

Construction of New Air traffic Control Tower (ATCT), Fire Station and Allied Facilities at Skardu International Airport, Skardu

Bill of Quantities

Bill No. 5 - Electrical Work

Abstract of Cost

Item No	Description	Quantity	Unit	Rate (USD)	Rate (Rs)	Amount (Rs)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = [(5)*280]+(6)]*(3)
E-0.1	Supply at site, installation, testing and commissioning of new step down Oil immerse, naturally cooled, step down 11000/400/230 Volts 50 Cycles, Comprising with high/low voltage compartments and controls Type A excluding cost of Pad Pad Mounted Oil Type Transformer :- 630 kVA Capacity 11KV / 415 Volt (Prime Rating) REF: Technical Specifications Section - 0510, Section - 0490	1.00	No.	Not Applicable		
E-0.2	Supply, Installation & Testing at site of water cooled NEW diesel generating. REF: Technical Specifications Section - 0490, Section - 0500			Not Applicable		
E-0.2-1	150 KVA Prime rating(as per SLD) REF: Technical Specifications Section - 0490	1.00	No.	[Up to 80% Allowed]		
E-0.2-2	300 KVA Prime rating(as per SLD) REF: Technical Specifications Section - 0490	1.00	No.	[Up to 80% Allowed]		
E-0.3	Supply at site installation, testing & commissioning of UPS. REF: Technical Specifications Section - 0490, Section - 0570					
E-0.3-1	UPS "5 KVA-Modular", (1-Phase-In; 1-Phase Out 220V) with 15-30 minutes back-up time with battery module cabinet & IPS Complete with all respect as per SLD. REF: Technical Specifications Section - 0490, Section - 0570	2.00	No.	Not Applicable		
E-0.3-2	UPS "3 KVA-Modular", (1-Phase-In; 1-Phase Out 220V) with 15-30 minutes back-up time with battery module cabinet & IPS Complete with all respect as per SLD. REF: Technical Specifications Section - 0490, Section - 0570	1.00	No.	Not Applicable		
E-1	Fabrication, supply at site, installation at designated location, testing and commissioning of Main Panel Board (MPB) REF: Technical Specifications Section - 0490, Section - 0530, Section - 0540					
E-1-1	Complete as per Single Line Diagram. REF: Technical Specifications Section - 0490	1.00	No.	Not Applicable		
	ACTIVE HARMONIC FILTERS (AHFs) REF: Technical Specifications Section - 0490, Section - 0530					
E-1-2	Supply, installation & connection of Active Harmonic Filters of medium voltage (11KV) with following function: Harmonic Reduction Voltage Stabilization Enhanced Equipment Life Efficiency Improvement Complete in all respect. REF: Technical Specifications Section - 0490, Section - 0530	1.00	No.	Not Applicable		
E-1-2-1	Circuit Point Wiring. REF: Technical Specifications Section - 0490, Section - 0600					
E-2.01	Supply and wiring of light circuit from DB to switchboard with 2x2.5 mm sq single core insulated 300/500 volt grade cables(P+N) and 2.5mm sq cable as circuit protective conductor (CPC) in & including PVC conduit installed/ recessed in walls / R.C.C. Slab, on ceiling or as required as per site conditions. REF: Technical Specifications Section - 0490, Section - 0530, Section - 0540, Section - 0620, Section - 0610, Section - 0600	10,000.00	Rft	Not Applicable		
E-2.02	Supply and wiring of circuit point wiring from switch board to switch board with 2x2.5 mm sq single core insulated 300/500 volt grade cables(P+N) and 2.5mm sq cable as circuit protective conductor (CPC) in & including PVC conduit installed/ recessed in walls / R.C.C. Slab, on ceiling or as required as per site conditions. (Loop Circuit) REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0600	6,000.00	Rft	Not Applicable		
E-2.03	Supply and installation of Switch Board with back box. REF: Technical Specifications Section - 0490, Section - 0600					
E-2.03-1	i) 3x3 back box with earthing point and switch board. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	20.00	Each	Not Applicable		
E-2.03-2	ii) 6x3 back box with earthing point and switch board. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	79.00	Each	Not Applicable		

E-2.04	Supply and wiring of first light / Exhaust fan point consisting of one point controlled by one switch with 2x1.5mm sq (P+N) PVC insulated 300/500 volt grade wire in and including PVC conduits recessed in walls/R.C.C. slab, on ceilings or as required including all conduit accessories junction boxes, pull boxes, pull wire, 1mm2 cable as CPC complete with 10 Amp. single way switch make as approved by consultant (annexure-A) installed on & including 16 SWG sheet steel boards duly powder coated paint with earth bolt recessed in wall/column complete in all respects as per drawing & specifications. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0560, Section - 0640, Section - 0600	210.00	Each	Not Applicable		
E-2.05	Providing, supplying, wiring, laying, pulling, testing and commissioning of loop circuit point wiring from switch board to switch board, comprising 2 Nos. x 2.5 mm ² single-core PVC insulated copper conductor cables, 300/500 V grade, for phase and neutral, along with 1 No. x 2.5 mm ² single-core PVC insulated copper conductor as Circuit Protective Conductor (CPC)/earth continuity conductor, drawn in approved PVC conduit installed concealed/recessed in walls, RCC slabs, ceilings or surface-mounted where required as per site conditions, including all required PVC conduits, bends, junction boxes, inspection/pull boxes, bushes, saddles, clamps, draw wires, accessories, ferruling, tagging, terminations at both ends, connection with switch boards/accessories, cutting, chasing, making good, testing of continuity, insulation resistance, polarity and earth continuity, complete with all labour, tools, consumables, incidental materials and ancillary works required for a complete, safe and operational loop circuit installation, as shown on drawings, as directed by the Engineer and in accordance with the Technical Specifications, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0600, Section - 0640	380.00	Each	Not Applicable		
E-2.06	Supply and wiring of light circuit directly controlled from MCB in DB wired with 2x2.5 mm sq single core insulated 300/500 volt grade cables(P+N) and 2.5mm sq cable as circuit protective conductor (CPC) in & including PVC conduit installed/ recessed in walls / R.C.C. Slab, on ceiling or as required as per site conditions. Complete with all conduit accessories junction boxes, pull boxes as required complete in all respects as per specifications and drawings. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0600, Section - 0640	50.00	Each	Not Applicable		
E-2.07	Providing, supplying, wiring, laying, pulling, testing and commissioning of point-to-point loop circuit wiring, comprising 2 Nos. x 2.5 mm ² single-core PVC insulated copper conductor cables, 300/500 V grade, for phase and neutral, along with 1 No. x 2.5 mm ² single-core PVC insulated copper conductor cable as Circuit Protective Conductor (CPC)/earth continuity conductor, drawn in approved PVC conduit installed concealed/recessed in walls, RCC slabs, ceilings or surface-mounted where required as per site conditions, including PVC conduits, bends, sleeves, junction boxes, pull boxes, inspection boxes, adaptable boxes, draw wires, bushes, saddles, clamps, supports, conduit accessories, ferruling, tagging, identification, terminations at both ends, connection with switch boards/accessories, cutting, chasing, making good of walls/slabs/ceilings, testing of continuity, insulation resistance, polarity and earth continuity, complete with all labour, tools, consumables, incidental materials and ancillary works required for a complete, safe and operational loop circuit installation, as shown on drawings, as directed by the Engineer and in accordance with the Technical Specifications, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0600, Section - 0640	65.00	Each	Not Applicable		
E-2.08	Supply and wiring of first 3 pin 5 Amps socket outlet point make as approved by consultant from MCB in DB, with single core 2x2.5 mm sq PVC insulated 300/500 volt grade cable in & including PVC conduit recessed in walls/R.C.C. slab, or on surface of ceiling including all conduits accessories, junction boxes, pull boxes etc. 2.5mm sq cable as CPC ; & including 16 SWG sheet steel board recessed in walls complete in all respects and as per specifications & drawings. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0610, Section - 0600, Section - 0640	3,500.00	Rft	Not Applicable		
E-2.09	Supply and wiring but outlet to outlet wiring of 5/10 Amps socket outlet. REF: Technical Specifications Section - 0490, Section - 0600	3,500.00	Rft	Not Applicable		
E-2.1	Supply & fixing of 5 Amp 3 Pin Socket 16 SWG sheet steel board recessed in walls complete in all respects and as per specifications & drawings. REF: Technical Specifications Section - 0490, Section - 0600	122.00	Each	Not Applicable		

E-2.11	Supply & wiring of first 15A power sockets outlet from MCB in DB, with 2 x 4 mm sq single core cables (P+N) and 2.5 mmsq as CPC from DB to point, Complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	4,500.00	Rft	Not Applicable		
E-2.12	Providing, supplying, wiring, laying, pulling, testing and commissioning of outlet-to-outlet wiring for 5/10 Amp socket outlet points, comprising approved PVC insulated copper conductor cables of required size as per drawings and load requirement, including phase, neutral and Circuit Protective Conductor (CPC)/earth continuity conductor, drawn in approved PVC conduit installed concealed/recessed in walls, RCC slabs, ceilings or surface-mounted where required as per site conditions, including PVC conduits, bends, sleeves, junction boxes, pull boxes, inspection boxes, adaptable boxes, draw wires, bushes, saddles, clamps, supports, conduit accessories, ferruling, tagging, identification, terminations at socket outlets/accessories, cutting, chasing, making good of walls/slabs/ceilings, testing of continuity, insulation resistance, polarity and earth continuity, complete with all labour, tools, consumables, incidental materials and ancillary works required for a complete, safe and operational socket outlet wiring installation, as shown on drawings, as directed by the Engineer and in accordance with the Technical Specifications, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	1,600.00	Rft	Not Applicable		
E-2.13	Supply & fixing of 15 Amp 3 Pin Power Socket 16 SWG sheet steel board recessed in walls complete in all respects and as per specifications & drawings. REF: Technical Specifications Section - 0490, Section - 0600	110.00	Each	Not Applicable		
E-2.14	Supply & wiring of first 13A power sockets outlet from MCB in DB, with 2 x 4 mm sq single core cables (P+N) and 2.5 mmsq as CPC from DB to point, Complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	4,000.00	Rft	Not Applicable		
E-2.15	Providing, supplying, wiring, laying, pulling, testing and commissioning of outlet-to-outlet wiring for 13 Amp power socket outlet circuit, comprising 2 Nos. x 2.5 mm ² single-core PVC insulated copper conductor cables for phase and neutral, along with 1 No. x 2.5 mm ² single-core PVC insulated copper conductor cable as Circuit Protective Conductor (CPC)/earth continuity conductor, drawn in approved PVC conduit installed concealed/recessed in walls, RCC slabs, ceilings or surface-mounted where required as per site conditions, including PVC conduits, bends, sleeves, junction boxes, pull boxes, inspection boxes, adaptable boxes, draw wires, bushes, saddles, clamps, supports, conduit accessories, ferruling, tagging, identification, terminations at outlet boxes/socket points, cutting, chasing, making good of walls/slabs/ceilings, testing of continuity, insulation resistance, polarity and earth continuity, complete with all labour, tools, consumables, incidental materials and ancillary works required for a complete, safe and operational 13 Amp power socket outlet wiring installation, as shown on drawings, as directed by the Engineer and in accordance with the Technical Specifications, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	3,500.00	Rft	Not Applicable		
E-2.16	Supply & fixing of 13 Amp 3 Pin Power Socket 16 SWG sheet steel board recessed in walls complete in all respects and as per specifications & drawings. REF: Technical Specifications Section - 0490, Section - 0600	173.00	Each	Not Applicable		
E-2.17	Supply & wiring IPS Single Phase of one No. 2x 6mm ² single core cables (P+N) from DB to the point and 4mm ² as CPC including cost of one no. 16 Amps Industrial Power Socket, recessed in walls /columns. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	2.00	Each	Not Applicable		
E-2.18	Supply & wiring IPS Three Phase of one No. 4x 6mm ² single core cables (P+N) from DB to the point and 2x4mm ² as CPC including cost of one no. 16 Amps Industrial Power Socket, recessed in walls /columns. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600	2.00	Each	Not Applicable		
E-2.19	Supply & installation of flexible connection between light point above false ceiling to light fitting in false ceiling with 3 core 23/.076 flexible cable in & including PVC flexible pipe, 15A PVC connector & pipe accessories etc as required. REF: Technical Specifications Section - 0490	600.00	Each	Not Applicable		

E-3.01	Supply at site, installation, testing and commissioning of PVC insulated, PVC sheathed, non-armoured copper conductor low tension power cable, 600/1000 V grade, of specified size/core configuration as mentioned in BOQ/drawings, laid in pre-installed cable tray, trench, conduit or approved route, including cable identification, end termination, cable lugs and connection at both ends, complete in all respects as per drawings, approved manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490					
E-3.01-1	i) 2 core 6mm.sq. REF: Technical Specifications Section - 0490	150.00	Rft	Not Applicable		
E-3.01-2	ii) 2 core 10mm.sq. REF: Technical Specifications Section - 0490	100.00	Rft	Not Applicable		
E-3.01A	Four Core Cable					
E-3.01A-1	i) 4 core 6mm.sq. REF: Technical Specifications Section - 0490	80.00	Rft	Not Applicable		
E-3.01A-2	ii) 4 core 10mm.sq. REF: Technical Specifications Section - 0490	200.00	Rft	Not Applicable		
E-3.01A-3	iii) 4 core 16mm.sq. REF: Technical Specifications Section - 0490	100.00	Rft	Not Applicable		
E-3.01A-4	iv) 4 core 25mm.sq. REF: Technical Specifications Section - 0490	150.00	Rft	Not Applicable		
E-3.01A-5	v) 4 core 95mm.sq. REF: Technical Specifications Section - 0490	0.00	Rft	Not Applicable		
E-3.01A-6	vi) 4 core 120mm.sq. REF: Technical Specifications Section - 0490	250.00	Rft	Not Applicable		
E-3.01A-7	vii) 4 core 150mm.sq. REF: Technical Specifications Section - 0490	0.00	Rft	Not Applicable		
E-3.01A-8	viii) 4 core 240mm.sq. REF: Technical Specifications Section - 0490	150.00	Rft	Not Applicable		
E-3.01A-9	ix) 4 core 300mm.sq. REF: Technical Specifications Section - 0490	200.00	Rft	Not Applicable		
E-3.02	Circuit Protective Conductor (CPC) REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600					
E-3.02-1	i) 1 core 4mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	310.00	Rft	Not Applicable		
E-3.02-2	iii) 1 core 6mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	500.00	Rft	Not Applicable		
E-3.02-3	iii) 1 core 10mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	200.00	Rft	Not Applicable		
E-3.02-4	iv) 1 core 16mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	300.00	Rft	Not Applicable		
E-3.02-5	v) 1 core 50mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	0.00	Rft	Not Applicable		
E-3.02-6	vi) 1 core 70mm sq. PVC insulated colour Green/Yellow. REF: Technical Specifications Section - 0490	1,200.00	Rft	Not Applicable		
E-3.03	Supply at site, installation, testing and commissioning of 20 mm dia rigid PVC conduit for electrical surface and concealed wiring installation, suitable for LV wiring containment, complete with matching PVC bends, tees, couplers, junction boxes, pull boxes, inspection boxes, saddles, clamps, supports, bushes and all required conduit accessories, fixed on surface or concealed/recessed in walls, RCC slabs, ceilings or floors as shown on drawings and as required at site, including alignment, continuity of conduit route and provision for cable pulling, complete in all respects as per drawings, approved material submittal and Technical Specifications.. REF: Technical Specifications Section - 0490, Section - 0610					
E-3.03-1	i) 1-1/2" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	300.00	Rft	Not Applicable		
E-3.03-2	ii) 2" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	400.00	Rft	Not Applicable		
E-3.03-3	iii) 3" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	150.00	Rft	Not Applicable		
E-3.03-4	iv) 4" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	100.00	Rft	Not Applicable		
E-3.04	Supply at site of 6" dia PVC heavy duty pipe make Shavyl, Plasco / Beta Pipes to be installed underground, including cost of excavation of trench 30" deep, including cost of all PVC pipe accessories like bends, sockets, laying of PVC pipe with 4" thick layer of sand beneath pipe, 4" thick layer of brick protection and sand tape above pipe, refilling of excavations with sweet earth, ramming, watering cost of labour, material, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0600, Section - 0100	50.00	Rft	Not Applicable		

E-3.05	Powder Coated Ceiling Suspended / Horizontal Cable Tray in Corridor. Fabrication, supply at site, installation, testing and commissioning of perforated M.S. cable tray with cover, suitable for LV power/control cable routing, complete with approved support arrangement and standard accessories, installed on wall, vertical shaft, ceiling/false ceiling or other approved route as shown on drawings, as directed by the Engineer and in accordance with Technical Specifications, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0640, Section - 0590					
E-3.05-1	6" X 4" Cable Tray 14 SWG & Cover 18 SWG. REF: Technical Specifications Section - 0490, Section - 0640, Section - 0590	650.00	Rft	Not Applicable		
E-3.05-2	12" X 4" Cable Tray 14 SWG & Cover 18 SWG. REF: Technical Specifications Section - 0490, Section - 0640, Section - 0590	700.00	Rft	Not Applicable		
E-3.05B	Providing, fixing and installation of Cable ladder of size 28" in width and made with 2"x2" L type angle iron duly galvanized or powder coated in desired colour as approved by the consultant. The space among ladder steps shall not be more than 12", Same as shown in drawings. REF: Technical Specifications Section - 0490, Section - 0640, Section - 0590	100.00	Rft	Not Applicable		
E-3.06	Excavation in ordinary soil up to 2400mm depth x 1800mm wide Trench . The work also includes the site preparation. Complete in all respects. REF: Technical Specifications Section - 0490, Section - 0100	70.00	Cubic meter	Not Applicable		
E-3.07	Making of RCC Manhole 2' x 2' (LW) 2.6' Depth make with 6 inch RCC Wall. heavy duty 2'-6" Square RCC cover, including Ground Excavation of Manholes as per Drawing & details. Complete in all respects. REF: Technical Specifications Section - 0490	10.00	Each	Not Applicable		
E-3.08	Supply at site, installation, testing and commissioning of XLPE insulated, aluminium tape screened, PVC/SWA/PVC armoured aluminium conductor HT power cable, 8.7/15 kV grade, 50 Hz, suitable for three-phase grounded system, laid in prepared trench, duct, conduit, cable tray or approved route as shown on drawings, including cable pulling, identification, end connections and testing, complete in all respects as per drawings, approved manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490					
E-3.08-1	i) 3 core 95mm sq. REF: Technical Specifications Section - 0490	3,280.00	Rft	Not Applicable		
E-3.08-2	ii) 3 core 95mm sq (HT Termination Kits by Raychem/Equivalent) REF: Technical Specifications Section - 0490	2.00	Job	Not Applicable		
E-4.01	Providing ,installation ,testing and commissioning of the following lighting fixture including all accessories like electronic ballast, drivey circuitry , lamps, mountings etc. Complete in all respects , make as approved by consultant. REF: Technical Specifications Section - 0490, Section - 0600					
E-4.01-1	Down lighter covered with glass with 12 Watt Down lamp. REF: Technical Specifications Section - 0490, Section - 0560	89.00	Each	Not Applicable		
E-4.01-2	Rope light with 5 Watt per Rft. REF: Technical Specifications Section - 0490, Section - 0560	200.00	Rft	Not Applicable		
E-4.01-3	Flexible Linear Light 8 Watt per Rft as per instruction of Engineer Incharge. REF: Technical Specifications Section - 0490, Section - 0560	100.00	Rft	Not Applicable		
E-4.01-4	Supply & Installation of 14 Watt Bulkhead Light. REF: Technical Specifications Section - 0490, Section - 0560	10.00	Each	Not Applicable		
E-4.01-5	Supply & Installation of 40 Watt 4 feet Tube Light. REF: Technical Specifications Section - 0490, Section - 0560	323.00	Each	Not Applicable		
E-4.01-6	Supply & Installation of 120 Watt 12 feet (4' with 3) Linear Light. REF: Technical Specifications Section - 0490, Section - 0560	48.00	Each	Not Applicable		
E-4.01-7	LED panel light 2'x2" with 40 Watt. REF: Technical Specifications Section - 0490, Section - 0560	64.00	Each	Not Applicable		
E-4.01-8	Supply & Installation of self contained Emergency light as approved by the electrical consultant. 2x7 Watt Fluorescent lamp NICAD batteries for 3 hours back up. REF: Technical Specifications Section - 0490, Section - 0560	35.00	Each	Not Applicable		
E-4.01-9	Supply & Installation of self contained exit light as approved by the electrical consultant. 9 Watt Fluorescent lamp NICAD batteries for 3 hours back up. REF: Technical Specifications Section - 0490, Section - 0560	23.00	Each	Not Applicable		
E-4.02	Supply and Installation of Hand dryer Mounted at surface of wall. (Make Siemens or approved brand) REF: Technical Specifications Section - 0490, Section - 0640	6.00	Each	Not Applicable		

E-4.03	Supply at site, installation, testing and commissioning of multimedia projector, Optoma X400Lve or approved equivalent, DLP type, minimum 4,000 ANSI lumens brightness, native XGA resolution 1024x768, contrast ratio not less than 25,000:1, with HDMI/VGA input connectivity, built-in speaker, power supply 100–240 V AC, suitable for meeting/training room presentation use, complete with EPIC gang controller or approved equivalent control switch, HDMI cable, VGA cable, power cable, ceiling/wall mounting bracket where required, connection, configuration, demonstration and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0640	2.00	Each	Not Applicable		
E-4.04	Supply and installation of LED Aviation Obstruction Light 30W. Complete with all respect. REF: Technical Specifications Section - 0490, Section - 0560, Section - 0770	10.00	Each	Not Applicable		
E-4.05	Supply at site, installation, testing and commissioning of LED linear profile light, 8 W per Rft, 220–240 V AC, 50 Hz, complete with aluminium profile/housing, opal/polycarbonate diffuser, LED strip/module, LED driver, end caps, connectors and mounting accessories, suitable for surface, recessed or suspended installation as shown on drawings, including electrical connection, alignment, operational testing and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0560	1,700.00	Rft	Not Applicable		
E-4.06	Supply at site, installation, testing and commissioning of LED up-down wall light, 12 W, IP65 rated, 220–240 V AC, 50 Hz, suitable for indoor/outdoor architectural lighting application, complete with die-cast aluminium or approved weather-resistant housing, LED module, diffuser/lens, integral or external LED driver, mounting plate/bracket, glands, connectors, wiring connection, fixing accessories, operational testing and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0560	73.00	Each	Not Applicable		
E-5.01	Supply & Laying of 1" dia PVC pipe to be laid under floor including floor cutting as required as per drawings & specifications for Computer, Tel, MATV, Networking, UPS, & Power Supply System. REF: Technical Specifications Section - 0490, Section - 0570, Section - 0610, Section - 0800	5,362.50	Rft	Not Applicable		
E-5.02	Supply & Installation of adjustable 12 SWG die cast aluminum 10"x10"x4" Floor boxes having base box of 16 SWG G.I. sheet with 3 sets of 15A PVC connectors, including floor cutting as required as per drawings for following outlets. REF: Technical Specifications Section - 0490					
E-5.02-1	2-13 Amp 3 pin socket outlets. REF: Technical Specifications Section - 0490, Section - 0600	6.00	Each	Not Applicable		
E-5.03	Supply & Installation of adjustable 12 SWG die cast aluminum 15"x15"x4" Tech boxes having base box of 16 SWG G.I. sheet with 3 sets of 15A PVC connectors, including floor cutting as required as per drawings for following outlets. REF: Technical Specifications Section - 0490					
E-5.03-1	2-13 Amp 3 pin socket outlets. REF: Technical Specifications Section - 0490, Section - 0600	62.00	Each	Not Applicable		
E-5.04	Supply and installation of RJ45 data outlet on single/double port faceplate to be installed on wall ,with necessary arrangements complete in all respect complete in all respect.(for Data) REF: Technical Specifications Section - 0490, Section - 0650	75.00	Each	Not Applicable		
E-5.05	Supply and installation of RJ11 Telephone outlet on single/double port faceplate to be installed on wall ,with necessary arrangements complete in all respect complete in all respect.(for Telephone) REF: Technical Specifications Section - 0490, Section - 0650	68.00	Each	Not Applicable		
E-5.06	Supply, Installation & connecting of 4 pair UTP CAT-6 cable from each Data point to Data junction box/patch panel for data system to be drawn in given prepaid PVC pipe complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0640	6,000.00	Rft	Not Applicable		
E-5.06A	Supply, Installation & connecting of 4 pair UTP CAT-6 cable from each telephone to telephone junction box for telephone system to be drawn in given prepaid PVC pipe complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0640	5,440.00	Rft	Not Applicable		
E-5.07	Supply and installation of single mode SFP module Baynet or equivalent including cost of all accessories and materials required. Complete in all respect. REF: Technical Specifications Section - 0490, Section - 0650	10.00	Each	Not Applicable		

E-5.08	Supply and wiring of 12C-9/125µm single mode fiber optical cable OS2 type, in and including cost of 1" dia PVC conduit including cost of all PVC conduit accessories, pull wires, PVC junction boxes, complete in all respect. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0640	1,200.00	Rft.	Not Applicable		
E-5.09	Supply and installation of 24 port rack mounted ODF including cost of all accessories and materials required. Complete in all respect. REF: Technical Specifications Section - 0490, Section - 0650	1.00	Each	Not Applicable		
E-5.10	Supply, Installation & Connecting up of Telephone cables 0.6mm solid conductor, polyethylene insulated, 2 insulated conductors twisted together and PVC sheathed of following pairs: REF: Technical Specifications Section - 0490					
E-5.10-1	i) 100 Pairs cable. REF: Technical Specifications Section - 0490	1,200.00	Rft	Not Applicable		
E-5.11	Supply at site, installation, testing and commissioning of telephone distribution board/cabinet, 100-pair capacity, suitable for termination of telephone points, complete with 5 Nos. 20-pair Krone/IDC termination strips, incoming/outgoing cable termination facility, labeling/numbering arrangement and required 1 m or 3m patch cords with one end RJ45 connector and other end IDC connector for connection between patch panel and Telephone DB, installed in IDF/MDF or approved location as shown on drawings, including termination, testing, identification and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0530, Section - 0540, Section - 0650					
E-5.11-1	i) Telephone DB (100 pair) REF: Technical Specifications Section - 0490	1.00	Each	Not Applicable		
E-5.12	Supply at site, installation, testing and commissioning of following Data Networking switch Layer-2 type for under mentioned nodes, consisting of following Data points to be terminated on modular patch panel, including cost of power bus bar, IDC connectors, all necessary accessories / materials, whether mentioned or not but are required for proper functioning shall be deemed to be included in the cost of this item, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0600, Section - 0650					
E-5.12-1	24 Port Data Networking switch Layer-2 POE type. REF: Technical Specifications Section - 0490, Section - 0600	4.00	Nos.	Not Applicable		
E-5.13	Supply, installation of Patch cords of following sizes: REF: Technical Specifications Section - 0490, Section - 0650					
E-5.13-1	1 Meter long. REF: Technical Specifications Section - 0490	50.00	Nos.	Not Applicable		
E-5.13-2	3 Meter Long. REF: Technical Specifications Section - 0490	25.00	Nos.	Not Applicable		
E-5.14	Supply & Installation & connecting of ceiling recessed wifi access point with Dual Band (2.4GHz or 5 GHz) upto Wifi 6 Supported capability and speeds up to 300 Mbps Wi-Fi Protected Access (WPA, WPA2) security and data encryption IPv6 with centralized controller , complete in all respects. REF: Technical Specifications Section - 0490	7.00	Each	Not Applicable		
E-5.15	Supply at site, installation, testing and commissioning of data cabinet make Imported/Equivalent made of M.S sheet, powder coated, having lockable glass door at front, 4 exhaust fans on top, suitable for above mentioned data switches, consisting of the ports to be terminated on modular data cabinet, including cost of all necessary accessories / materials for passive equipment. The data cabinet and all passive equipment shall be complete in all respects including cost of all necessary materials / accessories. Patch panel shall be installed after obtaining necessary permission from the computer specialist of the Client. REF: Technical Specifications Section - 0490, Section - 0560, Section - 0640, Section - 0600, Section - 0650					
E-5.15-1	Supply at site, installation, testing and commissioning of 12U data cabinet, imported or approved equivalent, 19-inch rack type, fabricated from M.S. sheet steel, powder-coated finish, complete with lockable front glass door, side panels, rack mounting rails, cable entry/exit provision, ventilation arrangement, earthing point, fixing hardware and all standard cabinet accessories, suitable for installation of data/ICT equipment, patch panels and network accessories, installed at location shown on drawings, including alignment, fixing, labeling, earthing continuity check and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490	4.00	Each	Not Applicable		

E-5.15-2	Supply at site, installation, testing and commissioning of 6U data cabinet, imported or approved equivalent, 19-inch rack type, fabricated from M.S. sheet steel, powder-coated finish, complete with lockable front glass door, side panels, rack mounting rails, cable entry/exit provision, ventilation arrangement, earthing point, fixing hardware and all standard cabinet accessories, suitable for installation of data/ICT equipment, patch panels and network accessories, installed at location shown on drawings, including alignment, fixing, labeling, earthing continuity check and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490	2.00	Each	Not Applicable		
E-5.15-3	Supply at site, installation, testing and commissioning of 42U floor-standing data cabinet, imported or approved equivalent, 19-inch rack type, fabricated from M.S. sheet steel with powder-coated finish, complete with lockable front glass door, rear/side panels, rack mounting rails, ventilation arrangement, cable entry/exit provision, earthing point, fixing/leveling hardware and standard cabinet accessories, suitable for installation of data/ICT equipment, switches, patch panels, fiber panels, cable managers and network accessories, installed at location shown on drawings, including alignment, fixing, labeling, earthing continuity check and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490	1.00	Each	Not Applicable		
E-5.16	Supply, installation, testing and commissioning of rack mounted Power Distribution Unit (PDU) of following sizes, to be installed on specified location as per advised by architect / engineer's incharge:-. REF: Technical Specifications Section - 0490					
E-5.16-1	Single Cord (1x10A/16A) PDU (1.5 kW) with minimum 10 extensions (meeting or exceeding relevant IEC/ANSI standard) REF: Technical Specifications Section - 0490	8.00	Nos	Not Applicable		
E-5.17	Supply & Installation of "IPTV points wiring 4 pair UTP CAT-6 with all accessories RJ45 single/double port faceplate make Orange / Clipsal/3M to be installed on wall ,with necessary arrangements.(for IPTV) in 1" dia PVC conduit for IPTV outlet board complete in all respect. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0800	18.00	Each	Not Applicable		
E-5.18	Supply at site, installation, testing and commissioning of Cat-6 patch panels (meeting or exceeding relevant ANSI/TIA standards),input / output RJ45 connectors suitable for Cat 6 cables patch guides along with cable managers for under mentioned nodes, including cost of power bus bar, IDC connectors, all necessary accessories / materials, whether mentioned or not but are required for proper functioning shall be deemed to be included in the cost of this item, complete in all respects make Baynet/or approved equivalent. Patch panel shall be installed after obtaining necessary permission from the computer specialist of the Client. REF: Technical Specifications Section - 0490, Section - 0650					
E-5.18-1	i) 24 Ports. REF: Technical Specifications Section - 0490	4.00	Each	Not Applicable		
	TELEPHONE EXCHANGE. REF: Technical Specifications Section - 0490, Section - 0650					
E-5.19	Supply at site, installation, testing and commissioning of electronic telephone exchange / EPABX / IP-PBX system, suitable for project voice communication network, comprising minimum 4 trunk lines and 100 extensions, expandable capacity, operator console, required interface cards/modules, power supply, system software/licenses, programming/configuration, patching and integration with telephone distribution board/structured cabling system, complete with testing, commissioning, demonstration and handing over, as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0650	1.00	Each	Not Applicable		
	Addressable FIRE ALARM SYSTEM. REF: Technical Specifications Section - 0490, Section - 0660					
E-6.01	Supply, installation and connecting of addressable manual call stations press glass type with test dey, suitable for surface or flush mounting make from any one of the manufacturers as specified in Annexure "A" complete in all respects and conforming to general specifications. REF: Technical Specifications Section - 0490, Section - 0660	17.00	Each	Not Applicable		
E-6.02	Supply, installation and connecting of electronic alarm sounders ,complete in all respects and conforming to general specifications. REF: Technical Specifications Section - 0490, Section - 0660	17.00	Each	Not Applicable		

E-6.03	Supply, installation and connecting of addressable optical smoke detectors, complete in all respects and conforming to general specifications. REF: Technical Specifications Section - 0490, Section - 0650, Section - 0660	111.00	Each	Not Applicable		
E-6.04	Same as above 6.03 but heat detector rate of temperature rise type ,complete in all respects. REF: Technical Specifications Section - 0490, Section - 0660	4.00	Each	Not Applicable		
E-6.05	Supply & installation of Media converter complete in all respect. REF: Technical Specifications Section - 0490, Section - 0660	2.00	Each	Not Applicable		
E-6.06	Supply, installation and connecting of addressable fire alarm of following mentioned loops. Short/open circuit indications LED display / power fault, loop isolated test, complete in all respects and conforming to general specifications FACP to be installed at appropriate place as mentioned in drawings. REF: Technical Specifications Section - 0490, Section - 0600, Section - 0660					
E-6.06-1	i) FACP 4 Loops. REF: Technical Specifications Section - 0490	1.00	Each	Not Applicable		
E-6.07	Supply and wiring of Smoke / Heat detector/electrostatic sounder and manual call point 30 min Fire Rated Fire Alarm (FA) 1x2 core (1.23mm2) cable in and excluding cost of 1" dia PVC conduit with all installing accessories, complete in all respect as per drawings and specification. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0660	7,152.00	Rft	Not Applicable		
E-6.08	Supply, installation of fire alarm junction boxes 16 SWG to be concealed in wall with 2 coats of anti rust paint, earthing terminal, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0660, Section - 0640					
E-6.08-1	i) Fire alarm junction boxes of appropriate size 4"x7"x4" deep. REF: Technical Specifications Section - 0490, Section - 0660, Section - 0640	2.00	Each	Not Applicable		
E-6.09	Supply at site of PVC conduit heavy duty, to be installed on RCC slabs, walls, floor or as required as per site conditions including cost of all PVC conduit accessories, steel pull wires, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610					
E-6.09-1	i) 1" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	7,152.00	Rft.	Not Applicable		
E-6.1	Programming, configuration, testing, commissioning and handing over of complete Intelligent Addressable Fire Alarm System with read-only status integration to Building Management System (BMS), including Fire Alarm Control Panel (FACP), addressable loops, detectors, manual call points, sounders/strobes, monitor/control modules, annunciation, alarm/trouble/supervisory signals and BMS interface points as per approved cause-and-effect matrix, drawings and system architecture, complete with functional testing, integrated system testing, alarm simulation, verification in the presence of Site Engineer/Engineer's Representative, operator training for Employer's staff and submission of commissioning records, complete in all respects as per Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0660, Section - 0880	1.00	Job	Not Applicable		
E-7.01	Wiring for each IP Based POE CCTV Cameras to be installed on walls / slabs or on false ceiling with cable CAT-6 UTP Cable cable in 1" dia PVC conduit (excluding cost of pipe), complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0670	11,400.00	Rft	Not Applicable		
E-7.02	Supply at site, installation, testing & commissioning of Full HD Indoor dome Type IP Based POE CCTV, Day and Night Type with minimum 4MP resolution pieces IR LED , Vandal proof Body, with at least 20-30 meters IR visibility, Indoor type , including mounting bracket, all fixing and mounting accessories, complete in all respects, including cost of all required accessories / materials. fixed lens. REF: Technical Specifications Section - 0490, Section - 0670	40.00	Each	Not Applicable		
E-7.03	Supply at site, installation, testing & commissioning of Full Outdoor (IP-65) IP Based POE CCTV, Day and Night Type with minimum 4MP resolution pieces IR LED , Vandal proof Body, with at least 20-30 meters IR visibility , including mounting bracket, all fixing and mounting accessories, complete in all respects, including cost of all required accessories / materials. REF: Technical Specifications Section - 0490, Section - 0670	32.00	Each	Not Applicable		

E-7.04	Supply at site, installation, testing & commissioning of Pan ,Tilt & Zoom 360 degree Full HD (16:9 1080p) Camera with minimum 4 MP resolution,32x Optical Zoom, 16x Digital Zoom, Day and Night Type, intelligent video analytics, including fixing and mounting accessories, complete in all respects, including cost of all required accessories / materials. REF: Technical Specifications Section - 0490, Section - 0650	4.00	Each	Not Applicable		
E-7.05	Supply at site, installation, testing & commissioning of Joystick, complete in all respects, including cost of all required accessories / materials. REF: Technical Specifications Section - 0490	1.00	Each	Not Applicable		
E-7.06	Supply at site, installation, testing & commissioning of 32 channel NVR with 512 MBPs network support,4K Video Out on HDMI,12 MP max camera support, Event Trigger (alarm input, video loss), Online 2x Gigabit Ethernet Network Facility,IP Filtering,GUI Interface, Built In Software including cost of 16 terabyte Hard Disk for 90 days recording, all necessary hardware and software accessories and materials, required for NVR, complete in all respects. REF: Technical Specifications Section - 0490	4.00	Each	Not Applicable		
E-7.07	Supply at site, installation, testing and commissioning of latest-generation ultra-slim desktop computer / CPU, HP, Dell, Lenovo or approved equivalent, comprising Intel Core i7 / Intel Core Ultra 7 processor, 14th Generation or latest equivalent, minimum 16GB DDR5 RAM, minimum 1TB NVMe SSD storage, integrated graphics, Gigabit Ethernet, Wi-Fi, Bluetooth, USB/HDMI/DisplayPort connectivity, genuine licensed Windows 11 Pro 64-bit operating system, keyboard, mouse, power cable and required accessories, including installation of operating system/drivers, initial configuration, performance testing, demonstration and handing over, complete in all respects as per approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490	1.00	Each	Not Applicable		
E-7.08	Supply at site, installation,tagging, connections, testing and commissioning of following Ports Data Networking POE switch Layer-2 type, consisting of following Data points to be terminated on modular patch panel, including cost of power bus bar, IDC connectors, all necessary accessories / materials, whether mentioned or not but are required for proper functioning shall be deemed to be included in the cost of this item, complete in all respects make Dlink/Huawei or approved equivalent. REF: Technical Specifications Section - 0490, Section - 0600, Section - 0650, Section - 0670					
E-7.08-1	16 Port Data Networking POE switch Layer-2 type. REF: Technical Specifications Section - 0490, Section - 0600, Section - 0670	0.00	Nos.	Not Applicable		
E-7.08-2	24 Port Data Networking POE switch Layer-2 type. REF: Technical Specifications Section - 0490, Section - 0600, Section - 0670	4.00	Nos.	Not Applicable		
E-7.09	Supply at site, installation, tagging and connections of following port Data Patch panels, installed in Data Rack or as per site. Including cost of all accessories and materials required. Complete in all respect. REF: Technical Specifications Section - 0490, Section - 0650					
E-7.09-1	16 Port Data Patch panels. REF: Technical Specifications Section - 0490, Section - 0650	0.00	Nos.	Not Applicable		
E-7.09-2	24 Port Data Patch panels. REF: Technical Specifications Section - 0490, Section - 0650	4.00	Nos.	Not Applicable		
E-7.1	Supply, installation of Patch cords of following sizes: REF: Technical Specifications Section - 0490, Section - 0650					
E-7.1-1	1 Meter long. REF: Technical Specifications Section - 0490	50.00	Nos.	Not Applicable		
E-7.1-2	3 Meter Long. REF: Technical Specifications Section - 0490	25.00	Nos.	Not Applicable		
E-7.11	Supply at site, installation, testing & commissioning of coloured CCTV monitor 4K LED 43", including cost of all necessary accessories and materials (like bracket and mounting arrangements), Including cost of 2 HDMI Cable 4K, complete in all respect. REF: Technical Specifications Section - 0490, Section - 0670	3.00	Each	Not Applicable		
E-7.12	if required, for the integration with existing system. Supply at site, installation, testing & commissioning of 256 channel decoder for integration with existing CCTV System , including cost of all necessary accessories and materials (like bracket and mounting arrangements), complete in all respect. REF: Technical Specifications Section - 0490, Section - 0670	1.00	Each	Not Applicable		
E-7.13	Supply and fabrication of close circuit junction boxes 16 SWG to be concealed in wall with 2 coats of anti rust paint, earthing terminal, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0600, Section - 0670, Section - 0640					

E-7.13-1	i) Junction boxes of appropriate size 4"x7". REF: Technical Specifications Section - 0490, Section - 0640	2.00	Each	Not Applicable		
E-7.14	Supply at site of PVC conduit heavy duty to be installed on RCC slabs, walls, floor or as required as per site conditions including cost of all PVC conduit accessories, steel pull wires, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610					
E-7.14-1	i) 1" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	11,400.00	Rft.	Not Applicable		
E-7.15	Programming, configuration, testing, commissioning, integration and handing over of complete IP CCTV / Video Surveillance System with Video Management System (VMS), Network Video Recording / Network Attached Storage system and BMS monitoring interface, including configuration of IP cameras, recording schedules, camera naming/location tagging, user access levels, live view, playback, video analytics, alarm/event settings, storage verification, time synchronization, network connectivity and BMS status/alarm interface points, as applicable, complete with integrated system testing in the presence of Site Engineer/Engineer's Representative, operator training for Employer's staff and submission of commissioning/test records, complete in all respects as per drawings, approved system architecture and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0670, Section - 0880	1.00	Job	Not Applicable		
E-8.01	Supply at site, installation and commissioning of speakers wiring, to be wired with PVC insulated, PVC sheathed twin core 2x1.23mm sq 300/500 Volt. Grade, in and Excluding the cost of 1" dia heavy duty PVC conduit, installed on walls with all necessary fixing accessories as required as per site condition, all PVC conduit accessories, pull boxes, steel pull wires, complete in all respects. Wiring to be done considering each floor a separate zone. REF: Technical Specifications Section - 0490, Section - 0610	13.00	Nos	Not Applicable		
E-8.02	Supply at site, installation and commissioning of 15 watts wall speaker ,including cost of all necessary accessories and materials, complete in all respects. recessed/surface mounted Speakers of specified capacity housed in metallic enclosure with built in 70v/100v transformer , aluminium grill, SPL (Sound Pressure Level) (1W / 1M)= 92dB max 99dB, frequency response 130-13 Khz, EN-54 compliant, Including cost of all accessories and materials, complete in all respect. REF: Technical Specifications Section - 0780, Section - 0490	13.00	Nos	Not Applicable		
E-8.03	Supply at site, installation and commissioning of adjustable bidirectional ,low distortion microphone with suitable frequency response, complete in all respects. REF: Technical Specifications Section - 0490	2.00	Nos	Not Applicable		
E-8.04	Supply at site, installation, testing and commissioning of 240 Watt integrated power Amplifier, including cost of all necessary accessories / materials whether mentioned not shall be deemed to be included in the cost of item, complete in all respects. REF: Technical Specifications Section - 0490	1.00	Nos	Not Applicable		
E-8.05	Supply at site, installation, testing and commissioning of 60 Watt integrated power Amplifier, including cost of all necessary accessories / materials whether mentioned not shall be deemed to be included in the cost of item, complete in all respects. REF: Technical Specifications Section - 0490	1.00	Nos	Not Applicable		
E-8.06	Supply at site, installation, testing and commissioning of professional power mixer / PA audio integration mixer for integration of the proposed Voice Alarm and Public Address System with existing PA system / other building PA systems, rack-mounted or approved type, 230V AC, 50 Hz, suitable for 100 V line / PA audio interface as required, with minimum microphone/line inputs, auxiliary input/output, master volume control, tone control, balanced/unbalanced audio output, signal interface and required integration ports/modules as per approved system architecture, complete with HDMI/audio/control cables where applicable, connectors, patch cords, power cable, mounting accessories, configuration, functional testing, integration testing and handing over, complete in all respects as per drawings, approved material submittal, manufacturer's recommendations and Technical Specifications. REF: Technical Specifications Section - 0490, Section - 0780	1.00	Nos	Not Applicable		
E-8.07	Supply at site of PVC conduit heavy duty, to be installed on RCC slabs, walls, floor or as required as per site conditions including cost of all PVC conduit accessories, steel pull wires, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610					
E-8.07-1	i) 1" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	1,300.00	Rft.	Not Applicable		

E-9.01	Supply and installation of 99.97% electrolytic copper strip but dia 2x(5.7 x 8mm) or as approved by consultant) copper strip to be installed on columns as "DOWN CONDUCTORS" with saddles from lightning arrestors to earth electrodes including providing test point in each down conductor. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0630	1,000.00	Rft	Not Applicable		
E-9.02	Providing and installation of Earthing Veractor Cone / Spike Size 2" thick, 12" long as shown in drawings or ¾" dia & 10 ft long copper rod as earth electrode 100 ft or upto the water level, below ground level including cost of boring and lowering the rod (100ft / upto the water level) down, complete with clamp and 2x70mm2 stranded copper conductor from rod to ground surface in 2" dia G.I. pipe (EL Class) with watering cap, Manhole with cover as per detail shown in drawings. all earth work should be done according to the advise of electrical consultant. REF: Technical Specifications Section - 0490, Section - 0620	3.00	Each	Not Applicable		
E-9.03	Providing & Fixing of one complete set of "LAS Emission Steamer" Earth pit as shown in drawings and as per the instruction of engineers incharge. REF: Technical Specifications Section - 0490, Section - 0630	3.00	Nos	Not Applicable		
E-9.04	Supply, design, installation, testing and commissioning of Special Lightning Air Terminal System, Controlled Early Streamer Emission (CESE) type, Prevelectron 3rd Generation or approved equivalent, suitable for integration with the conventional lightning protection system for protection of rooftop equipment and building structures, complete with air terminal, mounting arrangement, down conductor interface, testing arrangement and all required system accessories, as shown on drawings and as per approved lightning protection design, manufacturer's recommendations and Technical Specifications.. REF: Technical Specifications Section - 0490, Section - 0630			Not Applicable		
E-9.04-1	Supply, design, installation, testing and commissioning of Prevelectron type 3rd Generation Controlled Early Streamer Emission (CESE) lightning air terminal, 2nd Edition, autonomous type, without external power supply/battery, having tinned copper central pick-up rod, protection radius 45 m, Level of Protection I, suitable for NFC 17-102 / UNE 21186 based lightning protection design, complete with factory test certificate, site testing and handing over. REF: Technical Specifications Section - 0490, Section - 0630	4.00	Set	Not Applicable		
E-9.04-2	Supply and installation of GI elevation pole/support assembly for CESE lightning air terminal, 35 mm to 50 mm dia, with threaded top suitable for fixing the air terminal unit, complete with base plate, mounting bracket, clamps, anchors, fasteners and all required fixing accessories. REF: Technical Specifications Section - 0490	4.00	Set	Not Applicable		
E-9.04-3	Supply and installation of down conductor test clamp / inspection joint assembly for lightning protection system, suitable for connecting and disconnecting the down conductor from earth termination for periodic testing and earth resistance measurement, complete with brass alloy clamp, fixing arrangement and required accessories. REF: Technical Specifications Section - 0490, Section - 0630	4.00	Set	Not Applicable		
E-9.04-4	Supply, installation, testing and commissioning of lightning flash counter / performance recording equipment, electronically controlled type, suitable for recording lightning strikes in the range of 1 kA to 100 kA with 8/20 microsecond impulse current waveform, complete with mounting arrangement, connection with down conductor, testing and handing over. REF: Technical Specifications Section - 0490, Section - 0630	4.00	Set	Not Applicable		
E-9.04-5	Supply, installation, testing and commissioning of conventional Franklin rod type lightning air terminal, mounted at the highest approved point of the building structure, complete with PCC base/support, download connection, fixing accessories, testing and handing over, as shown on drawings and as directed by the Engineer. REF: Technical Specifications Section - 0490	4.00	Set	Not Applicable		
E-10.01	Providing and installation of Earthing Veractor Cone / Spike Size 2" thick, 12" long as shown in drawings or ¾" dia & 10 ft long copper rod as earth electrode 100 ft or upto the water level, below ground level including cost of boring and lowering the rod (100ft / upto the water level) down, complete with clamp and 2x70mm2 stranded copper conductor from rod to ground surface in 2" dia G.I. pipe (EL Class) with watering cap, Manhole with cover as per detail shown in drawings. all earth work should be done according to the advise of electrical consultant. REF: Technical Specifications Section - 0490, Section - 0620	12.00	Each	Not Applicable		

E-10.02	Providing, supplying, boring, lowering, installing, testing and commissioning of complete earthing electrode set for Low Voltage, LAN/Data and associated electronic equipment, comprising earthing cone/spike of size 2 inches thick x 12 inches long or 19 mm dia. / 3/4 inch dia. copper-clad steel/copper rod earth electrode, minimum 3.0 m / 10 ft long, driven or lowered up to 100 ft depth or up to permanent water level as shown on drawings and as directed by the Engineer, including boring, lowering, backfilling/treatment of bore, brass/tinned copper clamp, copper lugs, thimbles, nuts, bolts, washers, earth connecting point, inspection/testing arrangement, and connection with 2 x 25 sq.mm PVC insulated copper earth cables laid in 1-1/2 inch dia. G.I. pipe (Electrical Class), complete with excavation, pipe sleeves, supports, clamps, jointing, protection, restoration, testing of earth resistance, continuity testing, and all accessories and incidental works required for a complete functional earthing system. (For Low Voltage & LAN / Data Equipments) REF: Technical Specifications Section - 0490, Section - 0620	1.00	Each	Not Applicable		
E-10.03	Supply and installation of Earth Strips of Size 25x3 mm sq with brass nuts & bolts fitted on cable trays as specified by Engineer Incharge. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0640, Section - 0590	1,800.00	Rft	Not Applicable		
E-10.04	Supply and installation of Earth connecting points comprising of 2"x9"x1/2" (Width x Length x Thickness) copper plate with brass nuts & bolts fitted on M.S. bracket installed on walls / columns. REF: Technical Specifications Section - 0490	13.00	Each	Not Applicable		
E-10.05	Supply & Installation of following sizes of PVC insulated green color single core copper conductor cables to be drawn in given PVC / M.S. conduits or laid in cable trays or installed on vertical surfaces complete with cable lugs, ties, P.G. clamps markers and accessories as required complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0640, Section - 0590					
E-10.05-1	i) 25mm². REF: Technical Specifications Section - 0490	150.00	Rft	Not Applicable		
E-10.05-2	ii) 70mm². REF: Technical Specifications Section - 0490	1,560.00	Rft	Not Applicable		
E-11.01	Wiring for each proximity card reader to be installed on walls with 4 pair Cat. 6, UTP cable with pure copper conductor PVC insulated PVC sheathed in and including cost of 1" dia PVC conduit recessed in walls, columns, slabs, floors or above false ceiling with all necessary fixing accessories as required as per site condition, including cost of all PVC conduit accessories, pull boxes, steel pull wires, powder coated, M.S junction boxes 16 SWG of size 4"x4" with 2 coats of powder coating of orange colour, including cost of all necessary accessories and materials, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0610, Section - 0650, Section - 0790, Section - 0640	540.00	Rft	Not Applicable		
E-11.02	Providing, supplying, installation, laying, dressing, termination, testing and commissioning of wiring/cabling for each emergency push button of Access Control System, using 4-pair Cat. 6 UTP cable with 100% pure copper conductor, drawn through concealed/surface conduit, trunking, cable tray or approved raceway from the emergency push button location up to the access control panel / door controller / nearest approved termination point, including RJ45 / IDC termination, ferrules, tags, labels, sleeves, connectors, cable ties, saddles, pull boxes, junction boxes, glands, supports, fixing accessories, continuity testing, identification, dressing and all necessary accessories and incidental works required for a complete functional wiring installation. REF: Technical Specifications Section - 0490, Section - 0650, Section - 0790	3.00	Nos.	Not Applicable		
E-11.03	Providing, supplying, installation, laying, dressing, termination, testing and commissioning of wiring/cabling for each magnetic drop bolt door lock of Access Control System, using 4-pair Cat. 6 UTP cable with 100% pure copper conductor, drawn through concealed/surface conduit, trunking, cable tray or approved raceway from the magnetic drop bolt lock location up to the access control panel / door controller / power supply unit / nearest approved termination point, including termination at both ends, ferrules, tags, labels, sleeves, connectors, cable ties, saddles, pull boxes, junction boxes, glands, supports, fixing accessories, continuity testing, identification, dressing and all necessary accessories and incidental works required for a complete functional wiring installation. REF: Technical Specifications Section - 0490, Section - 0650, Section - 0790	3.00	Nos.	Not Applicable		

E-11.04	Supply at site, installation, testing and commissioning of RFID Card Reader 125KHz, (for outside door) reading range 6", operating at low voltage DC supply, with mounting base suitable for interior and exterior environment with Door Interface Unit (DIU), dual color LED and speaker for comprehensive audible feedback to user. REF: Technical Specifications Section - 0490, Section - 0790	3.00	Nos.	Not Applicable		
E-11.05	Supply at site, installation, testing and commissioning of Push Button (Exit Switch) suitable for installation on BS standard size back box connected to door controller for access. REF: Technical Specifications Section - 0490, Section - 0600	3.00	Nos.	Not Applicable		
E-11.06	Supply at site, installation, testing and commissioning of Proximity Cards ISO bar code card standard size and thickness, thin, flexible polyvinyl chloride laminated, passive type, easy printable on both sides. REF: Technical Specifications Section - 0490	30.00	Nos.	Not Applicable		
E-11.07	Supply at site, installation, testing and commissioning of following Magnetic Drop Bolt Lock with holder and fixing accessories, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0790					
E-11.07-1	Single Door. REF: Technical Specifications Section - 0490	2.00	Nos.	Not Applicable		
E-11.07-2	Double Door. REF: Technical Specifications Section - 0490	1.00	Nos.	Not Applicable		
E-11.08	Supply at site, installation, testing and commissioning of 4 door controller with Dp fixing accessories, and integrated with Fire Alarm system complete in all respects. REF: Technical Specifications Section - 0490, Section - 0660	5.00	Nos.	Not Applicable		
E-11.09	Supply, installation, configuration, testing and commissioning of Access Control and Time Management Software / Headend Management Software for the complete Access Control System, including licensed software, database setup, user and administrator logins, password-protected role-based access, cardholder enrolment and management, time-zone and access-level scheduling, attendance/time management module, alarm and event monitoring, full alarm and event processing, multi-user / multi-division support, audit trail and event history records, report generation, system backup and restore facility, and integration/interface with access control panels, card readers, emergency release, door locks, fire alarm interface, CCTV alarm call-up and other associated systems where applicable. The item shall include supply of genuine licensed software, installation on the approved workstation/server, software activation, configuration of doors, users, groups, cardholders, access levels, alarm priorities, event logs, SMS/call alert configuration where supported by the system/OEM, testing of all software functions, demonstration to the Engineer/Employer, training of operator staff, submission of software license keys, administrator credentials, configuration backup, O&M manuals and all necessary accessories, tools, patching, programming and incidental works required to make the Access Control and Time Management System complete, operational and ready for use. Complete in all respects as shown on drawings, as specified, as per manufacturer's recommendations and as directed by the Engineer. REF: Technical Specifications Section - 0490, Section - 0790	1.00	Job	Not Applicable		
E-11.1	Supply, installation, configuration, testing and commissioning of operator workstation / desktop computer for Access Control and Security Control System, comprising ultra-slim desktop PC with Intel Core i7 processor or approved equivalent, minimum 8 GB RAM, 2 TB HDD / approved storage, DVD writer where required, genuine Windows Professional 64-bit operating system, keyboard, mouse, display interface, network interface, power cords, required software drivers, antivirus/security utility where applicable, and all necessary accessories required for complete operation of the Access Control and Time Management Software. The item shall include installation of the operating system, device drivers, access control/time management software client or server application as applicable, network configuration, IP addressing, user account setup, connection with access control panels/server/network switches, testing of communication with the access control system, verification of event monitoring, report generation, data backup arrangement, handover of genuine licenses, passwords/credentials, manuals, warranty documents and operator training. Complete with unpacking, placement, fixing/installation at approved location, power and network connection, testing, commissioning and successful demonstration of the workstation with the Access Control / Security Control System, complete in all respects as shown on drawings, as specified and as directed by the Engineer. REF: Technical Specifications Section - 0490	1.00	Job	Not Applicable		

E-11.11	Supply at site, installation of PVC conduit heavy duty buried under ground or as required as per site conditions including cost of all PVC conduit accessories, steel pull wires, all necessary accessories and materials complete in all respect. REF: Technical Specifications Section - 0490, Section - 0610					
E-11.11-1	1" dia. PVC conduit. REF: Technical Specifications Section - 0490, Section - 0610	540.00	Rft.	Not Applicable		
E-11.12	Supply, installation of Access Control Junction boxes 16 SWG to be concealed in wall with 2 coats of anti rust paint, earthing terminal, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0620, Section - 0790, Section - 0640					
E-11.12-1	Access Control Junction Box 4" x 7" x 4" deep. REF: Technical Specifications Section - 0490, Section - 0790, Section - 0640	1.00	Nos.	Not Applicable		

E-11.13	Programming, configuration, integration, testing, commissioning, demonstration and staff training for the complete Electronic Access Control System integrated with the Building Management System (BMS), including configuration of all access-controlled doors, door controllers, card readers, emergency release / emergency push buttons, magnetic locks / drop bolts, door position contacts, request-to-exit devices, alarm inputs, access levels, time zones, user/cardholder database, alarm priorities, event logs, audit trail, operator rights, password-protected access and system reporting. The scope shall include complete software and controller programming, point-to-point testing of all field devices, verification of communication between access control panels, head-end software, workstation and BMS, integration of door status, lock status, alarm / forced-door / door-held-open signals and other approved monitoring points with BMS for read-only status display and alarm monitoring, coordination with Fire Alarm System interface for automatic door release where applicable, and testing of all access control functions in the presence of the Engineer / Site Engineer. The item shall also include preparation and submission of approved testing and commissioning procedures, I/O point list, BMS integration point schedule, cause-and-effect matrix, as-built configuration backup, test reports, commissioning certificates, operator manuals, administrator credentials and final handover documents. Complete in all respects, including all programming tools, software configuration, testing instruments, specialist engineer attendance, coordination with BMS vendor / system integrator, demonstration and rectification of programming deficiencies until the complete Access Control System and BMS interface are fully operational and accepted by the Engineer. REF: Technical Specifications Section - 0490, Section - 0790, Section - 0880	1.00	Job	Not Applicable		
E-12.01	Supply, Installation & Programming of centralized, IP-based Integrated Building Management System with HVAC, lighting, fire alarms, access control, and CCTV. Including CPU , Mod Bus Communication Port/Bacnet with all accessories, complete in all respects. REF: Technical Specifications Section - 0490, Section - 0660, Section - 0790, Section - 0880	1.00	Job	Not Applicable		
E-13.01	Supply & Installation of Monocrystalline PV modules 250 kW with mounts, sensors, accessories, Cables 25mm sq, Hybrid Inverter linking of Solar PV system with Electrical Synchronizing and Load Sharing Panel with 2 Hrs Backup Time or vary as per site condition with lithium batteries as per solar vendor specification provided,complete in all respect. REF: Technical Specifications Section - 0490, Section - 0570, Section - 0870	1.00	Job	Not Applicable		
E-14	ELEVATORS Lift Type: Traction Type Passenger Lifts Brand Name : OTIS , DOPPLER , KONE , THYSSENKRUPP, SCHINDLER Country of Origin: WESTERN , EUROPE.					
E-14.01	Supply of imported brand new Duplex Elevator, Machine Room Less (MRL Type), heavy duty fully complied and certified by EN 81-20, EN 81-50 and EN 81-70 Standards of minimum features including but not limited to VVVF high efficiency motor, complete inside stainless steel finish,indoor type for ambient condition of 45 °C, capacity of 1000 kg, Cabin Size 1600×1400×2300 (W×D×H) speed, 1 m/s, 11 stops/11 openings, approx. total travel height 42 meter . entrance 900 mm. Lift shall minimum includes car, hoisting machinery, counter-weight, supports, brackets, automatic controls,embedded parts, access ladder, separator screen & trap door, electric overload, shaft lightening, intercom system, gong, emergency operation for cabin/door, emergency rescue device (ups/battery) safety devices & Manual emergency operation lever, all essential spare parts for use for one (01) years of defect liability period complete in all respects as per specification & Drawings and according to EN 81 standard compliance.All taxes/duties shall be included.	2.00	Each	[Up to 80% Allowed]		
E-14.02	Spare Parts for use of 1 year's lifts operation	2.00	Each	Not Applicable		
E-14.03	Installation, testing, and commissioning of imported brand new Duplex Elevator, Machine Room Less (MRL Type),capacity of 1000 kg, Cabin Size 1600×1400×2300 (W×D×H) speed 1 m/s, 11 stops/ 11 openings, approx. total travel height 42 meter . entrance 900 mm. heavy duty fully complied and certified by EN 81-20, EN 81-50 and EN 81-70.	2.00	Each	Not Applicable		
E-14.04	Civil and Allied Works relevant to necessary adjustments which will be required during installation of new equipment. (door chisling, door filling, holes for display & call buttons)	2.00	Each	Not Applicable		

E-14.05	Electrical & Ancillary Works for elevator, fan & AC including outside DB to elevator, breakers cabling and other accessories etc. (Complete in all respect).	2.00	Each	Not Applicable		
E-14.06	Supply and installation of 2 TR cooling capacity air conditioner (AC) for elevator shaft. (Make;Trane/Mitsubishi/Samsung only) AC shall be operable at ambient temperature of 50°C.	2.00	Each	Not Applicable		
E-14.07	Supply and installation of exhaust fan propeller type of size 800 CFM	2.00	Each	Not Applicable		
E-14.08	Pre-Shipment inspection at factory in country of origin, including boarding, lodging, hotel stay and food (03 inspectors, 05 Nights stay, business class tickets)	1.00	Job	Not Applicable		
E-14.09	Third party validation for Testing & commissioning of elevator in Pakistan	4.00	Each	Not Applicable		
E-14.10	Provision of comprehensive Operation and Maintenance (O&M) services for the installed lifts/elevators for a period of one (01) year, including preventive maintenance, corrective maintenance, routine inspection, lubrication, adjustment, cleaning, breakdown attendance, emergency service, testing, troubleshooting, supply and replacement of all required spare parts and consumables, and deployment of at least one qualified lift technician at site as required for smooth and safe operation. The scope shall include maintenance of lift machine, controller, VVVF drive, doors, door operator, guide rails, ropes/belts, safety devices, indicators, push buttons, interlocks, emergency alarm/communication system and all associated lift components, complete with service records, maintenance logbook, test reports and coordination with OEM/authorized lift supplier. Complete in all respects as per manufacturer's recommendations, Technical Specifications and directions of the Engineer. REF: Technical Specifications Section - 0490, Section - 0690	12.00	Month	Not Applicable		
		Total Amount (Rs)				0.00