nos.		
7.0	63mm Dia. RRL type fire hoses 15 m long as per IS 636 Type A with female and male SS coupling.				
a	Yard Hydrant	16.0			
b	Internal Hydrant	40.0			
c	Fire Escape Hydrant (Internal)	100.0	Nos.		
8.0	Hose reel drum units with 20mm dia hoses 30m long and 19 mm shut off nozzle complete with fixing brackets etc. complete.	50.0	Nos.		
9.0	GM Short pattern Branch pipe With nozzle.	78.0	Nos.		
10.0	Air Release Valve 25 NB.	4.0	Nos.		
11.0	Structural steel for supports standard as per IS 808.	1000.0	Kg.		
12.0	Blind Flange of MS				
a	150 NB	4.0	Nos.		
	TOTAL AMOUNT (WITHOUT GST) OF HYDRANT SYSTEM				
	3. SCHEDULE OF QUANTITY FOR SPRINKLER SYSTEM			**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Supply, Installation, Testing and Commissioning (SITC) of the following:				
1	GI ERW pipe as per IS 1239 heavy gauge upto 150 mm dia and as per IS 3589 6.3mm thick FE330 grade above 150 mm dia complete with grooved fittings, supports, fire resistant silicon epoxy coating etc. complete as per drawing.				
a	200 NB	0	Mtrs.		
b	150 NB	350	Mtrs.		
c	100 NB	1,554	Mtrs.		
d	80 NB	1,110	Mtrs.		
e	65 NB	1,200	Mtrs.		
f	50 NB	1,500	Mtrs.		
g	40 NB	1,200	Mtrs.		
h	32 NB	6,500	Mtrs.		
i	25 NB	5,000	Mtrs.		
2	D.I. OS&Y Sluice Valve, grooved type. The pressure rating should be PN 16 rising spindle.				
a	150mm NB	0	Nos.		
3	D.I. OS&Y Sluice Valve, grooved type. The pressure rating should be PN 24 rising spindle. For Riser.				
a	150mm NB	6	Nos.		
4	D.I. double flanged butterfly Valve, with matching flanges , PN 16 with matching Drilling as per ASA 150 lbs flanges complete.				
a	100 NB	200	Nos.		
6	Wet type Sprinkler Installation Alarm Control Valve 14 bar and 10 bar rating with matching grooved flanges, complete with test and drain vaves, water motor gong , Bypass arrangement, pressure gauges etc. complete.				
a	150 NB	4	Nos.		
7	Upright Sprinklers K=80, TEMP=68deg C Chrome finish, Standard Response, UL Listed / FM approved.	3,150	Nos.		

8	Pendent Sprinklers K=80, TEMP=68deg C Chrome finish, Standard Response. UL Listed / FM approved.	3,000	Nos.		
9	Pendent Sprinklers K=80, TEMP=68deg C Chrome finish, Standard Response. UL Listed / FM approved. For Auditorium.	50	Nos.		
10	Extended Coverage Horizontal Sidewall Sprinkler TEMP=68deg Chrome finish, Standard Response. UL Listed / FM approved.	100	Nos.		
11	Rosette Plate from the original sprinkler manufacturer, chrome finished, UL Listed / FM approved.	2,500	Nos.		
12	Flow Switch.	200	Nos.		
13	Flexidrop SS, 1.5m long, braided type, FM approved.	2,500	Nos.		
14	System Test Connection for sprinkler piping with sight glass and 25 mm dia ball valve complete.				
a	Ball Vale - 25 Nb	500	Nos.		
b	Sight Glass - 25 Nb	300	Nos.		
15	System Flush Connection for sprinkler piping with coupling & ball valve 50NB as applicable.				
a	Ball Vale - 50 Nb	500	Nos.		
b	Sight Glass - 50 Nb	300	Nos.		
16	Supplying, installing, testing and commissioning of pressure gauges, glycerine filled with SS siphon tube, globe valve and cock 150mm dial, range - 0 to 24 kg/cm2 complete.	200	Nos.		
17	Structural steel for supports	4,000	Kgs.		
	TOTAL AMOUNT (WITHOUT GST) OF SPRINKLER SYSTEM				
4. TESTING OF EXISTING SYSTEM INTEGRATE TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS				**Installation Charges**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Cost of material and labour charges for following items:				
1	Providing P.O. Red colour Paint, and rectification of supports, providing pipe identification etc. complete in pump room.	1	Lot		
2	Fire Brigade Breeching connection complete with NRV etc.in hydrant system to be replaced with latest BIS standard.	1	Nos.		
3	Radiography testing of 10% of existing hydrant and sprinkler pipe joints in hydrant system/and sprinkler joints.	1	Lot		
4	Core cutting on the walls / roof for proper installation of pipes. The core cutting shall have minimum 25 mm annular gap on all sides. The pipe sizes are indicated below in sprinkler system				
a	200mm NB	20	Nos.		
b	150mm NB	30	Nos.		
c	100mm NB	20	Nos.		
d	80mm NB	10	Nos.		
e	65mm NB	10	Nos.		
f	50mm NB	10	Nos.		
5	Painting, rectification of supports, providing pipe identification etc. complete in sprinkler system	1	Lot		
6	Pneumatic testing of all existing sprinkler branch lines of all floors at 4 bars pressure for not less than 3 hours to confirm no loss of pressure. Bringing to site the air compressor, installation of tap off valves etc. included in scope (sprinkler system)	22	per floor		
7	Setting right the system complete including existing system complete in all aspects in fire alarm system, Only Labour Charges	22	per floor		
	TOTAL AMOUNT (WITHOUT GST) OF TESTING OF EXISTING SYSTEM				
5. SCHEDULE OF QUANTITY FOR PROPOSED PUMP HOUSE CONSTRUCTION				**Installation Charges**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	(B)	(C)	(D)	(E)	(F)
1	PROVIDING AND LAYING IN SITU WATER PROOF CEMENT CONCTRETE M-25 OF TRAP/ GRANITE/ QUARTZITE/ GNEISS METAL FOR R.C.C.WORK IN BEAM, COLUMN, FOUNDATION LIKE RAFT,GRILLAGES, STRIP FOUNDATION AND FOOTINGS OF R.C.C OLUMNS AND STEELSTANCHIONS INCLUDING BAILING OUT WATER PLYWOOD/STEEL FORMWORK,COMPACTION , CURING AND ROUGHENING THE SURFACE IF SPECIAL FINISH IS TO BE PROVIDED FINISHING. UNEVEN AND HONEYCOMBED SURFACE WITH C.M. 1:3 OF SUFFICIENT MINIMUM THICKNESS TO GIVE SMOOTH AND EVEN SURFACE ETC. COMPLETE.(EXCLUDING REINFORCEMENT AND STRUCTURAL STEEL INCLUDING COVER BLOCK). THE CEMENT MORTAR 1:3 PLASTER IS CONSIDERED HONEYCOMBED FOR RENDERING UNEVEN AND SURFACE ONLY. NEWLY LAID CONCRETE SHALL BE COVERED BY GUNNY BAG, PLASTIC, TARPAULIN ETC. (WOODEN CENTERING WILL NOT BE ALLOWED)	10	CUM		
	BRICK LAYER				
	Note:				

	1) ordinary clay bricks of any brand conforming to IS 1077 shall be used. Crushing strength shall not be less than 35 kg/sq.cm. and its water absorption shall not be more than 25% for bricks used in panel walls and 20% for load bearing walls. Tolerances in dimensions of bricks shall be allowed only in conformity with I.S. 1077.				
	2) All 230 mm brick masonry shall be plumb from out side and done with scaffolding.				
	3) For wall surfaces of brick partitions (rates of which includes cost of plaster on both sides), if dado or skirting is provided at such places, deduction for cost of corresponding plaster item will be made.				
2	Brick masonry, first sort in cement mortar 1:5 in partition walls 110mm thick including M25 R.C.C. stiffner 10 cm X 11 cm with 2 No. M.S./HYSD(tor) bars 10 mm dia. and 6 mm dia M.S. binders at 15cm c/c plastered on all exposed surfaces with cement sand plaster 20 mm thick (1:4), finished with neat cement or neeru and with 3 coats of white or colour wash, complete as directed and specified. Partition walls between rooms shall have one horizontal stiffener at about 1.5 m height. In dwarf Partition walls of kitchens, W.C.s bath-rooms and galleries instead of stiffener at 1.5 m height, one horizontal stiffener shall be provided at top and one vertical stiffener on outer edge of the wall shall be provided as directed. Steel shall not be paid separately AND without plaster but with cement pointing (1:2) on both sides and without 3 coats of white or colour wash complete, including finishing smooth exposed surfaces of R.C.C. stiffeners if provided.	56	SQ.M		
3	PROVIDING **INTERNAL PLAIN** FACED PLASTER 20 MM THICK INTERNAL FACES FOR USING KHARSALIA/KASABA OR SIMILAR TYPE OF SAND,IN ALL POSITIONS INCLUDING BASE COAT OF 15MM THICK IN C.M. 1:4 USING WATERPROOFING COMPOUND AT 1KG PER CEMENT BAG CURING THE SAME FOR NOT LESS THAN 3 DAYS AND KEEPING THE SURACE OF THE BASE COAT ROUGH TO RECEIVE THE SAND FACED TREATMENT 6 TO 8MM THICK IN C.M. 1:4 FINISHING THE SURFACE BY TAKING OUT GRAINS,MAKING GROOVES AND CURING FOR FOURTEEN DAYS SCAFFOLDING ETC.COMPLETE	56	SQ.M		
4	PROVIDING **SAND FACED PLASTER FOR** EXTERNAL PORTION IN CEMENT MORTAR USING KHARSALIA/KASABA OR SIMILAR TYPE OF SAND,IN ALL POSITIONS INCLUDING BASE COAT OF 15MM THICK IN C.M. 1:4 USING WATERPROOFING COMPOUND AT 1KG PER CEMENT BAG CURING THE SAME FOR NOT LESS THAN 3 DAYS AND KEEPING THE SURACE OF THE BASE COAT ROUGH TO RECEIVE THE SAND FACED TREATMENT 6 TO 8MM THICK IN C.M. 1:4 FINISHING THE SURFACE BY TAKING OUT GRAINS,MAKING GROOVES AND CURING FOR FOURTEEN DAYS SCAFFOLDING ETC.COMPLETE	56	SQ.M		
Note : Rates of all the items in painter are inclusive of staging or scaffolding wherever necessary for any					
5	PROVIDING AND APPLYING 3 COATS OF WATER PROOF CEMENT PAINT OF APPROVED MANUFACTURE AND OF APPROVED COLOUR TO THE NEW PLASTERED SURFACES INCLUDING SCAFFOLDING IF NECESSARY, CLEANING AND PREPARING THE SURFACE WATERING FOR TWO DAYS COMPLETE.(SAMPLE AND BRAND IS TO BE GOT APPROVED FROM EX. ENGINEER BEFORE USE)	111	SqM		
6	PROVIDING AND FIXING IN POSITION **TMT BAR REINFORCEMENT OF** VARIOUS DIAMETERS FOR R.C.C. PILE CAPS, FOOTING, FOUNDATIONS, SLAB, BEAMS & COLUMNS, CANOPIES, STAIRCASE, NEWELS,CHAJJAS, LINTELS,PARDIES, COPING, FINS, ARCHES ETC. AS PER DETAILED DESIGN & DRAWINGS AND SCHEDULES INCLUDING CUTTING, BENDING, HOOKING THE BARS,BINDING WITH WIRES OR TACK WELDING AND SUPPORTING AS REQUIRED COMPLETE.	1	M.T.		
7	Scaping old surface,The surface must be thoroughly cleaned and prepared. Remove all loose particles, dirt, dust, laitance, and mould release agents, curing compounds, oils, grease, floor hardeners and any waterproofing materials for best results. Remove laitance, dirt and dust by mechanical scarification such as wire brushing, scrapping, scabling or grit blasting. Clean the dust by pressurized air or by washing with water. Oil and grease should be removed by degreasing with solvents like turpentine or thinners. V isible signs of mould growth should be removed & treated with a fungicidal solutions. New concrete must be cured completely.	20	SqM		
8	Providing and fixing MS Rolling Shutter in position manually operated with all accesoring including Transportation etc complte	15	Sq.m		
	TOTAL AMOUNT (WITHOUT GST) OF PROPOSED PUMP HOUSE CONSTRUCTION				
	6. SCHEDULE FOR QUANTITY FOR BUY BACK		**BUY BACK VALUE (Rs.)**		
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	The bidder is provided the brief particulars of existing materials at site. The successful bidder as part of his execution plan is expected to identify, inform the client, obtain the dismantling and commercial clearances, dismantle, pack, cleanup the area, etc. complete in all respects.				
	Any statutory, pollution control certificate etc. if required to be handed over to the client to be furnished by the successful bidder				
	Disposal of materials shall be done at suitable distance / location as authorised by client / statutory / governmental authorities				
1	**Diesel Driven Pump.**				
	Diesel Driven Pump common for hydrant and sprinkler system, Multi stage, Muiti outlet-Split Casing type, capable of delivering 137 cum/hr., 135 mwc, 169 Hp, 1500 Rpm Make - Mather+Plate Pump Ltd. Model: Engine: 4YDC MK3 Sr No: 14320460504	1	No.		

2	**Motor Driven Pump**				
	Electric motor driven fire water pump, Multi stage, Muiti outlet-Split Casing type, capable of delivering 137 cum/hr., 135 mwc, 125 Hp, 1470 Rpm Make - Mather+Plate Pump Ltd. Model: 8/20/303/10/2,3 Model:C250H	2	No.		
3	**Jockey Pump**				
	Electric motor driven fire water Jockey pump, Multi stage, Muiti outlet-Split Casing type, capable of delivering 10.8 cum/hr., 131 mwc, 11 Hp, 2920 Rpm Make - Mather+Plate Pump Ltd. Model: 8/20/306/10/2 Model:ACH 12A	1	No.		
4	**existing online pump to be dismantled and taken out. Dismandling should be done after synchronizing the new pumps to be brought to the site and after proper planing.**				
4.1	**Diesel Driven Pump existing online pump to be dismantled and taken out. Dismandling should be done after synchronizing the new pumps to be brought to the site and after proper planing.**				
	Diesel Driven Pump stand by hydrant pump.Multistage, Multi outlet -Split Casing 90.84 cum/hr.	1			
4.2	**Motor Driven Pump**				
	Motor Driven Pump (Hydrant High Level),Multistage, Single outlet -Split Casing,141.94 cum/h	1			
	Motor Driven Pump (Hydrant Low Level) End Suction,141.94 cum/hr.	1			
	Motor Driven Pump (Sprinkler System)End Suction,141.94 cum/hr.	1			
4.3	**Jockey Pump**				
	Electric motor driven fire water Jockey pump, End Suction, capable of delivering 10.8 cum/hr.	1			
	TOTAL AMOUNT OF BUYBACK				

SECTION- 4 - CLEAN AGENT EXTINGUISHING SYSTEM

PART-A

Sr.No.	System	Annexures	Total Amount (Rs.) without GST
1	CLEAN AGENT SYSTEM	Annexure-I	
2	GAS RELEASE PANEL	Annexure-II	
3	FIRE TRACE SYSTEM	Annexure-III	
4	TESTING OF EXISTING SYSTEM INTEGRATE TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS	Annexure-IV	
A	**SUB TOTAL OF THE ABOVE (WITHOUT GST)**		
4	MINUS - BUYBACK	Annexure-V	
B	**TOTAL (WITHOUT GST) SECTION -4**		

1. SCHEDULE OF QUANTITY FOR CLEAN AGENT SYSTEM				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount (Rs.) Without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
CLEAN AGENT TOTAL FLOODING SYSTEM FOR THE FOLLOWING AREAS:					
	Areas catering to Clean Agent System :				
	Old Server & Electrical Room , 13th Floor				
	UPS Room & battery Room , Basement				
	Battery & UPS Room, 20th Floor				
	Other Requirement				
	13th Floor				
1	140L Cylinder / Valve Assembly + Protec. Cap / IG / Cyl. PESO / 300 Bar / FILLED IG 55 / UL / FM	10	Nos		
CYLINDER MOUNTING BRACKETS					
2	Wall mounting rail / Single row / 3 Cylinders L = 940 mm	1	Nos		
3	Wall mounting rail / Single row / 4 Cylinders L = 1240 mm	2	Nos		
4	Outer bracket / galvamized painted steel / double row / 2 cylinders / 140L / L = 810 mm	1	Nos		
5	Outer bracket / galvamized painted steel / double row / 3 cylinders / 140L / L = 1210 mm	2	Nos		
6	Bolts and Nuts Kit / Double row for steel brackets / L = 860 mm	3	Nos		
7	End cover for mounting rail or bracket	6	Nos		
PRESSURE REGULATOR FOR 200/300 BAR INERT GAS					
8	Pressure Regulator / inlet fem. W21,8 / outlet mal. W21,8 / out 60 Bar / UL	10	Nos		
VALVE ACTUATORS					
9	Pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	8	Nos		
10	Manual-pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	2	Nos		
11	Elec-mag R. Device / 24 VDC / Diode / mini design / VdS / LPCB	2	Nos		
12	Monitoring switch for electro-magnetic actuator / mounts on valve B0480 / cable included / UL / FM	2	Nos		
13	Reset Tool for Elec-mag Actuator / M42 x 1,5 / protection cap included	1	Nos		
14	Bleed Valve for Pneumatic actuator / G 1/8" / VdS tested / UL / FM	2	Nos		

PRESSURE GAUGES M10 × 1 - WITH PRESSURE SWITCH					
15	Pressure Gauge - IG / P. switch NO 270 Bar / M10x1 / Radial / Scale 0-400 Bar / PG Connection / CE / VdS	10	Nos		
PILOT HOSES					
16	Pilot hose 700 mm / M12 x 1,5 / Internal Diam. Ø1/8" - DN6 / VdS / UL-FM (IG)	2	Nos		
17	Pilot hose 500 mm / M12 x 1,5 / Internal Diam. Ø1/8" - DN6 / VdS / UL-FM (IG)	7	Nos		
18	Adapter for pilot hoses / M12 x 1,5 / G 1/8" / with O-ring	18	Nos		
DISCHARGE HOSES					
19	Discharge Hose - W 21,8 x 1 / 14"DIN - G 3 / 4" / L= 400 / DN16 / 350 bar / VdS / UL-FM (IG)	10	Nos		
DISCHARGE LINE MANIFOLDS - 100 BAR WORKING PRESSURE					
20	Manifold for 10 x 140L Cylinders / 2 row / 2020 mm / Inlet Rc 1" / Outlet R2"	1	Nos		
21	Manifold connector / 2"	1	Nos		
22	Manifold End Cap / 2"	1	Nos		
MANIFOLD MOUNTING BRACKETS					
23	Bracket for Manifold / Double row / for 140 L cyl. / L = 600 mm	2	Nos		
24	Clamp for Manifold / Dia. 2"	2	Nos		
25	End cover for mounting rail or bracket	2	Nos		
DISCHARGE LINE SAFETY ACCESSORIES					
26	Check valve - for IG / CO2 / Clean agent valves B0480-B0439 / DN 12 / WP 360 bar / Inlet G 3/4" / Outlet R 1"/ VdS / UL / FM	10	Nos		
27	Pressure gauge for manifold / G1/2 - 14 / scale 0-400 Bar	1	Nos		
28	Pressure relief device for manifold / 66 Bar / G 1/2" / Standard	1	Nos		
29	Pressure and flow detector / switch 2 Bar / BSPP G 1/2"/ UL-FM (IG)	5	Nos		
DISCHARGE NOZZLES - INERT GAS & CO2 - PRE-ASSEMBLED - 360°					
30	Nozzle - IG / CO2 / BSP R 1/2" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	9	Nos		
31	Nozzle - IG / CO2 / BSP R 3/4" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	8	Nos		
32	Nozzle - IG / CO2 / BSP R 1" / 360° / Rx orifice Ø xx mm / VdS (CO2) / UL	9	Nos		
DIRECTIONAL VALVE - PNEUMATIC ACTUATOR					
33	Directional Valve G1" - DN25 / BKH / Pneumatic actuator / Carbon Steel / VdS / UL-FM (IG)	3	Nos		
34	Directional Valve G2" 1/2 - DN65 / BKH / Pneumatic actuator / Carbon Steel / VdS / UL-FM (IG)	1	Nos		
CONTROL PANEL - DIRECTIONAL VALVE - UL / FM					
35	Control-Panel for directional valve / 5 zones / UL-FM (IG)	1	Nos		
DANGER AND WARNING SIGNS					
36	Warning emergency label / FIX / EN	4	Nos		
37	Warning label / FIX / EN	4	Nos		
38	LABEL Gas storage area / FIX / INEREX system / EN	1	Nos		
PIPE , FITTING & OTHERS					
39	PIPE & FITTINGS	1	Nos		
40	Gravity Pressure Vent (size to be define as per flow calculation)	4	Nos		
INSTALLATION					
41	SYSTEM ENGNIREEING INSTALLATION , COMMSSIONING & HANDINGOVER	1	Nos		
	Basement				
140L - CYLINDERS/VALVE ASSEMBLY FOR 300 BAR INERT GAS					
1	140L Cylinder / Valve Assembly + Protec. Cap / IG / Cyl. PESO / 300 Bar / FILLED IG 55 / UL / FM	11	Nos		
CYLINDER MOUNTING BRACKETS					
2	Wall mounting rail / Single row / 3 Cylinders L = 940 mm	1	Nos		
3	Wall mounting rail / Single row / 4 Cylinders L = 1240 mm	2	Nos		
4	Outer bracket / galvamized painted steel / double row / 2 cylinders / 140L / L = 810 mm	1	Nos		
5	Outer bracket / galvamized painted steel / double row / 3 cylinders / 140L / L = 1210 mm	2	Nos		
6	Bolts and Nuts Kit / Double row for steel brackets / L = 860 mm	3	Nos		
7	End cover for mounting rail or bracket	6	Nos		
PRESSURE REGULATOR FOR 200/300 BAR INERT GAS					
8	Pressure Regulator / inlet fem. W21,8 / outlet mal. W21,8 / out 60 Bar / UL	11	Nos		
VALVE ACTUATORS					

9	Pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	10	Nos		
10	Manual-pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	1	Nos		
11	Elec-mag R. Device / 24 VDC / Diode / mini design / VdS / LPCB	1	Nos		
12	Monitoring switch for electro-magnetic actuator / mounts on valve B0480 / cable included / UL / FM	1	Nos		
13	Reset Tool for Elec-mag Actuator / M42 x 1,5 / protection cap included	1	Nos		
PRESSURE GAUGES M10 × 1 - WITH PRESSURE SWITCH					
14	Pressure Gauge - IG / P. switch NO 270 Bar / M10x1 / Radial / Scale 0-400 Bar / PG Connection / CE / VdS	11	Nos		
PILOT HOSES					
15	Pilot hose 700 mm / M12 x 1,5 / Internal Diam. Ø1/8" - DN6 / VdS / UL-FM (IG)	1	Nos		
16	Pilot hose 500 mm / M12 x 1,5 / Internal Diam. Ø1/8" - DN6 / VdS / UL-FM (IG)	10	Nos		
17	Adapter for pilot hoses / M12 x 1,5 / G 1/8" / with O-ring	22	Nos		
DISCHARGE HOSES					
18	Discharge Hose - W 21,8 x 1 / 14"DIN - G 3 / 4" / L= 400 / DN16 / 350 bar / VdS / UL-FM (IG)	11	Nos		
DISCHARGE LINE MANIFOLDS - 100 BAR WORKING PRESSURE					
19	Manifold for 6 x 140L Cylinders / 2 row / 1200 mm / Inlet Rc 1" / Outlet R2"	1	Nos		
20	Manifold for 4 x 140L Cylinders / 2 row / 790 mm / Inlet Rc 1" / Outlet R2"	1	Nos		
21	Manifold connector / 2"	2	Nos		
22	Manifold End Cap / 2"	2	Nos		
MANIFOLD MOUNTING BRACKETS					
23	Bracket for Manifold / Double row / for 140 L cyl. / L = 600 mm	4	Nos		
24	Clamp for Manifold / Dia. 2"	4	Nos		
25	End cover for mounting rail or bracket	4	Nos		
DISCHARGE LINE SAFETY ACCESSORIES					
26	Check valve - for IG / CO2 / Clean agent valves B0480-B0439 / DN 12 / WP 360 bar / Inlet G 3/4" / Outlet R 1"/ VdS / UL / FM	11	Nos		
27	Pressure gauge for manifold / G1/2 - 14 / scale 0-400 Bar	1	Nos		
28	Pressure and flow detector / switch 2 Bar / BSPP G 1/2"/ UL-FM (IG)	1	Nos		
DISCHARGE NOZZLES - INERT GAS & CO2 - PRE-ASSEMBLED - 360°					
29	Nozzle - IG / CO2 / BSP R 1/2" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	3	Nos		
30	Nozzle - IG / CO2 / BSP R 3/4" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	3	Nos		
31	Nozzle - IG / CO2 / BSP R 1" / 360° / Rx orifice Ø xx mm / VdS (CO2) / UL	2	Nos		
DANGER AND WARNING SIGNS					
32	Warning emergency label / FIX / EN	1	Nos		
33	Warning label / FIX / EN	1	Nos		
34	LABEL Gas storage area / FIX / INEREX system / EN	1	Nos		
PIPE , FITTING & OTHERS					
35	PIPE & FITTINGS	1	Nos		
36	Gravity Pressure Vent (size to be define as per flow calculation)	1	Nos		
INSTALLATION					
37	SYSTEM ENGNIREEING INSTALLATION , COMMSSIONING & HANDINGOVER	1	Nos		
	20th floor				
140L - CYLINDERS/VALVE ASSEMBLY FOR 300 BAR INERT GAS					
1	140L Cylinder / Valve Assembly + Protec. Cap / IG / Cyl. PESO / 300 Bar / FILLED IG 55 / UL / FM	2	Nos		
CYLINDER MOUNTING BRACKETS					
2	Wall mounting rail / Single row / 4 Cylinders L = 1240 mm	1	Nos		
3	Outer bracket / galvamized painted steel / double row / 2 cylinders / 140L / L = 810 mm	2	Nos		
5	Bolts and Nuts Kit / Double row for steel brackets / L = 860 mm	2	Nos		
6	End cover for mounting rail or bracket	2	Nos		
PRESSURE REGULATOR FOR 200/300 BAR INERT GAS					
7	Pressure Regulator / inlet fem. W21,8 / outlet mal. W21,8 / out 60 Bar / UL	2	Nos		
VALVE ACTUATORS					
8	Pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	1	Nos		
9	Manual-pneumatic release device - B0480 / B0481 / B0482 / single piston - actuation 21 bar / VdS / LPCB / UL / FM	1	Nos		
10	Elec-mag R. Device / 24 VDC / Diode / mini design / VdS / LPCB	1	Nos		

11	Monitoring switch for electro-magnetic actuator / mounts on valve B0480 / cable included / UL / FM	1	Nos		
12	Reset Tool for Elec-mag Actuator / M42 x 1,5 / protection cap included	1	Nos		
13	Bleed Valve for Pneumatic actuator / G 1/8" / VdS tested / UL / FM	1	Nos		
PRESSURE GAUGES M10 × 1 - WITH PRESSURE SWITCH					
15	Pressure Gauge - IG / P. switch NO 270 Bar / M10x1 / Radial / Scale 0-400 Bar / PG Connection / CE / VdS	2	Nos		
PILOT HOSES					
16	Pilot hose 700 mm / M12 x 1,5 / Internal Diam. Ø1/8" - DN6 / VdS / UL-FM (IG)	2	Nos		
17	Adapter for pilot hoses / M12 x 1,5 / G 1/8" / with O-ring	4	Nos		
DISCHARGE HOSES					
18	Discharge Hose - W 21,8 x 1 / 14"DIN - G 3 / 4" / L= 400 / DN16 / 350 bar / VdS / UL-FM (IG)	2	Nos		
DISCHARGE LINE MANIFOLDS - 100 BAR WORKING PRESSURE					
19	Manifold for 4 x 140L Cylinders / 2 row / 790 mm / Inlet Rc 1" / Outlet R2"	1	Nos		
20	Manifold connector / 2"	1	Nos		
21	Manifold End Cap / 2"	1	Nos		
MANIFOLD MOUNTING BRACKETS					
22	Bracket for Manifold / Double row / for 140 L cyl. / L = 600 mm	2	Nos		
23	Clamp for Manifold / Dia. 2"	2	Nos		
24	End cover for mounting rail or bracket	2	Nos		
DISCHARGE LINE SAFETY ACCESSORIES					
25	Check valve - for IG / CO2 / Clean agent valves B0480-B0439 / DN 12 / WP 360 bar / Inlet G 3/4" / Outlet R 1"/ VdS / UL / FM	2	Nos		
26	Pressure gauge for manifold / G1/2 - 14 / scale 0-400 Bar	1	Nos		
27	Pressure and flow detector / switch 2 Bar / BSPP G 1/2"/ UL-FM (IG)	1	Nos		
DISCHARGE NOZZLES - INERT GAS & CO2 - PRE-ASSEMBLED - 360°					
28	Nozzle - IG / CO2 / BSP R 1/2" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	2	Nos		
29	Nozzle - IG / CO2 / BSP R 3/4" / 360° / Rx orifice Ø xx mm / VdS (IG - CO2) / UL-FM (IG)	2	Nos		
DANGER AND WARNING SIGNS					
30	Warning emergency label / FIX / EN	1	Nos		
31	Warning label / FIX / EN	1	Nos		
32	LABEL Gas storage area / FIX / INEREX system / EN	1	Nos		
PIPE , FITTING & OTHERS					
33	PIPE & FITTINGS	1	Nos		
34	Gravity Pressure Vent (size to be define as per flow calculation)	1	Nos		
INSTALLATION					
35	SYSTEM ENGNIREEING INSTALLATION , COMMSSIONING & HANDINGOVER	1	Job		
	Other Requirement				
36	Nitrogen Puff Test	3	Nos		
37	Room Integerty Test	6	Nos		
38	DumTest for the Room (Smallest room)	1	Nos		
	TOTAL AMOUNT (WITHOUT GST) OF CLEAN AGENT SYSTEM				

2. SCHEDULE OF QUANTITY FOR GAS RELEASE PANEL				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount (Rs.) Without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
1	Supply, installation, testing & commissioning of 32-bit dual core microprocessor based 100% Hot Redundant Intelligent Addressable Fire Alarm Control panel with **6 loop** with inbuilt Bluetooth and battery back up to 60 hours, expandable up to min. 12 loops w/o changing the cabinet. The FACP should Have Capacity of Peer-to-Peer Networking of Panels, the control panel, batteries, battery charger etc, shall be Vds approved and as per EN-54 standard. The panel should be modular, decentralized, with 100% hot redundancy in CPU/master control unit, 100% hot redundancy in loop cards, relay, and interface card by means of duplicated electronics means hardware redundancy with full functionality. The panel shall consist with minimum 240-character LCD display. Panel should be able to record atleast 65000 events history. Each loop should be capable to have atleast 250 elements / devices out of which min. 200 nos. shall be detectors. The Panel Shall have on board TCP/IP Lan port to facilitate remote operation of the panel include Modbus / Bacnet gateway for BMS integration. The Panel must have 1 zone extinguishing indicating LEDs inbuilt (Upto 10 LEDs)inbuilt. The system should be Vds approved It is possible to Commissioning the System through LAN Network.	Nos	1		

2	Supply, Installation, Testing & Commissioning of VDS approved having and 100% hot standby Redundant control circuit, **GAS release indication panel** consist of 8 GAS release zones indication LED, also has Key Switch for Auto Manual mode selection. It should consist of 12 LED indication Per zone and 9 LED indication for whole system. Panel enclosure should be in Red RAL 3000.	Nos	3		
3	Supply, Installation, Testing & Commissioning of Intelligent Addressable type **multisensor detector with base**, and Microprocessor inbuilt, for use as heat (Fixed + Rate of Rise or individual) or smoke or combined both with automatic electronic addressing, microprocessor type and must have integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each detector). The detector shall have IP 44 protection catagory & ambient temperature -20ºC to + 60ºC, the base shal have no electronics only dry contact terminals. The quoted item shall completely comply to the technical specification.Shall be Vds approved according to EN 54-5, 54-7, 54-17, 54-29	Nos	RO		
4	Supply, Installation , Testing & Commissioning of **Manual Release** with Inbuilt fault isolator, in accordance with EN 54-11 (type B). The Release should be triggered by breaking the glass panel and pressing the button. The Release must contain a built-in red LED & should have IP 52 protection and operating temperaure should be -20° to +50°C. The Release must be approved by VDS	Nos	18		
5	Supply, Installation , Testing & Commissioning of **Manual Abort** with Inbuilt fault isolator, in accordance with EN 54-11 (type B). The Abort should be triggered by breaking the glass panel and pressing the button. The Abort must contain a built-in red LED & should have IP 52 protection and operating temperaure should be -20° to +50°C. The Abort must be approved by VDS	Nos	18		
6	Supply, Installation , Testing & Commissioning Addressable **Loop Powered multi tone sounder** with integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each loop powered sounder) & having operating temperature -10ºC to + 55ºC shall be Vds approved	Nos	18		
7	Supply, Installation , Testing & Commissioning of Addressable **loop poweredflashing light** for visual notification of a fire alarm in interior areas, should have inbuilt fault isolator. The operating Temprature should be -10° to +55°C. The module must be VDS approved.	Nos	18		
8	Supply, Installation, Testing & Commissioning of Vds approved **Analogue Addressable Input module** with IP66 casing containing 4 inputs for monitored querying of potential free contacts with in-built short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each monitor module), it must be VdS approved and as per EN-54 standard. The ambient temperature range shall be -20ºC to +60ºC.The quoted item shall completely comply to the technical specification.	Nos	15		
9	Supply, Installation, Testing & Commissioning of Vds approved **Analogue Addressable Output module** with IP66 casing containing 4 Relay Output with in-built short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each monitor module), it must be VdS approved and as per EN-54 standard. The ambient temperature range shall be -20ºC to +60ºC.The quoted item shall completely comply to the technical specification.	Nos	30		
10	Auto/Manual Switch	Nos	18		
11	Supply and laying of 2C x 1 Sq.mm twised multistranded FRLS shielded Armoured cable for FAS System	Mts	4000		
12	Glow Signages electronic “gas discharge do not enter”	Nos	6		
13	Glow Signages electronic “gas discharge please evacuate”	Nos	6		
	TOTAL AMOUNT (WITHOUT GST) OF GAS RELEASE PANEL				
	3. SCHEDULE OF QUANTITY FOR FIRE TRACE SYSTEM			**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
Supply, Installation, Testing and Commissioning (SITC) of the following:					
FIRE TRACE SYSTEM					
	Fire Trace System integrated with the fire alarm system etc. complete.				
	It is to be understood that the integration of systems for full and seamless performance to be ensured by the successful bidder. For this purpose, some models, some makes could be interchanged with the fire alarm system etc. as well.				
	Complete fire trace system shall be CE/ UL / FM marked.				
	The system shall Conform to the following codes				
	BS EN 12094-1 , Fixed fire fighting systems. Components for gas extinguishing systems. Requirements and test methods for electrical automatic control and delay devices				
	BS EN ISO 10297 ; Transportable gas cylinders. Cylinder valves. Specification and type testing				
	(Any additional / alternative International code adhered to, to be mentioned)				
	The fire suppression gas adopted shall be FE36 / NOVEC 1230 / NAF S 120 suitable for such application.				
	The fire suppression gas adopted shall be a low pressure agent with working pressure of around 13.5 kg/sq.cm. Exact pressure to be confirmed in the bid. The gas could be super-pressurised with nitrogen if required.				
	The system shall be suitable for working temperature of 0 deg C to atleast 54 deg C				
	The flooding factor in kg / cum of protected area to be suitable for electrical fires and confirmed by the OEM in accordance with the standards				

	A detailed calculation for the various areas along with the fill densities, quantity of cylinders, length of the tubing etc. to be furnished.				
	The following shall be the cylinder particulars:				
	The cylinders sheet steel shall be of SS-316 MOC				
	Internally epoxy powder coating				
	Externally epoxy polyester powder coating				
	Fully confirms to EN and other international standards				
	Manufacturing certificates for hydrostatic, temperature cycling, dropping, vibration etc. to be furnished after carrying out the same.				
	Gas authorisation certificate to be received from the original gas supplier.				
	All cylinders of any capacity shall be filled to the maximum fill densities.				
	The cylinder filling will be witnessed by client.				
	The valves shall show open / close settings and valve closures as well as low gas pressure shall be annunciated through pressure switches with POTENTIAL FREE NC / NO contacts.				
	The MOC and approval certificate from the manufacturer of the fire trace tube to be furnished with the material being supplied.				
	A separate fire alarm panel is not required and the system should be able to give full annunications in the client's addressable fire alarm panel.				
a	**Areas catering to Fire Trace System**				
	INTERCOM EXCHANGE ROOM (2ND FLOOR)				
	NETWORK ROOM (2nd FLOOR)				
	MULTI CONFERENCE UNIT ROOM (2ND FLOOR)				
	SERVER ROOM (9th FLOOR)				
	ELECTRICAL ROOM (9th FLOOR)				
	SERVER ROOM (12th FLOOR)				
	ELECTRICAL ROOM (12th FLOOR)				
	SERVER ROOM (16th FLOOR)				
	ELECTRICAL ROOM (16th FLOOR)				
	ELECTRICAL SUBSTATION (UPPER BASEMENT)				
b	Suitable capacity cylinder, complete with discharge Assembly with automatic valve, gas fully filled with N2 super pressurisation as required, mounting bracket, End of Line adopter, low pressure switch, fixing stand, etc. complete. Supremex (Rotarex) / Firetrex				
1	2 kg cylinder	38	No.		
2	Fire Trace tubing complete with connectors, end plugs, mounting cleats etc. Supremex (Rotarex) / Firetrex	600	m		
	TOTAL AMOUNT (WITHOUT GST) OF FIRE TRACE SYSTEM				
4. TESTING OF EXISTING SYSTEM INTEGRATE TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS				**Installation Charges**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount (Rs.) without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
Cost of material and labour charges for following items:					
	Passive fire protection system for coating of the cables emanating from the electrical switchgear panels, transformers, etc. complete including all the above mentioned points in sl. No. 1, cleaning up the cables, informing the client to seal gland plate, compression glands etc. complete, providing cable coating for a minimum length of 1 m starting close to the panel. The coating thickness shall ensure a minimum fire rating of two hours. The coating shall not cause fungus growth or get washed off with water, get eaten by termites etc. The coating shall be UL listed / FM approved in all respects.				
	The coating shall also be applied over cable joints.				
	The coating shall be applied one meter length for every 7 m or part thereof of vertical shafts and once every 14 m of horizontal runs.				
	The coating shall be applied for one meter of both sides of through penetration fire stops				
	On cable trays etc. it shall be ensured that the bottom of the cables etc. are also fully coated and no portion is left exposed.				
1	The measurement for the cable coating will be done on sq.m basis. For all bunch of cables or individual cables coated, a measurement shall be taken by drawing a steel wire tight over the bunch of cables to verify the perimeter of the cable. This shall be multiplied by one meter lenght of the cable coating to determine the total coating area. The measurement sheet shall clearly indicate the panel designation, room / shaft / floor designation etc. in Passive Fire Protection System	100	sq.m		
	TOTAL AMOUNT (WITHOUT GST) OF TESTING OF EXISTING SYSTEM				
5. SCHEDULE FOR QUANTITY FOR BUY BACK				**BUY BACK VALUE (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount (Rs.)**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	The bidder is provided the brief particulars of existing materials at site. The successful bidder as part of his execution plan is expected to identify, inform the client, obtain the dismantling and commercial clearances, dismantle, pack, cleanup the area, etc. complete in all respects.				

	Any statutory, pollution control certificate etc. if required to be handed over to the client to be furnished by the successful bidder				
	Disposal of materials shall be done at suitable distance / location as authorised by client / statutory / governmental authorities				
1	Clean Agent Cylinders of 42 and 25 bar systems in as-is where-is uninstalled condition. The approximate quantity of the cylinders with capacity is as under:				
a	FM200, 42 bars, app. 68 l capacity:	10	lot		
	TOTAL OF BUYBACK (Minimum value is Rs 77,000/-)				
	SETION - 5 - FIRE DETECTION AND ALARM SYSTEM				
	PART-A				
Sr.No.	**System**	**Annexures**			**Total Amount (Rs.)**
1	FIRE ALARM SYSTEM	Annexure-I			
A	**SUB TOTAL OF THE ABOVE (WITHOUT GST)**				
2	MINUS - BUYBACK	Annexure-II			
B	**TOTAL (WITHOUT GST) SECTION -5**				
	1. SCHEDULE OF QUANTITY FOR FIRE ALARM SYSTEM			**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
Supply, Installation, Testing and Commissioning (SITC) of the following:					
	FAS PANEL				
1	Supply, Installation, Testing & Commissioning of 32-bit dual core microprocessor based 100% Hot Redundant Intelligent Addressable Fire Alarm Control panel with 14 loop with inbuilt Bluetooth, expandable upto 16 loops w/o changing the cabinet. The FACP should Have Capacity of Peer to Peer Networking of Panels, The control panel shall be Vds approved and as per EN-54 standard. The panel should be modular, decentralized, with 100% hot redundancy in cpu/master control unit, 100% hot redundancy in loop cards, relay and interface card by means of duplicated electronics means hardware redundancy with full functionality. The panel shall consisting with minimum 800 character LCD display with 10 configurable soft buttons and 10 configurable LED's. Panel should be able to record atleast minimum 65000 events history or more. Each loop should be capable to have at least 250 elements / devices out of which min. 200 nos. shall be detectors. The Panel Shall have on board TCP/IP Lan port to facilitate remote operation of the panel.The system should be Vds approved It is possible to Commissioning the System through LAN Network.	1	Set		
	INTELLIGENT ADDRESSABLE DETECTORS				
2	Signal initiating devices complete with back box, detector base, detector etc.complete as specified and as required taking into account the following. I) for Car park, Pantry, Kitchen, and high temp zones, heat detectors to be used. ii) for general office combination of photo electric and heat type detector to be used.				
a	Supply, Installation, Testing & Commissioning of Intelligent Addressable type multisensor detector with base, with Microprocessor inbuilt, for use as heat (Fixed + Rate of Rise or individual) or smoke or combined both with automatic electronic addressing, microprocessor type and must have integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each detector). The detector shall have IP 44 protection catagory & ambient temperature -20ºC to + 60ºC, the base shal have no electronics only dry contact terminals. The quoted item shall completely comply to the technical specification.Shall be Vds approved according to EN 54-5, 54-7, 54-17, 54-29	2,000	No.		
b	Supply, Installation, Testing & Commissioning of Intelligent Addressable type multisensor detector with base, with Microprocessor inbuilt, for use as heat (Fixed + Rate of Rise or individual) or smoke or combined both with automatic electronic addressing, microprocessor type and must have integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each detector). The detector shall have IP 44 protection catagory & ambient temperature -20ºC to + 60ºC, the base shal have no electronics only dry contact terminals. The quoted item shall completely comply to the technical specification.Shall be Vds approved according to EN 54-5, 54-7, 54-17, 54-29. **For Auditorium.**	30	No.		
c	Supply, Installation, Testing & Commissioning of Intelligent Addressable type heat detector with base, with Microprocessor inbuilt, for use as heat (Fixed + Rate of Rise or individual) or smoke or combined both with automatic electronic addressing, microprocessor type and must have integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each detector). The detector shall have IP 44 protection catagory & ambient temperature -20ºC to + 60ºC, the base shal have no electronics only dry contact terminals. The quoted item shall completely comply to the technical specification.Shall be Vds approved according to EN 54-5, 54-7, 54-17, 54-29	200	No.		

d	Supply, Installation, Testing & Commissioning of Addressable type multicriteria detector with an automatic detection of con-tamination. With the CUBUS levelling, a temperature-and CO gas-assisted smoke-evaluation, the smoke part is continually adapted to the environ-mental conditions. contains an alarm filter to reduce deceptive alarms, and continuous monitoring of all integrated sensors, which allow a multi-standard-use on three parallel channels (smoke, heat, CO) ac-cording to EN 54-5, 54-7, 54 - 26, 54-29 and 54-30.shall be Vds approved	30	No.		
3	**ANALOGUE ADDRESSABLE MODULES**				
a	Supply, Installation , Testing & Commissioning of Vds approved Analogue Addressable Input Module (for fire exit door panic bar alarm, fire pump monitoring) with IP66 casing containing 1 inputs for monitored quering of potential free contacts with in-built short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each monitor module), it must be VdS approved and as per EN-54 standard. The ambient temperature range shall be -20ºC to +60ºC.The quoted item shall completely comply to the technical specification.	150	Each		
b	Supply, Installation, Testing & Commissioning of Addressable loop powered flashing light for visual notification of a fire alarm in interior areas, should have inbuilt fault isolator. The operating Temprature should be -10ºC to + 55ºC, Luminous intensity: approx. 1 cd, IP 21 and shall be Vds approved	100	Each		
c	Analogue Addressable Fault isolator module, capacble of monitoring shorted loop circuit and automatically restore communications, when shorted conditions are corrected with plug in arrangement, LED status indication and other accessories, all complete as required, working on 19 - 24V DC. The module shall be UL Listed / FM approved.	100	Each		
d	Supply, Installation , Testing & Commissioning Addressable Loop Powered multi tone platform sounder with integrated short circuit isolator (in case short circuit isolator is not inbuilt, the price of this item shall be inclusive of an independent short-circuit isolator along with each loop powered sounder) & having operating temperature -10ºC to + 55ºC shall be Vds approved	200	Each		
	(Note : If these modules form part of the detector base, separate rates need not be quoted.**)**				
e	Supply, Installation, Testing & Commissioning of Single Action Manual Call Point. The Manual Call Point should be in a red plastic case, conforming to EN 54-11 (Type A) for manually triggering a fire alarm, suitable for use indoors. The alarm is triggered by smashing the glass panel, with the alarm remaining in alarm state until reset. The built-in LED indicates its triggered state. The detector can be installed on the same loop circuit as automatic detectors with integrated short circuit isolator in built. VdS approved	200	Each		
f	Fire Man Jack with Control Module.	20	Each		
g	Fireman Telephone Handset portable type.	6	No.		
h	Portable Handset Storage box with transferarent cover and lock and key arrangmenet.	2	No.		
j	24 zone Fireman telephone controller	1	No.		
4	**BEAM DETECTORS**				
a	Supply, Installation , Testing & Commissioning of Linear Smoke detector with module consists of a transmitter receiver and reflector which are mounted opposite each other at a distance of between 5 and 120 m.The module must be VDS approved.	4	Each		
5	**CONDUIT, CABLE AND TRUNKING**				
a	Wiring for signal initiating devices, control, monitor & fault isolator 2 Cx1 Sq.mm multi-stranded copper conductor, PVC insulated, twisted and shielded, armoured, outer sheath FRLS PVC / XLPE color Red color complete with glands, ferrules, pull wires, junction boxes, terminal strips etc. complete in all respects.	12,500	Rm.		
b	Trunking				
	Hot Dip GI raceway for signal cabling complete with: a) Openable Raceway as per the details and as specified and shown on drawings. b) All bends, T joints junction boxes etc. as specified and shown complete.				
c	100mm X 50mm Single Compartment Raceways.	10	Rm.		
d	200mm X 50mm Single Compartment Raceways	5	Rm.		
e	Cable Trays				
	Hot Dip Galvanised perforated cable trays with necessary frame, cover, hat clamp etc. complete				
f	200mm wide horizontal / vertical tier.	100	Rm.		
6	**EXTRAS**				

a	24 Volt 10 Amp, SMPS Grade Power supply with 12 V / 44 Ah Batteries 2 Nos and Integration terminal with FAS System along with Industrial grade cabinet with lock and key arrangement	2	Set		
b	Response Indicator.	100	No.		
c	Wall mounted Signage Board to display the location of Telephone Jack with 3Hours battery back up as per standards.	74	No.		
d	Supply of Floor Distribution box with Required floor loop, Power, Audio riser cable connector terminal with fusable link and lock and key arrangement.	25	Nos		
7	**GRAPHIC CONTROL STATION**				
	The Graphic **Central Control Stations** consisting of the following				
a	GUI workstation with following features: a. Core i7 latest Generation b. 16GM RAM c. 500GB Hardisk, 4 USB 2.0 Ports d. Dual head graphics card 512 MB of RAM (resolution at least 2,560 x 1,024) e. 10/100MBPS Network Adapter with TCP/IP Port, Mouse nd Keyboard f. 2 LCD Monitor at least 19" connected via VGA/ HDMI cable with 2,560 x 1,024 resolution g. Windows 11 latest installed and activated. h. Sound card and Speaker	1	No.		
b	42" color monitor flat screen LCD display as per specifications.	1	No.		
c	Laser jet printers will be selected as per configuration of the system.	1	No.		
d	Modular type GUI fire alarm management system to monitor & control the entire fire alarm panel network from a central location with necessary license.All messages & states of attached fire alarm control panels are displayed using a clear graphical user interface. All connected system & their cabling shall be constantly monitored. Software shall have minimum following features: Can be operated from one or more operator's desks Clear 2 monitor user interface with automatic changeover if a fault occurs Graphics can be imported from all current graphics and CAD programs Hierarchical password system with individual privilege and password allocation Detector information acquisition for automatic positioning and assigning of levels (auto-configuration) Tested and approved in accordance with OENORM F 3003/ Vds/EN54.				
e	GUI for upto 4500 Elements	1	Set		
8	MOTORISED DAMPER				
a	Motorised Fire damper of 1200 mm * 450 mm with actuator, UL listed / FM approved suited for a fire rating of minimum 2 hours which shall automatically close on being tripped by the relay contact from the fire alarm panel / manual release lever.	6	Set		
b	Motorised Damper Actuator UL Listed / FM Approved.	10	Nos		
	TOTAL AMOUNT (WITHOUT GST) OF FIRE ALARM SYSTEM				**0**

2. SCHEDULE FOR QUANTITY FOR BUY BACK					**BUY BACK VALUE (Rs.)**
Sr No.	**Item**	**Qty.**	**Unit**	**MODEL**	**Unit Rate**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
1	**Detector,MCP,Hooter, Fire Alram Panel, etc.. EST-3 Make.**				
a	Detector (Approximatly)	1200	Nos.	EST Make.	
b	MCP (Approximatly)	32	Nos.	EST Make.	
c	Hooter with Flasher (Approximatly)	69	Nos.	EST Make.	
d	Module (Approximatly)	75	Nos.	EST Make.	
e	Fire Alarm Control Panel	1	Nos.	EST- 3 Make.	
f	Repearter Panel	2	Nos.	EST Make.	
	TOTAL AMOUNT OF BUYBACK				

SUMMARY			
SECTION - 6 -FORCED AIR VENTILATION SYSTEM FOR LIFT LOBBIES, STAIRCASES AND BASEMENTS			
PART-A			
Sr.No.	**System**	**Annexures**	**Total Amount (Rs.)**

1	BASEMENT VENTILATION SYSTEM	Annexure-I			
2	STAIRCASE PRESSURIZATION SYSTEM	Annexure-II			
3	LIFT LOBBY PRESSURIZATION SYSTEM	Annexure-III			
4	DISMANTLE OF EXISTING SYSTEM (TO BE CARTED AWAY IMMEDIATELY)	Annexure-IV			
5	TESTING OF EXISTING SYSTEM INTEGRATE TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS	Annexure-V			
A	**TOTAL (WITHOUT GST) SECTION -6**				
6	NO BUYBACK				
B	**TOTAL (WITHOUT GST) SECTION -6**				
FOR BASEMENT VENTILATION SYSTEM				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
1	**SECTION I : Lower Basement**				
1	Supply , Installation, Testing & Commissioning (SITC) of smoke spill vane axial fans with integrated aerodynamic straightening vanes. Fan, casing, motor, shall be suitable for smoke exhaust application & thermally rated for 250ºC for 2 hours as per BS EN 12101-3. *Fan shall be AMCA certified for Air and Sound performance in accordance with AMCA 210 and AMCA 300. Base fan performance shall be at standard conditions (density 1.2 Kg/Cu.mt.) The fans and motors complete assembly dynamically trim-balanced to ISO1940 and AMCA 204/3 - G2.5 quality grade.* Motors shall be High Temperature resistance smoke venting type suitable for 415+10% volts, 50 cycles , 3 phase AC supply with IP 55 protection,static pressure shall be as indicated. Each fan shall be with TEFC squirrel cage induction motors, all fan shall be with integral long casing covering entire motor. Suitable spring isolators to provided along with the fans. Spring mount Isolater to have Efficiency of above 90%. All fans to have IE2 motors.				
a	CFM : 11750 CFM @ 25 mm wg	1	Nos		
	Mode :- Normal + Fire (Exhaust Air Fan)				
	RPM :-Below 1000				
	Noise Level @ 3 MTR :- Below 70 dB @ 3m				
b	CFM : 11750 CFM @ 25 mm wg	1	Nos		
	Mode :- Fire (Exhaust Air Fan)				
	RPM :- Below 1500				
	Noise Level @ 3 MTR :- Below 79 dB @ 3m				
c	CFM : 11750 CFM @ 25 mm wg	1	Nos		
	Mode :- (Fresh Air Fan)				
	RPM :- Below 1000				
	Noise Level @ 3 MTR :- Below 70 dB @ 3m				
2	**JET FAN FOR AIR MOVEMENT**				
a	Supply of Centrifugal backward curved Jet fans with bottom suction. Fan shall be AMCA/BS certified for Air & Sound performance. Fan shall be complete with GSS casing with two mounting brackets (220 GSM), Aluminium impeller, Class H high temperature rated smokespill motor certified for 250 Deg C for 2 Hrs - 415/3P/50Hz. Complete assembly shall be certified for 250 Deg C for 2 Hrs. fire rating as per BS EN 12101-3:2002 F200, F300 & F400, certified by a third party.The Locationing of the jet fans has to be done in such a way that the Air velocity at any point on the plane of 1m from the ground level should not be less than 0.25m/s during the normal mode.				
	These fans shall operate at low speed during Normal mode & at high speed during fire mode.	4	Nos		
	Quantity of jet fans to be confirmed by CFD Analysis.				
	Normal Mode : Flow Rate - 3650 CMH (4241 CMH)				
	Fire Mode : Flow Rate - 7250 CMH (7312 CMH)				
3	**SECTION II : Upper Basement**				
3	Supply , Installation, Testing & Commissioning (SITC) of smoke spill vane axial fans with integrated aerodynamic straightening vanes. Fan, casing, motor, shall be suitable for smoke exhaust application & thermally rated for 250ºC for 2 hours as per BS EN 12101-3. Fan shall be AMCA certified for Air and Sound performance in accordance with AMCA 210 and AMCA 300. Base fan performance shall be at standard conditions (density 1.2 Kg/Cu.mt.) The fans and motors complete assembly dynamically trim-balanced to ISO1940 and AMCA 204/3 - G2.5 quality grade. Motors shall be High Temperature resistance smoke venting type suitable for 415+10% volts, 50 cycles , 3 phase AC supply with IP 55 protection, static pressure shall be as indicated. Each fan shall be with TEFC squirrel cage induction motors, all fan shall be with integral long casing covering entire motor. Suitable spring isolators to provided along with the fans. Spring mount Isolater to have Efficiency of above 90%. All fans to have IE2 motors.				
a	CFM : 25500 CFM @ 20 mm wg	1	Nos		
	Mode :- Normal + Fire (Exhaust Air Fan)				
	RPM :-Below 1000				
	Noise Level @ 3 MTR :- Below 76 dB @ 3m				
b	CFM : 25500 CFM @ 20 mm wg	1	Nos		
	Mode :- Fire (Exhaust Air Fan)				

	RPM :- Below 1500				
	Noise Level @ 3 MTR :- Below 81 dB @ 3m				
c	CFM : 25500 CFM @ 40 mmWG	1	Nos		
	Mode :- (Fresh Air Fan)				
	RPM :- Below 1000				
	Noise Level @ 3 MTR :- Below 76 dB @ 3m				
4	**JET FAN FOR AIR MOVEMENT**				
a	Supply of Centrifugal backward curved Jet fans with bottom suction. Fan shall be AMCA/BS certified for Air & Sound performance. Fan shall be complete with GSS casing with two mounting brackets (220 GSM), Aluminium impeller, Class H high temperature rated smokespill motor certified for 250 Deg C for 2 Hrs - 415/3P/50Hz. Complete assembly shall be certified for 250 Deg C for 2 Hrs. fire rating as per BS EN 12101-3:2002 F200, F300 & F400, certified by a third party.The Locationing of the jet fans has to be done in such a way that the Air velocity at any point on the plane of 1m from the ground level should not be less than 0.25m/s during the normal mode.	8	Nos		
	These fans shall operate at low speed during Normal mode & at high speed during fire mode.				
	Quantity of jet fans to be confirmed by CFD Analysis.				
	Normal Mode : Flow Rate - 3650 CMH (4241 CMH)				
	Fire Mode : Flow Rate - 7250 CMH (7312 CMH)				
5	Supply , Installation, Testing & Commissioning (SITC) of MCC Panel with in built Digital Display PLC (programmable logic controller) fabricated out of 1.6 / 2 mm thick CRCA Sheet with powder coated painging with IP-54 Degree of protection. MPCB Feeders for fans, Normal mode operation fans with VFD and Bypass Starters for all fans for automatic operation of jet fans with incoming MCCB, voltmeter, ammetre, voltmeter and ammetre selector switch, CTs, indication lamps. Panel compatible with RS485. Panel to be integrated with fire alarm panel. Separate Panels for Lower & Upper Basements. Feeders as per specified basements.	2	No		
a	Panel For Lower Basement	1	No		
b	Panel for Upper Basement	1	No		
c	Integrated panel for both Basements to be connected at control room	1	No		
	Outgoing feeders - 2 nos for vent fans with VFD				
	Outgoing feeders - 2 nos for vent fans with VFD				
	Outgoing feeders - 2 nos for Fresh fans				
	Outgoing feeders - 12 nos + 4 SPARE three phase MCB for jet fans with power contactor, overload relay				
	PLC section complete with control transformer, push button, analogue to relay convertor / auto manual switch				
6	Supply , Installation, Testing & Commissioning (SITC) of power and control cabling (with necessary double compression glands) of 1.1 kV grade copper conductor armoured XLPE Insulated, PVC sheathed of following sizes. All cables FRLS				
a	Copper armoured cable-FRLS - 11,750CFM fan	400	mtr		
b	Copper armoured cable-FRLS - 11,750CFM fan	400	mtr		
c	Copper armoured cable-FRLS - 25,500CFM fan	400	mtr		
d	Copper armoured cable-FRLS - 25,500CFM fan	400	mtr		
e	Copper armoured cable-FRLS - Freshair fan	100	mtr		
f	Copper armoured cable-FRLS - Jet fans	1,800	mtr		
g	CO Sensor Cabling	600	mtr		
h	Control Cabling	200	mtr		
i	Cabling from Fire Panel to MCC logic control panel	100	mtr		
7	Remote ON-OFF (lockable) push button station in rain & weather proof enclosure	6	No		
8	Supply , Installation, Testing & Commissioning (SITC) of Carbon monoxide sensor with 4-20 mA / 0-10 V output with measuring range of 0-300 ppm with covering range of 7500 sqft. Power supply 15-30 V AC / DC. Sensor shall be suitable for modbus. Should include all required accessories.	12	Nos		
9	Supply , Installation, Testing & Commissioning (SITC) of GSS ducting of 120 GSM as per SMACNA standards				
a	22 G	200	sqm		
10	GSS Volume control damper - Manual of 16 G Make - Cosmos / Air products	10	sqm		
11	Supply , Installation, Testing & Commissioning (SITC) of following mentioned earthing conductors with GI clips on walls & ceiling. (Common for all ventilation systems)				
a	25 x 3 mm. GI strip	0	Mtr		
b	8 SWG Cu wire	0	Mtr		
c	14 SWG GI wire	3,400	Mtr		
12	Supplying MS Structure for Tube Axial fan and Floor Mounted Free standing Electrical MCC Panel	200	Kg		

	TOTAL AMOUNT (WITHOUT GST) OF BASEMENT VENTILATION SYSTEM				
OR STAIRCASE PRESSURIZATION SYSTEM				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
1	The scope includes Supply , Installation, Testing & Commissioning (SITC) of new systems, removal of old systems, completing the erection, testing and commissioning of the system and obtaining approval for the system from client, statutory authorities and insurance agency of client.				
	The scope includes comprehensive warranty of the system in full working condition for a period of one year from date of commissioning.				
	The particulars mentioned herein in this section are also applicable to other sections and systems as well. Any point specifically divergent shall be brought to notice during the tender stage itself.				
	PARTICULARS OF STAIRCASE PRESSURIZATION SYSTEM				
	The project requirement is for Vane Axial Fans				
	The fan to be supplied with all necessary accessories as mentioned in boq item				
	The motor shall be suitable for variable speed application				
	The motor shall be NEMA 4, IP 55 rated / 6 Pole / 415 V / 3 Ph. NEMA 4 is for indoor or outdoor use to provide a degree of protection to personnel against to access to hazardous parts. IE2 motor is an energy-efficient electric motor classified under the IEC (International Electrotechnical Commission) standards as "High Efficiency," You have to provide the motor which confirms to both the above two categories.				
	The motor shall be of Energy Efficient Type -EFF2 Standards				
	The motor for the fans shall be suitable for DOL starting.				
2	Supply , Installation, Testing & Commissioning (SITC) of Vane axial flow With TEFC motor. Casing shall be hot dipped galvanizing and impeller aluminium with all accessories - mounting feet, inlet flexible connection, inlet screen, back draft damper, outlet cone. Motor to be 6 Pole, energy efficient to IE2 Standards. Pressure relief damper if needed as per site condition.				
a	40000 CFM / 30 mm SP. Make - Kruger / Systemaire / Aerovient-Elta fans	2	Nos		
3	Supply , Installation, Testing & Commissioning (SITC) of power and control cabling (with necessary double compression glands) of 1.1 kV grade copper conductor armoured XLPE Insulated, PVC sheathed of following sizes Make - Polycab / Finolex/KEI				
a	Copper armoured cable -FRLS - Tube Axial fans	80	mtr		
b	Control Cabling	300	mtr		
4	Supply , Installation, Testing & Commissioning (SITC) GSS ducting of 120 GSM as per IS 655				
a	22 G	100	sqm		
b	GSS Duct dampers - Manual operated of 16 G. Make - Cosmos / Air products	6	sqm		
5	Supply , Installation, Testing & Commissioning (SITC) of Aluminium Grill with heavy duty damper	20	sqm		
6	Supply , Installation, Testing & Commissioning (SITC) of DP sensor with 4-20 mA / 0-10 V output with measuring range of 0-100 Pascal. Includes all required accessories Make - Honeywell / Siemens / Greystone	2	Nos		
7	Design, manufacture, supply, installation, testing and commissioning of the following cubicle type, dead front, sheet steel, wall mounted IP -55 control panels including anchoring into the wall, wiring, incoming, earthing & terminating into MCCB in each panel shall be provided by the electrical contractor. All outgoing shall be provided with Stop / Manual /Auto selector switch to facilitate operation through BAS. All starters shall be provided with potential free Contact for Connections to Building Automation System. The panel shall include the following components and accessories. Panel shall have provision to interlock with fire alarm panel for integration in case of alarm. (Compatible with fire detection system)Panel compatible with RS485. Panel shall included VFD for all fans. Make - VFD make - Danfoss / Honeywell / ABB / Fuji Electric. Panel to be integrated with fire alarm panel	1	Nos		
	Note : Consider without VFD panel (VFD not required)				
8	Remote ON-OFF (lockable) push button station in rain & weather proof enclosure	2	Nos		
9	Supplying MS Structure for Tube Axial fan and Floor Mounted Free standing Electrical MCC Panel	200	Kg		
	TOTAL AMOUNT (WITHOUT GST) OF STAIRCASE PRESSURIZATION SYSTEM				
	3. SCHEDULE OF QUANTITY FOR LIFT LOBBY PRESSURIZATION SYSTEM			**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**

1	The scope includes Supply , Installation, Testing & Commissioning (SITC) of new systems, removal of old systems, completing the erection, testing and commissioning of the system and obtaining approval for the system from client, statutory authorities and insurance agency of client.				
	The scope includes comprehensive warranty of the system in full working condition for a period of one year from date of commissioning.				
	The particulars mentioned herein in this section are also applicable to other sections and systems as well. Any point specifically divergent shall be brought to notice during the tender stage itself.				
PARTICULARS OF LIFT LOBBY PRESSURIZATION SYSTEM					
	The project requirement is for Vane Axial Fans				
	The fan to be supplied with all necessary accessories as mentioned in boq item				
	The motor shall be suitable for variable speed application				
	The motor shall be NEMA 4, IP 55 rated / 6 Pole / 415 V / 3 Ph. NEMA 4 is for indoor or outdoor use to provide a degree of protection to personnel against to access to hazardous parts. IE2 motor is an energy-efficient electric motor classified under the IEC (International Electrotechnical Commission) standards as "High Efficiency," You have to provide the motor which confirms to both the above two categories.				
	The motor shall be of Energy Efficient Type -EFF2 Standards				
	The motor for the fans shall be suitable for DOL starting.				
2	Supply , Installation, Testing & Commissioning (SITC) of Vane axial flow With TEFC motor. Casing shall be hot dipped galvanizing and impeller aluminium with all accessories - mounting feet, inlet flexible connection, inlet screen, back draft damper, outlet cone. Motor to be 6 Pole, energy efficient to EFF2 Standards and suitable for VFD Application				
a	56000 CFM / 25 mm SP Make - Kruger / Systemaire / Aerovient-Elta fans	1	Nos		
b	67000 CFM / 25 mm SP Make - Kruger / Systemaire / Aerovient - Elta fans	1	Nos		
3	Supply , Installation, Testing & Commissioning (SITC) of power and control cabling (with necessary double compression glands) of 1.1 kV grade copper conductor armoured XLPE Insulated, PVC sheathed of following sizes. All cables FRLS Make - Polycab / Finolex / KEI				
a	Copper armoured cable-FRLS - 56000 CFM	80	mtr		
a	Copper armoured cable-FRLS - 67000 CFM	80	mtr		
b	Control Cabling	300	mtr		
4	Supply , Installation, Testing & Commissioning (SITC) of DP sensor with 4-20 mA / 0-10 V output with measuring range of 0-100 Pascal. Includes all required acessories Make - Honeywell / Siemens / Greystone	2	Nos		
5	Supply , Installation, Testing & Commissioning (SITC) GSS ducting of 120 GSM as per SMACNA standards				
a	22 G	260	sqm		
b	20 G	200	sqm		
6	GSS Duct dampers - Manual operated of 16 G. Make - Cosmos / Air products	8	sqm		
7	Supply , Installation, Testing & Commissioning (SITC) of Aluminium Grill with heavy duty damper	25	sqm		
8	Design, manufacture, supply , Installation, Testing & Commissioning (SITC) of the following cubicle type, dead front, sheet steel, wall mounted IP -55 control panels including anchoring into the wall, wiring, incoming, earthing & terminating into MCCB in each panel shall be provided by the electrical contractor. All outgoing shall be provided with Stop / Manual /Auto selector switch to facilitate operation through BAS. All starters shall be provided with potential free Contact for Connections to Building Automation System. The panel shall include the following components and accessories. Panel shall have provision to interlock with fire alarm panel for integration in case of alarm. (Compatible with fire detection system)Panel compatible with RS485. Panel shall included VFD for all fans. Make - VFD make - Danfoss / Honeywell / ABB / Fuji Electric.	1	No		
	(Panel for both Fans)				
9	Remote ON-OFF (lockable) push button station in rain & weather proof enclosure	2	Nos		
10	Supplying MS Structure for Tube Axial fan and Floor Mounted Free standing Electrical MCC Panel	200	Kg		
	TOTAL AMOUNT (WITHOUT GST) OF LIFT LOBBY PRESSURIZATION SYSTEM				
4. DISMANTLE OF EXISTING SYSTEM (TO BE CARTED AWAY IMMEDIATELY)				**DISMANTLING**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**

1	Dismantling of existing ducts in Staircase Pressurisation System	100	sqm		
2	Dismantling and removal of existing fan and shifting to store- 12000 cfm capacity (9.3 kW) in Staircase Pressurisation System	2	No		
	TOTAL AMOUNT (WITHOUT GST) OF DISMANTLE OF EXISTING SYSTEM				
TO THE NEW SYSTEM FOR MAKING FUNCTIONAL BENEFITS				**Installation Charges**	
Sr No.	**Item**	**QTY.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Cost of material and labour charges for following items:				
1	Computational Fluid Dynamics (CFD) Analysis for AIR Flow and CO Simulation for both basements, Staircase and Lift Lobby.	1	Lot		
2	Computational Fluid Dynamics (CFD) Analysis for smoke density and visibility and temperature during fire condition for both Staircases and Lift Lobby.	1	Lot		
	TOTAL AMOUNT (WITHOUT GST) OF TESTING OF EXISTING SYSTEM				
	SECTION - 7 - PASSIVE FIRE PROTECTION SYSTEM FOR FLOOR CLOSING				
	PART-A				
Sr.No.	**System**	**Annexures**		**Total Amount (Rs.)**	
1	PASSIVE FIRE PROTECTION SYSTEM	Annexure-I			
	NO BUYBACK				
A	**TOTAL WITHOUT GST SECTION -7**				
FOR PASSIVE FIRE PROTECTION SYSTEM				**SUPPLY & INSTALLATION (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount without GST**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
	Passive fire protection complete with assessing of the systems to be provided for each area, discussing with client on the methodology planned, providing provisions for future provisions, cleaning up the cables, openings, cable trays etc., making proper the cavities perfect for installation of the passive fire protection systems, covering up the panel tops etc. so that passive fire protection material will not drip into such equipment etc.,furnishing detailed calculation sheets to estimate the quantity of the items to be utilised for various applications, installing proper mobile and fixed scaffolding so as to safely and properly access the areas, installation of warning signs of working near electrical equipment, at heights etc., demonstration to client first hand of the methodology of the system installation for various applications, training the client so that they would be able to carry out any rectification works in future, installation of signages about the passive fire protection system so that utility service providers are aware of the same, demonstration at site including the physical measurement of the materials installed, ensuring that the system provided will provide a minimum fire rating of 2 hours, furnishing of the material test certificates, etc. to prove compliance to the UL, FM, other International Standards to which the system has been certified, clean up the area after completion of work, providing to client suitable quantity of passive fire protection system as spares so that they can carry out rectification works in future, furnishing of manuals etc. complete in all respects.				
	All necessary safety equipment including safety shoes, gloves, safety mats etc. to be utilised while executing the passive fire protection system.				
	Wherein the successful bidder notices opening in gypsum boards, walls etc. otherwise which could reduce the fire rating of the hazard area, then the successful bidder shall inform the client to close such holes / openings completely.				
	The successful bidder prior to starting of the work shall advise the client to identify the cables ducts etc. and tag them suitably on both sides so that opening of such openings again for the purpose of identification will not be necessary.				
	PASSIVE FIRE PROTECTION IS RESTRICTED TO THE AREAS WHERE CLEAN AGENT FIRE PROTECTION SYSTEM IS PROVIDED PRESENTLY. FURTHER AREAS WILL BE DECIDED BY CUSTOMER DURING DETAILED ENGINEERING.				
1	**Passive fire protection system for sealing of ventilation ducts complete including all the above mentioned points in sl. No. 1, cleaning up the area around the ventilation ducts, providing pcc / rcc patchup work to reduce excess cavities presently at site, so that the clearance at each side is between 25 mm to 50 mm in accordance with the thickness of the sealant and accessories required to ensure a minimum fire rating of two hours, installing the proper thickness and layers of infill materials which shall be UL listed / FM approved, providing the flame sealant, providing the sealant identification template on wall etc. complete.**	25	sq.m		
	The passive fire protection system for ventilation ducts shall be primarily provided for ducts which pass into rooms protected with clean agent total flooding system, fire trace system and such ducts for areas where sprinkler system are not provided presently, for ducts passing through electrical shafts and such ducts mutually discussed and agreed upon with client.				

	For ducts passing through walls etc., for the purpose of measurement, each wall opening will be considered as a single unit and the contractor shall install the passive fire protection system on both sides complete.				
	Wherein the ducts are insulated, the additional infill and passive fire protection system shall be provided for the current insulation.				
	The unit of measurement shall be based on the perimeter / circumference of the metallic ducts installed at site.				
2	**Passive fire protection system for sealing of metallic piping complete including all the above mentioned points in sl. No. 1, cleaning up the area around the pipes, providing pcc / rcc patchup work to reduce excess cavities presently at site, so that the clearance at each side is between 25 mm to 50 mm in accordance with the thickness of the sealant and accessories required to ensure a minimum fire rating of two hours, installing the proper thickness and layers of infill materials which shall be UL listed / FM approved, providing the flame sealant, providing the sealant identification template on wall etc. complete.**	25	sq.m		
	The passive fire protection system for metallic piping shall be primarily provided for pipes which pass into rooms protected with clean agent total flooding system, fire trace system and such pipes for areas where sprinkler system are not provided presently and such pipes mutually discussed and agreed upon with client.				
	For pipes passing through walls etc., for the purpose of measurement, each wall opening will be considered as a single unit and the contractor shall install the passive fire protection system on both sides complete.				
	Wherein the pipes are insulated, the additional infill and passive fire protection system shall be provided for the current insulation.				
	The unit of measurement shall be based on the perimeter / circumference of the metallic pipes installed at site.				
3	**Passive fire protection system for sealing of non-metallic piping complete including all the above mentioned points in sl. No. 1, cleaning up the area around the pipes, providing pcc / rcc patchup work to reduce excess cavities presently at site, so that the clearance at each side is between 25 mm to 50 mm in accordance with the thickness of the sealant and accessories required to ensure a minimum fire rating of two hours, installing the proper thickness and layers of infill materials which shall be UL listed / FM approved, providing the flame sealant, providing the sealant identification template on wall etc. complete.**	25	sq.m		
	The passive fire protection system for non-metallic piping shall be primarily provided for pipes which pass into rooms protected with clean agent total flooding system, fire trace system and such pipes for areas where sprinkler system are not provided presently and such pipes mutually discussed and agreed upon with client.				
	For pipes passing through walls etc., for the purpose of measurement, each wall opening will be considered as a single unit and the contractor shall install the passive fire protection system on both sides complete.				
	Wherein the pipes are insulated, the additional infill and passive fire protection system shall be provided for the current insulation.				
	The unit of measurement shall be based on the perimeter / circumference of the non-metallic pipes installed at site.				
4	**Passive fire protection system consisting of through penetration fire stops of cables passing through the walls, floors, for coating of the cables emanating from the electrical switchgear panels, transformers, etc. complete including all the above mentioned points in sl. No. 1, cleaning up the cables, cable trays, informing the client to seal gland plate, compression glands etc. complete, covering the extra cavities of the holes with PCC / RCC, keeping only 25 mm to 50 mm gap consistent with the requirements of the UL / FM certification for the through penetration fire stops, providing the cable coating of necessary length to provide minimum 2 hour fire rating, provision of necessary hi-tress panels etc. to keep the infill and coating secure etc. complete.**	25	sq.m		
	The through penetration fire stops shall be primarily provided for cables which pass into rooms protected with clean agent total flooding system, fire trace system and such pipes for areas where sprinkler system are not provided presently and such areas mutually discussed and agreed upon with client.				
	The measurement for the through penetration fire stop will be done on sq.m basis of cable width and meximum height of the cables installed in the same. The measurement sheet shall clearly indicate the room / shaft / floor designation etc. through which the through-penetration fire stop passes.				
	TOTAL AMOUNT (WITHOUT GST) OF PASSIVE FIRE PROTECTION SYSTEM				
	SECTION - 8 - FIRE DOOR				
	PART-A				
Sr.No.	**System**	**Annexures**		**Total Amount (Rs.)**	
1	FIRE DOOR	Annexure-I			
A	**SUB TOTAL OF THE ABOVE (WITHOUT GST)**				
2	MINUS - BUYBACK				
B	**TOTAL (WITHOUT GST) SECTION -8**				
	1. SCHEDULE FOR QUANTITY FOR FIRE DOOR			**SUPPLY & INSTALLATION (Rs.)**	
Sr No	**Description**	**Qty**	**Unit**	**Unit Rate**	**Amount**

1	Supply of Single leaf Powder coated Fire Rated door according to Specification. The infill material is Rockwool with reinforcement at top & bottom.The door frame is made out of 1.6 mm thk PCGI sheet pressed to Double rebate(150x50). The shutter (1.2 mm thk) is to be fixed with frame with 4 Nos SS ball bearing for each door.				
A	965x2113	45	**No**		
B	1207x2132	1	**No**		
C	1192x2195	1	**No**		
D	1130x2150	1	**No**		
E	1065x2237	1	**No**		
	HARDWARE INCLUDED				
a	HINGES	4	NA		
b	D-HANDLE	1	NA		
c	DOOR CLOSER	1	NA		
d	D-HANDLE 250 MM HT ONE SIDE	1	NA		
e	TEAK WOOD PLY PUSH PLATE 300 MM HT	1	NA		
f	VIEW PANEL 200x300 MM HT SINGLE GLAZED FIRE RATED TOUGHENED GLASS	1	NA		
g	DROP SEAL	1	NA		
2	Supply of Double leaf Powder coated Fire Rated door according to Specification. The infill material is Rockwool with reinforcement at top & bottom.The door frame is made out of 1.6 mm thk PCGI sheet pressed to Double rebate(150x50). The shutter (1.2 mm thk) is to be fixed with frame with 4 Nos SS ball bearing for each door				
A	1834x2132	2	**No**		
B	1820x2115	1	**No**		
C	1450x2064	1	**No**		
D	1739x2053	1	**No**		
E	2045x1842	1	**No**		
F	2159x2493	1	**No**		
G	1856x2113	1	**No**		
H	1831x2195	2	**No**		
I	2180x1832	1	**No**		
J	1820x2032	3	**No**		
	HARDWARE INCLUDED				
a	HINGES	8	NA		
b	D-HANDLE	2	NA		
c	DOOR CLOSER	2	NA		
d	D-HANDLE 250 MM HT ONE SIDE	2	NA		
e	TEAK WOOD PLY PUSH PLATE 300 MM HT	2	NA		
f	VIEW PANEL 200x300 MM HT SINGLE GLAZED FIRE RATED TOUGHENED GLASS	2	NA		
g	DROP SEAL	1	NA		
3	INSTALLATION OF SINGLE LEAF FIRE DOOR	49	**No**		
4	INSTALLATION OF DOUBLE LEAF FIRE DOOR	14	**No**		
	KINDLY NOTE: Unloading, Lifting and shifting to site in client's scope. Local nuisances, if any, will be taken care of by client. Installation includes erection of doors, the cement filling required to strengthen doors will be in Client's scope. A-form can be provided by the fire fighting contractor.				
	TOTAL AMOUNT (WITHOUT GST) OF FIRE DOOR				
	2. SCHEDULE FOR QUANTITY FOR BUY BACK			**BUY BACK VALUE (Rs.)**	
Sr No.	**Item**	**Qty.**	**Unit**	**Unit Rate**	**Amount (Rs.)**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**
1	**Existing doors at staircase landings of all floors, Basements etc…**	50	Nos		
	TOTAL OF BUYBACK				
	SECTION - 9 - BUILDING MANAGEMNET SYSTEM (BMS)				
	PART-A				
Sr.No.	**System**	**Annexures**		**Total Amount (Rs.)**	
1	BUILDING MANAGEMENT SYSTEM - IOT	Annexure-I			
2	BUILDING MANAGEMENT SYSTEM - ONPREMISE	Annexure-II			
3	NO BUYBACK				
A	**TOTAL WITHOUT GST SECTION - 9**				
	1. SCHEDULE OF QUANTITY FOR BUILDING MANAGEMENT SYSTEM - IOT			**SUPPLY & INSTALLATION (Rs.)**	
S.No	**Description**	**Unit**	**Qty.**	**Unit Rate**	**Amount (without GST)**
A)	**Design, Supply, Installation, Testing , Commissioning & handing over of Building Automation System as follows:**				
1.0	**Cloud Sever form BMS software**	Set	1		

2.0	**BMS System Software** : Supply, Installation, Testing & Commissioning Cloud Deployed Front end platform with end to end encryption of data points. The package includes licenses, software and platform with in and having SaaS based operations. Future rront end user upgradation, software patches & security updates shall be on the go without any server disruption. Multiple Sites on single dashboard without any latency and simultaneously. Role base (R-Back) Access Control for dashboard users. Over the air On the Go licenses & database updates instantly using agile development methodology, Platfrom shall comprises of Building Portfolio.	Job	1		
3.0	**Third Party Integration:** Supply, Installation, Testing & Commissioning of CE Certified, Wi-Fi-BLE Enabled IOT Device with MQTT Operation Protocol, SSL/TLS Security with End to End data point encryptions, OCP-OVP-UVP-ESD Protections, 20VA Consumption, 24V AC/DC Supply, Compact Size 215mmx1125mmx62.5mm, Light Weight 300g, Wall & Panel mount two in one plate housing.	Lot	1		
3.01	Fire Alarm System on Modbus RTU or BACnet I/p				
3.02	Lifts on Modbus RS485				
4.0	Supply, Installation, Testing & Commissioning of CE Certified, Wi-Fi-BLE Enabled IOT Device with MQTT Operation Protocol, SSL/TLS Security with End to End data point encryptions, OCP-OVP-UVP-ESD Protections, 20VA Consumption, 24V AC/DC Supply, Compact Size 215mmx1125mmx62.5mm, Light Weight 300g, Wall & Panel mount two in one plate housing.				
4.01	Water Tanks				
4.02	Pumps				
5.0	L2/L3 network switches of suitable specifications to create the desired LAN for IP based DDCs. The specifications and number of the switches shall be calculated based on the design and DDC configuration. All the required accessories like racks,3 meter long optic fiber patch cord complete as required shall be included in this line item	Lot	1		
	Note: It may be noted that all hard point integration through DDC controllers & Soft integration through integrators will be terminated (minimum two ports) at the IT network switch in each building(Net working switch to be provided by IT vendor) which will be further configured and communicate with BMS system server through LAN. BMS vendor will coordinate with IT vendor for the above provision.				
B)	**Field Devices - MEP Works**				
	Supply, installation, testing, commissioning of necessary Input sensor transmitters/transducers comprising the following:				
1.0	Bi-Level Switches (Hi/Low)	No.	4		
C)	**Conduiting , Wiring and Cabling**				
1.0	**Supply, installation, testing and commissioning of following cables:**				
1.1	2 Core 1.0 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for signals	RM	500		
1.2	4 Core 1.0 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for signals	RM	0		
1.3	3 Core 1.5 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for Powering DDC, Actuators.	RM	250		
1.4	CAT 6 UTP Steel tape armoured networking cable with required accessories like patch panel, Factory crimp patchcords.	RM	305		
1.5	2 Core 1.5 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for integration of 3rd Party Devices	RM	250		
1.6	Supplying and laying of following sizes of Heavy Duty FRLS PVC conduit on surface/recess including cutting/filling chases along with conduit accessories etc. complete as required.				
a)	25 mm dia	RM	1000		
b)	20mm dia	RM	0		
1.7	25 mm Flexible FRLS PVC Conduit	RM	250		
1.8	1.6 mm thick GI raceway of the following sizes complete with angle iron supports/hanging arrangement etc. and raceway supports shall at every 1 meter.				
1.8.1	GI Raceway 300mm wide x 40mm high	RM	0		
1.8.2	GI Raceway 150mm wide x 40mm high	RM	50		
1.8.3	GI Raceway 100mm wide x 40mm high	RM	50		
TOTAL AMOUNT (WITHOUT GST) OF BUILDING MANAGEMENT SYSTEM (BMS) - IOT					
1. SCHEDULE OF QUANTITY FOR BUILDING MANAGEMENT SYSTEM - ONPREMISES				**SUPPLY & INSTALLATION (Rs.)**	
S.No	**Description**	**Unit**	**Qty.**	**Unit Rate**	**Amount (without GST)**
A)	**Design, Supply, Installation, Testing , Commissioning & handing over of Building Automation System as follows:**				

1.0	**BMS Computer System:** Pentium i7 Core with 3.4GHz minimum CPU speed, optical Mouse, 106 keys keyboard, 1Gbps Ethernet card/port ,minimum 4 no.USB connection & internal modem, Enhanced Graphics card 4GB. - Tower server grade i7 Processor (Latest Generation) - 16 GB RAM, 4 TB hard disc - 32" flat screen, 3840 x 2160 resolution (4K). - Windows 11 professional and shall have MS-Office including antivirus installed (Latest version). -1no. A4 size Coloured Laser Printer.	Set	1		
2.0	**BMS System Software** : Supply, Installation, Testing & Commissioning Cloud Deployed Front end platform with end to end encryption of data points. The package includes licenses, software and platform with in and having SaaS based operations. Future rront end user upgradation, software patches & security updates shall be on the go without any server disruption. Multiple Sites on single dashboard without any latency and simultaneously. Role base (R-Back) Access Control for dashboard users. Over the air On the Go licenses & database updates instantly using agile development methodology, Platfrom shall comprises of Building Portfolio.	Job	1		
3.0	**Third Party Integration:** Supply, Installation, Testing & Commissioning of CE Certified, Wi-Fi-BLE Enabled IOT Device with MQTT Operation Protocol, SSL/TLS Security with End to End data point encryptions, OCP-OVP-UVP-ESD Protections, 20VA Consumption, 24V AC/DC Supply, Compact Size 215mmx1125mmx62.5mm, Light Weight 300g, Wall & Panel mount two in one plate housing.				
3.01	Fire Alarm System on Modbus RTU or BACnet I/p				
3.02	Lifts on Modbus RS485				
3.03	PAS System	Lot	1		
3.04	ACS System				
3.05	GSS System				
4.0	Supply, Installation, Testing & Commissioning of CE Certified, Wi-Fi-BLE Enabled IOT Device with MQTT Operation Protocol, SSL/TLS Security with End to End data point encryptions, OCP-OVP-UVP-ESD Protections, 20VA Consumption, 24V AC/DC Supply, Compact Size 215mmx1125mmx62.5mm, Light Weight 300g, Wall & Panel mount two in one plate housing.				
4.01	Water Tanks				
4.02	Pumps				
4.03	Fans				
4.04	Fire doors				
5.0	L2/L3 network switches of suitable specifications to create the desired LAN for IP based DDCs. The specifications and number of the switches shall be calculated based on the design and DDC configuration. All the required accessories like racks,3 meter long optic fiber patch cord complete as required shall be included in this line item	Lot	1		
	Note: It may be noted that all hard point integration through DDC controllers & Soft integration through integrators will be terminated (minimum two ports) at the IT network switch in each building(Net working switch to be provided by IT vendor) which will be further configured and communicate with BMS system server through LAN. BMS vendor will coordinate with IT vendor for the above provision.				
B)	**Field Devices - MEP Works**				
	Supply, installation, testing, commissioning of necessary Input sensor transmitters/transducers comprising the following:				
1.0	Bi-Level Switches (Hi/Low)	No.	4		
C)	**Conduiting , Wiring and Cabling**				
1.0	**Supply, installation, testing and commissioning of following cables:**				
1.1	2 Core 1.0 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for signals	RM	2500		
1.2	4 Core 1.0 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for signals	RM	0		
1.3	3 Core 1.5 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for Powering DDC, Actuators.	RM	500		
1.4	CAT 6 UTP Steel tape armoured networking cable with required accessories like patch panel, Factory crimp patchcords.	RM	1250		
1.5	2 Core 1.5 Sqmm, unarmoured ATC conductor multistranded, twisted shielded cable for integration of 3rd Party Devices	RM	1500		
1.6	Supplying and laying of following sizes of Heavy Duty FRLS PVC conduit on surface/recess including cutting/filling chases along with conduit accessories etc. complete as required.				
a)	25 mm dia	RM	5000		
b)	20mm dia	RM	750		
1.7	25 mm Flexible FRLS PVC Conduit	RM	500		
1.8	1.6 mm thick GI raceway of the following sizes complete with angle iron supports/hanging arrangement etc. and raceway supports shall at every 1 meter.				
1.8.1	GI Raceway 300mm wide x 40mm high	RM	0		
1.8.2	GI Raceway 150mm wide x 40mm high	RM	100		
1.8.3	GI Raceway 100mm wide x 40mm high	RM	100		

	TOTAL AMOUNT (WITHOUT GST) OF BUILDING MANAGEMENT SYSTEM (BMS) - ONPREMISES				
SECTION - 10 - CIVIL WORKS					
PART-A					
Sr.No.	**System**	**Annexures**		**Total Amount (Rs.)**	
1	CIVIL WORKS	Annexure-I			
	NO BUYBACK				
A	**TOTAL WITHOUT GST SECTION - 10**				
QUANTITY FOR CIVIL WORKS				**SUPPLY & INSTALLATION (Rs.)**	
S.No	**Description**	**Unit**	**Qty.**	**Unit Rate**	**Amount (without GST)**
1	**FALSE CEILING**				
1.1	**Gypsum Board False Ceiling**				
	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval,				
	including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound, jointing tapes, finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the EIC/Architect but including the cost of painting with pop and punning. 10mm aluminum Shadow profiles to be provided on periphery for all areas having gypsum false ceiling as per approved sample, shade and make. Making of grooves in gypsum ceiling shall be included as per architect's instructions and approval. Rate shall be inclusive of vertical gypsum band of height 330mm and cove. Make: Knauf, Gyproc, Saint Gobain, USG				
1.1.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- (Part I)	SQM	18500		
1.2	**Mineral Fibre Board False Ceiling**				
	Providing and fixing mineral fibre false ceiling tiles at all heights of size 595X595 mm of approved texture, design and pattern. The tiles should have humidity resistance (RH) of 99%, Light Reflectance ≥ 85%, Thermal Conductivity k= 0.052-0.057 w/m K, Fire performance as per (BS 476 pt - 6 & 7) in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33mm thick (galvanised @120 gsm) comprising of main T runners of 15x32 mm of length 3000mm, cross T of size 15x32 mm of length 600mm to form grid module of size 600x600mm suspended from ceiling usinf galvanised mild steel item (galvanised @80gsm) 50mm long 8mm outer diameter M-6 dash fasteners, 6mm diameter fully threaded hanger rod up to 1000mm length and L-shape level adjuster of size 85x25x2mm, spaced at 1200mm center to center along with 'T'. The system should rest on periphery walls/partitions with the help of GI perimeter wall angle of size 24x24x3000 mm made of 0.40mm thick sheet, to be fixed to the wall with the help of plastic rawl plug at 450mm centre to center & 40mm long drywall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be pre-painted with polyester baked paint, for all heights including the cost of making openings for light fittings, grills, diffusers, cutouts and required finishing suitably fixed, all complete The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge. MAKE: Armstrong, Knauf, USG, Saint Gobain	SQM	2000		
	TOTAL AMOUNT (WITHOUT GST) OF CIVIL WORKS				