Hindustan Prefab Limited

Jangpura, New Delhi - 110014

Project: External Electrification work for College of Physiotherapy & College of Nursing in the Campus of University of Health Sciences at village Kutail, Karnal, Haryana.

NIT NO: HPL/PM(C)/TC/KRNL/2018-19/67 Dated: 05/11/2018

Financial Bid

Sr. No.	DSR 2016 Item no	Description	Unit	Total Qty	Rate	Amount
		SCHEDULE ITEMS				
1.0		Providing and fixing danger plate made of mild steel at least 2mm thick & viterous enameled white on both sides & with inscriptions in signal red colour on front side as read.				
	2.21	Medium voltage- Size 200 mm X 150 mm	Each	2		0.00
2.0	5.0	**E A R T H I N G**				
3.0	5.2	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	10		0.00
4.0	5.4	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	12		0.00
5.0	5.5	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. (but without charcoal/ coke and salt) as required.	Set	8		0.00
6.0	5.7	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	Metre	750		0.00
7.0	5.10	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	320		0.00
8.0	5.11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	720		0.00
9.0	5.12	Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.	Metre	100		0.00
10.0	7.0	**MV CABLE LAYING**				
11.0	7.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	7.1.2	Above 35 sq. mm and upto 95 sq. mm	Metre	90		0.00
12.0	7.5	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
a)	7.5.4	Above 185 sq. mm and upto 400 sq. mm	Metre	150		0.00
13.0	7.8	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
a)	7.8.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	1500		0.00
b)	7.8.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Metre	165		0.00
c)	7.8.3	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	Metre	500		0.00
d)	7.8.4	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Metre	40		0.00
b)	9	**MV CABLE JOINTING & END TERMINATION**				
16.0	9.1	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
a)	9.1.1	4 X 6 sq. mm	each	20		0.00
b)	9.1.32	4 X 10 sq. mm	each	24		0.00
c)	9.1.33	4X 16 sq. mm	each	16		0.00
d)	9.1.22	3½ X 50 sq. mm	each	2		0.00
e)	9.1.23	3½ X 70 sq. mm	each	2		0.00
f)	9.1.25	3½ X 120 sq. mm	each	6		0.00
g)	9.1.27	3½ X 185 sq. mm	each	2		0.00
h)	9.1.26	3 ½ X 150 sq mm	each	4		0.00
i)	9.1.29	3½ X 240 sq. mm	each	6		0.00
j)	9.1.30	3 ½ X 300 sq mm	each	10		0.00
k)	9.1.34	4 X 25 sq. mm	each	4		0.00
	14.0	**CIVIL ITEMS**				
20.0	14.1	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
a)	14.14.2	150 mm dia	metre	50		0.00
b)	14.14.4	300 mm dia	metre	80		0.00
		Total of Schedule items				**0.00**
		ELECTRICAL-NON SCHEDULE ITEMS				
21.0	**N.S-3**	**D.G. Set Work:**				
		HIGH SIDE DG SET WORKS:				
	1.0	Supply, instalation, testing & commisioning of following rating, 415 V, 3 Phase, 4-wire, 50 Hz at 0.8 p.f. silent type diesel generator set self excited, scereenn protected, self regulated, bruss less alternate, horizontal foot mounted in single /double bearing construction (specify one only) suitable for the following with acoustically treated cannopy suitable for AMF/Manual operation with **Radiator cooling**, alternator, of suitable rating 415 Volts at 1500 RPM, 3 phase, 50Hz AC supply with 0.80 lagging power factor at 40°C 50% RH & at 1000 Mtrs. MSL, 24 Volts batteries, charger with battery leads,one day fuel Tank(Capacity as per manufacturer standard),Residential silencer and AVM Pads, all accessories as specified in the specifications, including first fill of lube oil providing common base plate, anti vibration isolators, cable termination adopter box, drip trays, foundation bolts, glands, nuts etc. as required for a complete installation.				

		DG Sets shall include daily service floor mounted type fuel tank (990 liters/as per design) for each D.G. set. The day fuel tank shall be fabricated out of 2 mm thick MS sheets metal complete with drain valve, air vent and inlet &outlet contection and shall include the cost of removable cover with locking arrangement, the cost of painting, the cost of providing all the required appurtenances like inlet & outlet connection, float valves, drain connection, mechanical oil level indicator and low level/high level alarms and the cost of support arrangement etc. complete as per specification and as required. The Alternator overload capacity shall not be less than 110% of rated capacity for 1 hour in every continuous running of 12 hours. The DG Set shall be mounted on a fabricated rigid common base frame with anti-vibration mountings to provide at least 98% vibration isolation. The DG set shall include all accessories, fittings, instruments and standard tool kit complete as per specification and as required including control cabling.				
		DIESEL ENGINE				
		Commins Diesel engine current model developing 1180 BHP at 1500 RPM under NTP conditions, water cooled,four stroke,12 cylinder,electric start,conforming to BS:5514 capacity of 10% over loading for one hour in twelve hours duration having following tehnical specifications				
		ALTERNATOR				
		Synchronous alternator of STAMFORD make of 1010 kva rating suitable for continuous opration at 1500 RPM generating 415 volts at 0.8 p.f (lag) 50 Hz,3phase, 4 wire system. The alternator shall be brusless type, separatly excited (PGM)&self regulated through anAVR. the alternator will be suitable for climate and shall generally confirm to IS:4722 .the salient features of alternator are				
	a)	Radiator cooling system.				
	b)	Fly Wheel to suit flexible/rigid coupling with guard.				
	c)	Fly wheel housing complete with starter gear ring and coupling.				
	d)	Fuel hoses.				
	e)	Electronic Governor.				
	f)	Air Cleaner with Vacuum Indicator.				
	g)	Fuel and Lub Oil Filter.				
	h)	By pass filter				
	i)	Corrosion inhibitor coolant.				
	j)	Fuel Pump PT Type.				
	k)	Lub Oil Pump.				
	l)	Electric Starter 24 Volts DC.				
	m)	Battery Charging Alternator with Built-in-regulator - 24 Volts, 30 Amps. With MS battery stand complete with insulated mattings and instrument panel comprising of switch with key & battery charging voltmeter.				
	n)	Residential Silencer (as per latest CPCB norms including baffle plates and 75mm thick glass/mineral wool insulation complete with wire mesh chicken mesh and 26 gauge aluminium cladding from engine upto silencer, supporting arrangement complete as required). with dry exhaust manifold.				
	o)	i) Expansion below fabricated out of SS sheet.				
	p)	ii) Fuel pipe of required size from DG set flue outlet upto Silencer.				
	q)	Lube oil pressure gauge				
	r)	Water temperature gauge				
	s)	Safety control for low lube oil pressure				
	t)	Over speed and high cooling temperature with indication and tripping etc.				
	u)	Alternator insulation Class "H" suitable to withstand tropical conditions.				
	v)	Fabricated rigid common base frame with anti-vibration mountings.				
	w)	Vibration Isolator				
	x)	Adaptor box and extension of busbars for aluminium cable termination/bus duct insulation as required.				
	y)	Lub Oil Cooler.				
	z)	Flexible Pipe joints for Silencer.				
	za)	Anti Vibration Pads.				
	zb)	Droop setting for the synchronization.				
	zc)	Naturally aspirated turbocharger as per manufacturer's specifications.				
	zd)	suitable ACOUSTIC ENCLOSURE Rediator cooled diesel engine.				
		Note:- item rate shall be include 1st time filling of lube oil & Diesel/Petrol.				
		Rating of DG Sets as Follows :-				
	A)	**400 KVA**, DG Set	Set	1		0.00
	B)	**125 KVA**, DG Set	Set	1		0.00
	Note-	**NOC and necessary approval from concerned statuatory bodies electrical inspectorate and state electricity board for charging of 11/0.433 KV, 400 KVA out door type substation to be arranged by contractor no extra claim on this account is entertanable.**				
22.0	**NS - 4**	**M.V. SWITCH GEARS & DISTRIBUTION BOARDS**	.			
	1	**Main LT Panel (GR.FLOOR)**				
		Supply, installation testing and commissioning of cubical type Main LT panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 800 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		Transformer Incomers:				
		One No. 800A, 4-pole EDO ACB (50 KA) with microprocessor based O/L, S/C and E/F releases.				
		Metering, Indication & Protection:				
		Multifunction digital meter (consisting of Voltage, Current, Frequency, PF, kWh, kVA parameter) with RS-485 Port.				
		Sets of 800/5A, CL-1, 15VA CTs for measuring.				
		Sets of 800/5A, CL-5P 10, 15VA CTs for Protection.				

		Sets of phase indicating lamps with 2A control MCBs.				
		Sets of ON/OFF/Trip/Trip circuit healthy/ready to close lamps.				
		4W annunciator with Audio/Visual alarm and accept/test/ reset push button.				
		IDMTL relay Two O/C & One E E/F with 800/5A, CL-5P10, 15VA CTs.				
		800/5A, CL-1, 15VA CT for APFCR.				
		Restricted earth fault relay with 800/5A, CL-PS, CTs (3 Nos. to be mounted in panel and 1 No. to be supplied loose with panel).				
		Under voltage relay				
		Under frequency relay				
		Over frequency relay				
		Trip circuit supervision relay				
		Master trip lockout relay.				
		D.G. Incomers :One (1) Nos. 400 KVA D.G. set incomer consisting of :				
		One Nos. 630A, 4-pole EDO ACB With O/L, S/C and E/F releases.(36 kA)				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 600/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Reverse power relay.				
		Under voltage relay				
		Over voltage relay				
		Under frequency relay				
		Over frequency relay				
		Trip circuit supervision relay				
		Master trip lockout relay.				
		D.G. Incomer-2 : One (1) Nos. 125 KVA D.G. set incomer consisting of :				
		One Nos. 200A, 4-pole microprocessor based MCCB with O/L, S/C and E/F releases.(36KA)				
		One Nos. 200A, 4-pole Contactor				
		Metering and Indication for each D.G. Incomer:				
		Combined digital Ammeter/Voltmeter with inbuilt Selector Switch and 200/5A, CL-1, 15VA CTs and 2A control MCBs.				
		Sets of 200/5A, CL-1, 15VA CTs for measuring.				
		Sets of 200/5A, CL-5P 10, 15VA CTs for Protection.				
		Set of ON/OFF/Trip/Trip Circuit healthy/ready to close lamp.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Reverse power relay.				
		Under voltage relay				
		Over voltage relay				
		Under frequency relay				
		Over frequency relay				
		Trip circuit supervision relay				
		Master trip lockout relay.				
		Bus Coupler:				
		One Nos. 200A, 4-pole contactor				
		Phase indicating lamps with 2A control MCBs for Bus Section-1 & 2.				
		All incoming breakers and bus coupler shall be electrically interlocked, so that two supplies are not mixed up.				
		Busbar				
		Electrolytic high conductivity aluminium three phase and neutral busbars rated at1000 amps having a maximum current density of 0.8 amp per sq mm suitable to with stand symmetrical fault level of 35 MVA at 415 volts for section 1 while for section 800A B/B to be used. The neutral busbar is to be of 50% capacity.				
		Interlocking				
		Hardware using PLCs for Monitoring of all Electrical Software and for operations , controlling and interlocking Parameters of 2 Nos. DG set for load management & 1 no. Trf. with Window based software & Engineering & Software Development.Required Aux. Relays, Push Buttons & Indication lamps, 1KVA UPS for Black start & maintenance free Batteries, Power monitors, Programmable Logic controller, Annuncitor and status Fascia, MIMIC with LED circuit etc as required completing the system.				
		Outgoing feeders:				
		1 Nos.300A 4P Microprocessor Base MCCB(26-KA)				
		1 Nos.250A 4P Microprocessor Base MCCB(26-KA)				
		2 Nos. 200A 4P Microprocessor Base MCCB(26-KA)				
		3 Nos. 160A 4P Microprocessor Base MCCB(26-KA)				
		3 Nos. 125A 4P Thermal magnetic Base MCCB(26-KA)				
		6 Nos. 63A 4P Thermal magnetic Base MCCB(26-KA)				
		Main LT Panel described as above	Set	1		0.00
23.0	2.0	**AMF PANEL FOR 400 KVA DG SETS-**				
		SWITCHGEARS, Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 600/5A, CL-1, 10VA CTs and 2A control MCB.				
		4P Power Contactor ,600A, AC1 DUTY(LC1 FD1154)				
		Auxilary Contactor,230V AC				
		Auxilary Contactor with Timer,CAD32+LADT4				
		DG Selector Sw,2P-ON/OFF				
		Aux Relay				
		Indicating Light				
		3Phase Voltage Monitoring Relay VCT D2,2C/O ,415V AC				

		6A SP MCB,10KA				
		16A DP MCB,10KA				
		ON Delay Timer,Coil Voltage 230V AC,0-180SEC, Electronic				
		Auto Manual Selector Switch 3P,2W,6A				
		Push Button(Red),1NC				
		Push Button(Green),1NO				
		Automatic Batter Charger, I/P-230V AC, O/P-12VDC, 10A				
		Terminals				
		630A TP MCCB, 35KA with O/L,S/C Protection				
		PS-500 (DG Auto start/stop, Alt. Mtg., Protection and Engine Protection)				
		Relay Module with 2 relay,12v dc				
		Wire Harness,14C X 2.5 sq.mm, 0.5MTR				
		Power Cable(Flexible "CU") 95. sq.mm/P (3x2.2mtr.)				
		Power Cable(Flexible "CU") 50 sq.mm/N ((1x2.2 mtr.)				
		Crimping Type Copper Lugs(Ring Type) 95Sq.mm/ID-12.7				
		Crimping Type Copper Lugs(Ring Type) 50Sq.mm/ID-10.2				
		Cable Gland, 50mm				
		AMF PANEL FOR 400 KVA DG SETS DESCRIBED AS ABOVE	**Set**	**1**		0.00
24.0	3.0	**AMF PANEL FOR 125 KVA DG SET**				
		Supply, installation testing and commissioning of cubical type AMF panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 400 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		One Nos. 200A, 4-pole microprocessor based MCCBwith O/L, S/C and E/F releases.(36 KA)				
		SWITCHGEARS, Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 200/5A, CL-1, 10VA CTs and 2A control MCB.				
		4P Power Contactor ,200A, AC1 DUTY(LC1 FD1154)				
		Auxilary Contactor,230V AC				
		Auxilary Contactor with Timer,CAD32+LADT4				
		DG Selector Sw,2P-ON/OFF				
		Aux Relay				
		Indicating Light				
		3Phase Voltage Monitoring Relay VCT D2,2C/O ,415V AC				
		6A SP MCB,10KA				
		16A DP MCB,10KA				
		ON Delay Timer,Coil Voltage 230V AC,0-180SEC, Electronic				
		Auto Manual Selector Switch 3P,2W,6A				
		Push Button(Red),1NC				
		Push Button(Green),1NO				
		Automatic Batter Charger, I/P-230V AC, O/P-12VDC, 10A				
		Terminals				
		200A 4P MCCB, 35KA with O/L,S/C Protection				
		PS-500 (DG Auto start/stop, Alt. Mtg., Protection and Engine Protection)				
		Relay Module with 2 relay,12v dc				
		Wire Harness,14C X 2.5 sq.mm, 0.5MTR				
		Power Cable(Flexible "CU") 95. sq.mm/P (3x2.2mtr.)				
		Power Cable(Flexible "CU") 50 sq.mm/N ((1x2.2 mtr.)				
		Crimping Type Copper Lugs(Ring Type) 95Sq.mm/ID-12.7				
		Crimping Type Copper Lugs(Ring Type) 50Sq.mm/ID-10.2				
		Cable Gland, 50mm				
		AMF PANEL FOR 250 KVA DG SET DESCRIBED AS ABOVE	**Set**	**1**		0.00
25.0	**4**	**150 kVAR Capacitor Banks:(LT PANEL ROOM)**				
		(1x50 KVAR + 2 x 25kVAR + 1 x 20 kVAR + 2 x 10 kVAR + 2x5 KVAR)				
		Supply, installation testing and commissioning of cubical type Capacitor panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 300 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		400A TP Al. busbar suitable for receiving incoming cables/Bus duct				
		14 Step APFC Relay having feature of changing the sequence of operation with Auto/Manual selector switch.				
		Auto/Manual Indicating lamps.				

		Set of Phase indicating lamps with 2A control MCBs.				
		One No. Control Transformer 415/230V AC rating as required with 2A control MCBs for Metering and Control Circuit.				
		1 Sets of 50 kVAR each set having 63A, TP MCCB (15 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
		2 Sets of 25 kVAR each set having 63A, TP MCCB (15 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
		1 Sets of 20 kVAR each set having 63A, TP MCCB (15 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
		2 Sets of 10 kVAR each set having 16A, TP MCB (10 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
		2 Sets of 5 kVAR each set having 16A, TP MCB (10 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
		150 kVAR Capacitor Banks described as above	**Set**	**1**		0.00
26.0	**5**	**MDB Panel (GR.FLOOR)**				
		Supply, installation testing and commissioning of cubical type floor panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 250 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One (1) No. 200A,4P Microprocesor base MCCB (16kA)				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 200/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium TPN+L busbars rated at 300 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		(3) nos 63Amp 4P MCB, 10 KA.				
		(9) nos 40Amp 4P MCB, 10 KA.				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		MDB Panel described as above	**set**	1		0.00
27.0	**6**	**MDB Panel (1ST.FLOOR)**				
		Supply, installation testing and commissioning of cubical type floor panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 250 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One (1) No. 160A,4P Microprocesor base MCCB (16kA)				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium TPN+L busbars rated at 300 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		(3) nos 63Amp 4P MCB, 10 KA.				
		(5) nos 40Amp 4P MCB, 10 KA.				
		(4) nos32Amp 4P MCB, 10 KA.				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		MDB Panel described as above	**set**	1		0.00
28.0	**8**	**UPS Panel (2x100 KVA) 1ST.FLOOOR**				
		Supply, installation testing and commissioning of cubical type UPS panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 125 Amp capacity extensible type TPN copper bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				

		Comprising of the following:				
		Incomer:				
		Two (2) nos160A, 4P thermal magnetic based MCCB (16KA).				
		Two(2) nos160A, 4P Contactor				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 200/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
		Busbar				
		Electrolytic high conductivity Cu four pole busbars rated at 250 amps(after deration) having a maximum current density of 1.6 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing feeders:				
		(2) Nos. 63A 4P MCB (10-KA).				
		(2) Nos. 40A 4P MCB (10-KA).				
		(3) Nos. 32A 4P MCB (10-KA).				
		(6) Nos. 32A DP MCB (10-KA).				
		UPS Panel described as above	Set	1		0.00
29.0	**10**	**Lift Panel (TERRACE)**				
		Supply, installation testing and commissioning of cubical type Lift Machine room panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 100 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One (1) No. 63A, 4P MCCB (16kA).				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		Two (2) Nos. 40 Amp TPN RCBO, 10 KA.				
		One (1) No. 32 Amp TPN MCB, 10 KA.				
		One (1) No. 32 Amp DP MCB, 10 KA.				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		Fully automatic DOL starters (for 5 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (0-20A for 5 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		5 HP - 2 Nos. Starter				
		Spare N.O. - N.C. contacts for each starter - 3Set.				
		G.I. strip 25 x 3 mm throughout the length of MCC.				
		All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
		All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
		Lift Panel described as above	Set	1		0.00
30.0	11	**HVAC O/D PANEL-1(TERRACE)**				
		Supply, installation testing and commissioning of cubical type HVAC panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 300 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One(1) nos.160A, Microprocessor base MCCB (16KA).				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 300 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		(3) No. 60-100A, TP MPCB (100kA).				
		(6) No. 48-80A, TP MPCB (100kA)				

		(1) No. 60-100A, TP MPCB (100kA)**.For Spare only.**				
		(2) No. 48-80A, TP MPCB (100kA).**For Spare only.**				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		Fully automatic Star Delta starters (for 20 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (25-40A for 20 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Fully automatic Star Delta starters (for 10 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (13-18A for 10 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Fully automatic Star Delta starters (for 8 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (9-14A for 8 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Spare N.O. - N.C. contacts for each starter - 3Set.				
		G.I. strip 25 x 3 mm throughout the length of MCC.				
		All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
		All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
		HVAC O/D PANEL-1 described as above	Set	1		0.00
31.0	11	**HVAC O/D PANEL-2 (TERRACE)**				
		Supply, installation testing and commissioning of cubical type HVAC panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 300 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One(1) nos.250A, Microprocessor base MCCB (16KA).				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 250/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 300 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		(5) No. 60-100A, TP MPCB (100kA).				
		(4) No. 48-80A, TP MPCB (100kA)				
		(1) No. 60-100A, TP MPCB (100kA).**For Spare only.**				
		(2) No. 48-80A, TP MPCB (100kA).**For Spare only.**				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		Fully automatic Star Delta starters (for 20 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (25-40A for 20 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Fully automatic Star Delta starters (for 10 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (13-18A for 10 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Fully automatic Star Delta starters (for 8 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (9-14A for 8 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		Spare N.O. - N.C. contacts for each starter - 3Set.				
		G.I. strip 25 x 3 mm throughout the length of MCC.				
		All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
		All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
		HVAC O/D PANEL-2 described as above	Set	1		0.00
32.0	**14**	**Plumbing Panel (PUMP ROOM)**				

		Supply, installation testing and commissioning of cubical type Plumbing panel suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 100 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Incoming:				
		One (1) No. 63A, 4P MCCB (16kA).				
		Metering & Indication:				
		Combined Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		10 Nos. 2.4 - 4A TP MPCB .(100KA)				
		1 Nos. 6 -10 A TP MPCB .(100KA)				
		1 Nos. 2.4 - 4A TP MPCB .(100KA) **Only for spare**				
		1 Nos. 4 - 6.3 A TP MPCB .(100KA) **Only for spare**				
		1 Nos. 6 -10 A TP MPCB .(100KA).(100KA) **Only for spare**				
		The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
		Fully automatic DOL starters (for 2 H.P. to 7 H.P. motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (0-40A for 2 to 7 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
		3 HP -2 Nos.(Hydropenumatic pump) Starter				
		1.5 HP - 2 Nos.(Filter feed pump) Starter				
		2 HP -2 Nos.(Flushing over head tank pump) Starter				
		5 HP -1 Nos. Bore well Starter				
		2 HP -1 Nos. Irrigation pump Starter				
		2 HP -4 Nos. Sump pump Starter				
		Spare N.O. - N.C. contacts for each starter - 3Set.				
		G.I. strip 25 x 3 mm throughout the length of MCC.				
		All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
		All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
		Plumbing Panel described as above	Set	1		0.00
33.0	**15**	**External lighting Feeder piller**				
		Incoming:				
		Supply, installation testing and commissioning of cubical type Feeder Piller suitable for 415V,3 phase 4 wire 50 HZ AC supply system. Fabricated in compartmentalized (preferably) designed from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland, plates I/C cleaning and finishing complete with 9 tank process for powder coating in approved shade, having 100 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity DMC/SMC bus bars of high conductivity, DMC/SMC bus bars supports, with short circuit withstand capacity of 31MVA for 1 sec.,bottom base channel of MS section not less than 100mmx50mmx5mm thick, fabrication shall be done in transportable secitons, entire panel shall have a common copper earth bar of size 25mmx5mm at the rear with 2 nos. earth stud, solid connections from main bus bar to switch gear with required size of Al.bus bars and control wiring PVC insulated copper conductor S/C cable , cable alleys, cable gland plates in two half, i/c providing following switch gears:-				
		Two (2) No. 63A,4P MCCB (16kA) and ON/OFF indicating lamps.One from normal supply & one from solar system.				
		One (1) No. 63A,4P C.O.S.				
		One (1) No. 40A,MCCB (16kA)				
		One(1) No. 63A, Timer Switch automatic operation.				
		Metering & Indication:				
		Combined digital Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
		Sets of phase indicating lamp with 2A control MCBs.				
		Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
		Bus Bar:				
		Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
		Outgoing:				
		(8) nos 10 Amp SP MCB, 10 KA.				
		(1) nos 25 Amp SP MCB, 10 KA.				
		(2) nos 32 Amp SP MCB, 10 KA.				
		(1) nos 40 Amp TPN MCB, 10 KA.				
		External Lighting Feeder piller described as above	Set	1		0.00
34.0	**NS - 6**	**External Lighting:-**				

		Supply, instalation, Testing & commissioning of Octagonal G.I. poles with galvanised mounting bracket with required accesseries to accomodate street light fitting complete with (thikness of base plate should be as per relevent is code and manufactures tehnical specs), finial taper plug, bolts, nuts, inbuilt junction box within the pole for incoming and outgoing cables (size up to 2 C x 6 Sqmm) and a 10 amps SP MCB. **Bottom diameter-** 130 mm **Top diameter**- 70 mm **Nos of foundation bolts-** 04 **PCD of foundation Bolts-** 200x200 mm **Bolt diameter-** 16mm Rate shall included the cost of inbuilt junction box (weather proof), (6-32A) MCB to fitting with 2.5 sq mm copper wires (2 Nos. 2.5 Sq.mm copper wire for phase & 1 No. 1.5 Sq.mm copper wire for earthing) complete with base plate made from concrete civil foundation works . The pole shall be painted with final PU Paint as required.				
	i	9.0 m long pole single arm	Nos.	16		0.00
		Supply, Installation, testing & commissioning of the following street light/ area lighting fixture with lamps on pole including making proper connections and providing cement concrete pedestal/fixing MS angle frame work hard ware etc as per drawing as required.				
	ii	Post Top Gate 40W LED Light Stylish,robost and reliable with good light distribution, limited upward light component. connectors all duly wired , connection & wiring from junction box with 3# 2.5 sqmm copper wires with suitable accessories for mounting as req.	Nos.	29		0.00
	iii	P/F 8W Bollard led light complete with all accessories & connection etc. as req.	Nos.	12		0.00
	iv	P/F 6W Led Up Lighter completewith all accessories & connection etc. as req.	Nos.	4		0.00
	v	P/F 90W LED for 9.0 mtr pole with all accessories & connection etc. as req.	Nos.	16		0.00
	V	Supply & erection of 4.0 meter long Octagonal G.I. poles with galvanised mounting bracket with required accesseries to accomodate street light fitting complete with (thikness of base plate should be as per relevent is code and manufactures tehnical specs), finial taper plug, bolts, nuts, inbuilt junction box within the pole for incoming and outgoing cables (size up to 2 C x 6 Sqmm) and a 10 amps SP MCB. Excavation for foundation of pole and erecting it in cement concrete of (1:3:6), including supply of cement concrete material. Providing two or three numbers 38mm PVC Pipe for incoming and outgoing cables from cable laying depth to junction box. Painting the pole with two coats of red oxide and after ward two coats of aluminum paint. Supply & mounting the junction box on the pole at appropriate Height from the bottom as per direction of engineer In-charge, junction box should have connection strip with 2 pole 10A MCB 220 volt and arrangement for terminating incoming and outgoing three phases cable along with loop in and loop out arrangement.Suitable adopter for streetlight of post-top lantern type connecting the fixture by using 3 cores 2.5Sq. mm PVC flexible copper wires from junction box to fixture at pole top. Testing the connection and completion the installation with proper earthing arrangement as required.	Nos.	29		0.00
35.0	NS-8	**Supply of MV cable**				
		Supply, following sizes of PVC sheathed PVC/XLPE insulated Aluminium conductor/copper conductor power/ multicore control armoured cable of 1.1 KV grade.				
	i	3 ½ C - 300 sq mm Aluminium	Metre	200		0.00
	ii	3 ½ C - 240 sq mm Aluminium	Metre	150		0.00
	iii	3 ½ C - 185 sq mm Aluminium	Metre	140		0.00
	iv	3 ½ C - 150 sq mm Aluminium	Metre	135		0.00
	v	3 ½ C - 120 sq mm Aluminium	Metre	480		0.00
	vi	3 ½ C - 70 sq mm Aluminium	Metre	170		0.00
	vii	3 ½ C - 50 sq mm Aluminium	Metre	150		0.00
	viii	4C- 25 sq mm Aluminium	Metre	190		0.00
	ix	4C- 16 sq mm Aluminium	Metre	550		0.00
	x	4C- 10 sq mm Aluminium	Metre	510		0.00
	xi	4C- 6 sq mm Aluminium	Metre	750		0.00
36.0	NS-11	**Safety Equipments**				
	1	Providing and fixing NO SMOKING & DANGER ZONE signboards.Make : Minimax/ Supremex / Ceasefire	Nos.	2		0.00
	2	Providing and placing 4 no. fire bucket of 9.5 lit. capacity G.I bucket painted in post office red color with prior code of red oxide paint and written with white paint FIRE mounted on MS angle iron frame with basket of appropriate size and capacity i/c filling dry sand etc complete as required.Make : Minimax/ Supremex / Ceasefire	Set	6		0.00
	3	Providing and fixing ISI marked CO_2 4.5 Kg. Capacity Fire extinguisher..Make : Minimax/ Supremex / Ceasefire	Nos.	2		0.00
	4	Providing and fixing ISI marked Chemical foam type Fire extinguisher of 9 liters (trolley marker).Make : Minimax/ Supremex / Ceasefire	Nos.	2		0.00
	5	Providing and fixing ISI marked Dry chemical powder type Fire extinguisher (5 Kg.)Make : Minimax/ Supremex / Ceasefire	Nos.	2		0.00
	6	Supply and fixing of approved shock treatment chart in position & written in English and Hindi. The chart shall be framed using wooden frame with(5 mm thick glass as required approximate fronn area 1.2 sq mtre) as required.	Nos.	1		0.00
	7	**Insulating Mats**				
		Supply, installation, testing commissioning of Insulating Mats of size 1m x 2m x 2.5mmm for AC rms voltage grade up to 11 kV with dielectric strength of 45 kV of B Class, fire retarded complete in all respect.	Nos.	10		0.00
	8	Extinguishant:- Clean Agent 2KG FM200/HFC 227 (UL listed) Appearance/Colour: Colourless gas. Its Ozone Depletion Potential is 0. This gas has the flooding factor ie 0.56 kg /m3 Deep drawn and Argon welded with Radiography welding and reports, SS 304, Sheet metal thickness 1.4 MM, 100 % Hydraulic Pressure Tested. Cylinder should be Helium Leak tested to 10^-7 mbar l/s. Confirms to EN /PED standards. Can shall be manufactured as per IS:15683 and complete tests of the body as per IS 15683, shall be demonstrated. (Vibration, tapping, drop test, cyclic pressure test, temperature range test). Burst pressure shall be greater than 55 bar. OEM of the gas shall offer 20 years warranty against any legislative changes etc. Vendor to submit authorization letter from the OEM . OEM to confirm consignee in writing regarding warranty . Make : Minimax/ Supremex / Ceasefire	Nos	13		0.00

	9	Fire De Tec Heat Sensor tube for automatic fire suppression system made by special modified Polyamide (PA), Color Red, High grade HR quality, Inner diameter 4 mm, Outer Diameter 6 mm, Melting Point approx. 220 / 120 degrees Celsius respectively when heating up with 10 K/minute, Steady load tested upto max. 80°C. The lowest operating temperature is stipulated at minus 40°C. Service Pressure 15 Bar, Burst Pressure at 20ºC approx. 120 Bars. Tube shall be UL Listed and shall have passed the following tests 1. FM approvals 1 year leakage test 2. FM approvals and UL 2166 air oven aging test 3. according to FM approvals 30 days extreme temperature leakage test. 4. Corrosion salt spray test as per ASTM B 117 5. Design: Multi-Layer/single layer 6.Colour: RAL 3000 for red. 7.Length: 100m 8.Internal diameter: 4 mm +/ - 0, 1 mm 9.Outside diameter: 6 mm+/- 0,05 mm 10.Min. Bending radius 150 mm 11. Max. Working pressure 20 bar (at 20ºC) 12.Burst pressure 100 bar (at 20ºC) 13.Temperature range - 30ºC to + 100ºC 14.Permeability min.10 mb l/s (100% Helium) 15.Life Time: 5 years (under normal conditions) Make : Minimax/ Supremex / Ceasefire	Mtr	310		0.00
	10	End of line adapter: for pressure gauge fitting for automatic fire suppression tube used for fitting at the end of the tube for pressurizing and re pressurizing the tube. Fitting made by brass (plated / unplated), stainless steel, elastomeric sealing, copper nickel plated, temperature range -20ºC till + 60ºC, maximum working pressure 28 bars, made as per pressure equipment Directives. Make : Minimax/ Supremex / Ceasefire	Nos	13		0.00
	11	Pressure Switch to monitor pressure in the tube, Switch point 8 Bar, IP-65. CE approved to EN 10204 – 2.2 Make : Minimax/ Supremex / Ceasefire	Nos	13		0.00
	12	Control panel: with monitoring for ac power on, system on, system discharge, valve closed, valve open, pressure healthy, battery low by LED indicators and system Operation by led strobe light and buzzer. Power backup 6 volts 4.6 AH sealed maintenance free battery. 3 inputs for discharge, valve status and pressure switch. 3 outputs via potential free relay contact NO/NC/COM. 50db buzzer output. Panel Shall be powder coated Make : Minimax/ Supremex / Ceasefire	Nos	13		0.00
	13	S/I/T/C of clean agent 4kg fire extinguishers HFC 227ea or HFC236.Make : Minimax/ Supremex / Ceasefire	Nos	5		0.00
37.0	**NS-12**	**EARTHING STRIP/WIRES:**				
	1	**G.I. Earthing Strip/Wire:**				
		Supply, installation, testing and commissioning of following sizes of G.I. strip/wire clamped to walls, cable trays, bus ducts, cables in recess or surface etc for equipment/ System / Lightning protection earthing complete as required including inter connection between length at joints, all fixing accessories saddles, clamps etc. and other fixing hardware material as required for proper installation.				
	a)	50 x 6 mm strip	Metre	130		0.00
	2	**Copper Earthing Strip/Wires:**				
		Supply, installation, testing and commissioning of following sizes of copper strip/wire clamped to walls, cable trays, bus ducts, cables in recess or surface etc for equipment/ system earthing complete as required including inter connection between length at joints, all fixing accessories saddles, clamps etc. and other fixing hardware material as required for proper installation.				
	a)	50 x 6 mm strip	Metre	180		0.00
38.0		**FIRST AID BOX**				
		Supplying of the first aid box containing the items approved by Indian red Cross complete as required.	Set	2		0.00
		Total of Non Schedule items				**0.00**