

BILL OF QUANTITY FOR ELECTRICAL WORK CANARA BANK, CIRCLE OFFICE, KARNAL, HARAYANA.

ELECTRICAL WORKS

S.No	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
A.	POINTS & WIRING				
1	LIGHTS POINTS				
1	Wiring for light point/ fan point/ wall fan point/ exhaust fan/ light sockets etc. with 1.5 sq.mm. PVC insulated 1100 V Grade copper conductor (FRLS) wires & 1.5 sq.mm. copper earth wire in concealed/ surface using 16 SWG MS conduits, accessories such as bends, tees, saddles, draw boxes, mounting boxes, inner plates, cover plates, ceiling rose etc. (wherever required) and chromium plates brass screws/ rowel plug etc. The circuit wiring starting from DB to point control box/ switch box using 2 X 2.5 sq.mm PVC insulated 1100 V grade multistranded copper conductor wire & 2.5 sq.mm. PVC insulated earth wire (color code to be used). (Flexible conduit/ elbow not allowed). The conduit to be laid in ceiling with proper clamps/ wall/ floor and filling the chase with cement mortar and finishing the same in original form/ wooden partition/ above false ceiling with proper clamps etc. all complete.				
	(Wherever required as per standard specifications).				
	i) Each circuit shall have independent earth wire.				
	ii) Each point shall be earthed.				
	iii) Circuit wiring is to be included in point wiring rates.				
i	Primary points controlled by one 6 amp. Modular switch.	Nos.	115		
ii	Secondary light points controlled by one 6 amp. Modular switch.	Nos.	75		
iii	One call bell point with ceiling rose/ 6amp. 3 pin sockets controlled by one 6 amp. Push Modular switch. With call bell	Nos.	5		
iv	One wall fan/ ceiling/ exhaust fan point with 6-amp 3pin socket controlled by one 6 amp. Modular switch. The switch should be at switchboard level.	Nos.	66		
v	One 5 pin socket controlled by one 6 amp. Modular switch complete assembly includes plate box etc. Dependent	Nos.	90		
vi	Same as serial no 1 but using 2*1.5 + 1*1.5 Sq.mm Copper Conductor FRLS wires from DB to first 6A, 5 Pin modular socket controlled by one 6A switch and looped to the nearest second point with same 2*2.5 + 1*2.5 Sq.mm copper conductor wires FRLS insulated 1100V grade (max 3 points per circuit).				
	Primary Point	Nos.	17		
2	POWER POINTS				
	Same as serial no.1, but wiring for 16 Amp, 6-pin sockets by using 2* 2.5 sq.mm. PVC insulated 1100 V grade copper conductor wire with independent 1* 2.5 sq.mm earth wire from D.B. to first point 1 st socket and 1 st to 2 nd , socket with 2*2.5 sq.mm and 1*2.5 earth wire including providing and fixing of 16 Amp, 6 –pin socket with 16 Amp. Switch. (Modular type switch/ socket/ plate etc. complete assembly) max 2 points per circuit.				
	Primary Point	Nos.	80		
3	AC POINTS FOR INDOOR & OUTDOOR UNITS				
3(a)	Same as serial no.1, but wiring for A/C socket by using 2*6 sq.mm. PVC insulated 1100 V grade copper conductor wire and earthing with 1*4.0 sq.mm. PVC insulated 1100 V grade copper conductor wire with modular type AC box (tiny trip type) with socket complete in all respects controlled by 25/32 A SP MCB to be provided near indoor unit. The point starts from DB to stabilizer to the point near the indoor unit including top.Items should be executed after approval from Bank/ Architect.	Nos.	20		
3(b)	Same as serial no.1, but wiring for A/C socket by using 2*4 sq.mm. PVC insulated 1100 V grade copper conductor wire and earthing with 1*4.0 sq.mm. PVC insulated 1100 V grade copper conductor wire of weather proof type AC box with socket complete in all respects controlled by 25 A MCB to be provided near outdoor unit. The point starts from DB to the point near the outdoor unit.	Nos.	26		
4	COMPUTER POINTS (UPS)				
a	Wiring with 2x1.5 sq.mm. + 1x1.5 sq.mm. PVC insulated 1100 V grade multi stranded copper conductor wires in 2 mm thick PVC conduit from UPS DB to computer point. Each point to have 3 nos. 6 amps. 5 pin modular type sockets, one 6 amps modular switch with all accessories, inner/ outer plates, metal box etc. and to be fixed on wooden partitions/ by grouting on wall etc. as per requirement at site. The switch should be fixed above the top of counter with indicator and sockets under the counter. b) Same as above but looped from the above 1st point to 2nd, point and 2nd point to 3rd point. (Maximum 3 points in a circuit)				
	Primary Points	Nos.	80		

b	Wiring with 2x1.5 sq.mm + 1x1.5 sq.mm PVC insulated 1100 V grade multi stranded copper conductor wires in 2mmthick PVC conduit from UPS DB to computer point. Each point to have 1 nos. 16 amps 5 pin modular type sockets, 1 No's 16 amps modular switch with all accessories, inner/ outer plates, metal box etc and to be fixed on wooden partitions/ by grouting on wall etc as per requirement at site. The switch should be fixed above the top of counter and sockets under the counter. or as directed by the engineer in charge for the rack supply in PA rack, CCTV etc. b) Same as above but looped from the above 1st point to 2nd point (Maximum 2 points in a circuit)				
	Primary Points	Nos.	15		
PART (A) SUB TOTAL					
B.	CONDUITING FOR TELEPHONE, COMPUTER & CONDUITING, WIRING FOR T.V. SYSTEM.				
1	TELEPHONE SYSTEM				
1.1	Wiring for VOICE from Jack Panel in data rack to computer workstation with Cat-6 voice cable in PVC conduits of size 20/ 25 mm including providing ferrules at both ends and termination at both ends including providing & fixing frame for Cat-6 with shutter, RJ 45 outlet, faceplate and mounting box complete of modular type. This work includes supply and laying of CAT-6 cable in PVC conduits throughout the length, from the I/O hub to the point.	Nos.	75		
1.2	Supplying, laying, effecting terminations, testing and commissioning of 0.51 mm dia Cu. Conductor, twisted, colour coded with polythene capor barrier, telephone cables in the existing tray or in conduit including providing & fixing conduit pipe or cable tray as required from building tag block to the floor as required.				
a)	Supplying & fixing 20 pair krone tag block with enclosure.	Nos.	5		
b)	P/L 20 Pair of PVC insulated PVC sheathed multi core jelly filled armored telephone.	Mtr.	350		
c)	Supply, Installation and Commissioning of EPABX System complete with following specifications as required.				
	Digital, Non-Blocking, ISDN / ATM, IP ready, hot standby on control cards, Communication Server with SIP.				
	Equipped with:				
	Control section cPCI architecture				
	Based on Real Time 2gIP platform				
	Trunk side :				
	2 ISDN PRI Interface (30 channels)				
	32 P&T Trunk lines				
	Extension side:				
	150 analogue extensions				
	24 digital extensions				
	24 IP extensions				
	With CALLER ID ON DIGITAL AND ANALOG PUSH BUTTON TELEPHONES / EXTENSION**Internal & External Both				
	System Features: -				
	IP Distributed Architecture				
	Parallel Ringing on Extensions as well as on GSM Handset.				
	Support for Integrated IP Gateways				
	VOIP Capability				
	System Documentation on CD-ROM				
	Support for OFC Connectivity				
	Expandable up to 200 ports.				
	For Caller ID, Analog Push Button Phone Should have the capability of CLI Only on PRI Lines/Trunk lines				
	IP Based Operator Console With BLF and Wired U.S.B. Head set - 03 Nos				
	Modem for Remote Maintenance - 01 No.				
	Maintenance Terminal software - 01 No.				
	Music In Hold - 01 No.				
	Paging Interface / Fire Alarm Interface - 01 No.				
	Voice mail (08 Ports) - 01 No.				
	Call billing software - 01 No.				
	Power back up for 04 hrs				
	Exchange described as above	Set	1		

	The following items are including from the above BOQ are as follows,				
	All type of Active components				
	Switches				
	Patch Cards				
	Certification				
	Uplinks between Hubs located in each floor to Server Racks and sever rack to differenct building.				
	IP Telephone Handset				
	Fiber Network for all building internal distribution & external distribution				
	Any other item related to Data networking & IP phone system.				
d)	MDF with Krone Modules 50 pairs with connector	Nos	2		
2	COMPUTER NETWORKING				
2.1	Wiring for computer networking from Jack Panel in data rack to computer workstation with Cat-6 computer cable in PVC conduits of size 20/ 25 mm including providing ferrules at both ends and termination at both ends including providing & fixing frame for Cat-6 with shutter, RJ 45 outlet, faceplate and mounting box complete of modular type, this work includes supply and laying of CAT-6 cable in PVC conduits throughout the length, from the I/O hub to the point.	Nos.	100		
2.2	Cleaning & Re- fixing 9 U (Rack with glass door, opening in the front power panel 1 (horizontal), cable manager 1 lock & key).	Nos.	1		
2.3	Cleaning & Re- Installation, Testing & Commissioning of 24 port Jack Panel.	Nos.	1		
2.4	Supplying and fixing Patch Cord-2 Meter- (DBPS Mounting Cord)	Nos.	150		
2.5	Supplying and fixing Patch Cord-1 Meter-	Nos.	150		
3	Supply and fixing of 1.6 mm thick G.I. Box along with RG 6 T.V Co axial socket with Cover Plate.	Nos.	10		
4	Supply, drawing, connecting, testing and commissioning of T.V Coaxial cable RG 6 with conduit.	RM	150		
		PART (B) SUB TOTAL			
C.	CABLES, MAINS & SUBMAINS				
1	Supplying all materials and laying/ pulling 1100 volts grade PVC insulated copper conductor wires (FRLS) in MS conduit with all fixing accessories after cutting the floor, wall and the like etc. and plastering the floor level to original. Conduit must be 30 mm below the floor finish level. Items should be executed after approval from Bank/ Architect.				
ii	2 X 6 sq.mm. + 1 X 6 sq.mm.	RM	250		
iii	2 X 10 sq.mm. + 1 X 6 sq.mm. (Branch UPS DB)	RM	50		
iv	1 X 10 sq.mm. Cu wire for earthing. (UPS Input/Output)	RM	150		
v	4x10 sq.mm. +2x6sq.mm (Panel to TPN)	RM	50		
v	Supplying, laying, testing & commissioning of 3.5 C X 16 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armoured cable with 10 gauge earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification (Light DB + Power DB).	RM	45		
vi	Supplying, laying, testing & commissioning of 4 C X 35 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armoured cable with 10-gauge earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification ((Mains).	RM	75		
vii	Supplying, laying, testing & commissioning of 3.5 C x 50 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armored cable with 10 gauge earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clampsetc. as required as per specification. (Mains)	RM	150		
		PART (C) SUB TOTAL			

D. DISTRIBUTION BOARD					
	Supplying, installing, testing & commissioning of surface/recessed mountings, Double door 415 volts TPN MCB distribution board of steel, 1.6 mm thick dust phosphatized and painted, inclusive of 100 amps, tinned copper bus bars, earth bar, common neutral link, din bar for mounting of MCB's detachable gland / knock out plate & with built in loose wire box, and superior make terminal connectors for all incoming and outgoing circuits duly prewired with adequate size of PVC insulated copper wires between the bus bars and the MCB's as well as the incomer and upto the terminal connectors/ neutral link and ready for installation of following ways as required.				
	Use 'B' curve MCB's for lighting & small power circuits, 'C' curve for motor duty i.e. for pumps, AC motors, window and split AC's etc. & 'D' curve for UPS DB's i.e. for computers/ PC's circuit. Main incomer & outgoing circuit MCB's shall be selected accordingly i.e. type B,C & D. Contractor to select the MCB's accordingly as per the nature of the circuit/ load.				
	Each DB shall have separate neutral links of rating not less than 100A for each phase. The main incoming neutral link shall be in addition to three outgoing neutral links and shall be of 125 A.				
	UPS DB's shall have a dedicated Earthing link fixed on insulated supports, which will be in addition to body earth link.				
	All internal inter connecting wiring within in the DB's shall be PVC insulated flexible copper conductor wires of adequate capacity as per the current rating. Inside each DB, a DB chart is to be fixed. Items should be executed after approval from Bank/Architects				
a	4-way TPN DB (LIGHT DB/ Power DB)	No.	1		
	Incomer :-				
	1 No. 40 Amp TPN (10 KA) MCB with 40 A DP MCCB (100 MA) each phase				
	Outgoing :-				
	6 Nos. 6/10 Amp (10 KA) SP MCB				
b	4-way TPN DB (AC DB)	No.	1		
	Incomer :-				
	1 No. 63 Amp TPN (10 KA) MCB with 63 A DP MCCB (100 MA) each phase				
	Outgoing :-				
	6 Nos. 10/16/25/32 Amp (10 KA) SP MCB				
c	4-way SPN DB with 2 Nos. 40 A (10 KA) DP MCB (For UPS Input)	No.	8		
d	(2+8)-way SPN DB (For UPS Sub DB)	No.	4		
	Incomer:-				
	1 No. 40 Amp DP (10 KA) MCB with 25 A DP MCCB (100 MA)				
	Outgoing:-				
	6 Nos. 6/10/16/25Amp (10 KA) SP MCB				
PART (D) SUB TOTAL					
E EARTHING SYSTEM					
1	Supply, Installation, Testing and Commissioning of Maintenance Free Earthing system made up of copper bonded rod of 10 feet length, 23 mm dia. (Minimum copper bonding shall be 0.25mm) along with Rod-to Conductor connectors, Earth enhancement material, Pit Cover and other accessories as required and as per specification and other applicable codes (include chamber for earthing, Earthing certificate to be submitted along with the bill).	Nos	4		
2	Supply, Installation, Testing and Commissioning of Maintenance Free Earthing system made up of copper bonded rod of 10 feet length, 17.2 mm dia. (Minimum copper bonding shall be 0.25 mm) along with Rod-to-Conductor connectors, Earth enhancement material, Pit Cover and other accessories as required and as per specification and other applicable codes (include chamber for earthing, Earthing certificate to be submitted along with the bill).	Nos	4		
3	Providing and fixing of Copper/ GI strips in surface or in recess for loop earthing etc. as required.				
i	25 mm x 3 mm copper strip in B-class GI pipe	RM	50		
ii	25 mm x 5 mm GI strip	RM	50		
iii	Providing and fixing 2 X 6mm Cu earth wire in PVC conduit on surface or in recess for loop earthing along with the existing surface/ recess cable as required.	RM	250		
PART (E) SUB TOTAL					

F MAIN PANEL AND METER BOARD					
	Design, Manufacturing, Supply, Receiving, Unloading, Shifting, installation, testing & commissioning of cubicle type totally enclosed free standing type moisture, dust and vermin proof Floor Distribution Panel made out of 2.0 mm thick & front cover 1.6 mm thick CRCA sheet complete with following equipments, including digital ammeter with inbuilt ammeter selector switch, digital voltmeter with inbuilt voltmeter selector switch, indicating lamps, CT's, internal wiring with suitable size wires / cable, interconnection, painting complete as per specification & drawing. All the incoming and outgoing MCCB shall have 25KA lcs. All the MCCB up to 250 Amp shall have thermal release with adjustable overload and short circuit protection and above shall have microprocessor release with adjustable overload, short circuit & earthfault protection.				
	LIGHT POWER & AC PANEL				
	INCOMING				
	1 No. 500 Amp FP Moulded Case Circuit Breaker.				
	1 No. 0 to 500 Volt digital voltmeter with inbuilt selector switch.				
	1 No. 500 Amp digital ammeter with inbuilt selector switch and CT's.				
	1 Set of phase indicating lamps with Single Pole MCB.				
	1 Set of ON / OFF indicating lamps with Single Pole MCB.				
	1 Set of KWH Meter with 3nos CT's.				
	BUS BARS				
	600 Amp TPN aluminium busbar.				
	OUTGOING				
	07 Nos 100A TP+N Moulded Case Circuit Breaker.				
	1 Nos 160A TP+N Moulded Case Circuit Breaker.				
	1 Lot of control / power wiring.				
	Panel described as above	Set	1		
	LIGHT POWER & AC PANEL				
	INCOMING				
	1 No. 100 Amp FP Moulded Case Circuit Breaker.				
	1 No. 0 to 500 Volt digital voltmeter with inbuilt selector switch.				
	1 No. 100 Amp digital ammeter with inbuilt selector switch and CT's.				
	1 Set of phase indicating lamps with Single Pole MCB.				
	1 Set of ON / OFF indicating lamps with Single Pole MCB.				
	1 Set of KWH Meter with 3nos CT's.				
	BUS BARS				
	150 Amp TPN aluminium busbar.				
	OUTGOING				
	04 Nos 63A TPN Miniature Circuit Breaker.				
	03 Nos 40A TPN Miniature Circuit Breaker.				
	02 Nos 25A DP Miniature Circuit Breaker.				
	1 Lot of control / power wiring.				
	Panel described as above	Set	4		
PART (F) SUB TOTAL					
G OUTDOOR TYPE GLOW SIGN BOARD WIRING					
a.	Supply laying of Main line with 2x2.5 + 1x 1.5 Sq.mm through MS conduit from main panel	Mtr.	75		
b.	To Glow Sign Board				
	Supply installation of 16 Amp. DP MCB at main entrance Glow sign Board with Timer of reputed make- Samsung	Nos.	2		
PART (G) SUB TOTAL					
GROSS SUB TOTAL (PART A + PART B + PART C + PART D + PART E + PART F + PART G)					
GST EXTRA					
APPROVED MAKE LIST					
	DESCRIPTION	Approved Makes			
S.N.	PVC Conduit	Precision/AKG			
1	Ceiling Junction Boxes	Home lite/ANCHOR			
2	Wires & cables	R.R./Havells/ Polycab			
3	Modular Switches, Sockets etc	Legrand/Havells/L. & T.			
4	Lighting Fixtures	Philips/Havells /Bajaj			
5	M.C.B./RCCB/RCBO etc	Legrand/Havells/L&T			
6	Distribution Boards	Same As Above			
7	MCCB	Schneider/Legrand/Havells			
8	Change Over Switches	H.P.L./A.B.B./Standard/ L. & T.			
9	End Termination accessories	Dowells/Usha/Brecco/Cosmos			
10	Telephone Cables & accessories	Havells, Krone, Finolex,			
11	Fans/Exhaust fans	Crompton/Havell/USHA			
12	Music Speakers	Philips/Bosch/Ahuja			
13	Amplifiers	Philips/Bosch/Ahuja			
14	DVR	Samsung, Honeywell , HIKVISION			
15	Rg11, CAT5/CAT6 cables/Telephone wires	Legrand, Molex, D'Link ,AMP			
16	CCTV Dome Camera	Honywell, HIKVision			
17	Hard Disk drive	Seagate, HIKVISION			
18	Smoke/Heat/Optical Fire Detectors	Edward, Siemens, Appolo Or other			
19	Response Indicators, Hooters	Edward, Siemens OR other ISI			
20	Telephone Tag Block	Krone			
Place:					
Date:					
Signature of contractor with seal					