

International Centre for Genetic Engineering and Biotechnology

Bill of Quantity (BOQ) for Electricals

CLIENT:	PROJECT / SITE:
	LAB
	NEW DELHI

GENERAL NOTES					
1	All equipment and material shall be IS approved.				
2	All approvals shall be obtained from Client / Consultant				
3	All equipment and material shall be inspected at manufacturer's works as per relevant IS by the Client or his representative before despatch to site.				
4	All vendor drawings shall be approved by the Client / Consultant before fabrication work starts.				
5	All Testing and Commissioning shall be as per relevant IS for equipment and IS:732:1989 for the installation. All testing records are to be maintained and submitted for Client's representative.				
A. CIRCUIT CUM POINT WIRING					
1	All wiring (P,N,E) shall be 1100 volts grade, FRLS PVC insulated stranded copper conductor wires, single or multi core as called for.				
2	All Switches & Sockets shall be of modular design complete with modular plate and suitable sized GI/ moulded boxes as called for and shall be suitable up to 250V, AC/DC supply or as specified.				
3	The rates for all point wiring items shall also include supplying and fixing of the following:				
4	The recessed Switches & Socket outlet boxes shall be of 16G GI and of the same make / manufacturer as of the switches & sockets. Local make boxes are not to be used.				
5	Conduits, shall be PVC FRLS.				
7	Flexible conduits, where ever required, shall be of heavy duty/G.I and complete with couplers.				
8	Approved GI saddles and grouting the same for exposed conduit work.				
9	All circuit & point wiring shall be colour coded & shall have ferruling on either end for circuit identification.				
10	All work necessary for wiring a point circuit of any length from the Final Distribution Board to connector via switch and shall include the circuit wiring also except where identified.				
11	The rates shall include material & labour for necessary length of circuit and point wiring, earth wiring, rigid and flexible conduiting, bends, junction boxes, pull boxes, screws, washers, check nuts, couplers, saddles, hangers supports, GI pull wire, civil work comprising chipping, cutting chases, fixing conduits & making good or surface clamping of conduit work as the case may be, modular switches, socket outlets, Electronic fan regulators surface or recessed outlet boxes as the case may be, ceiling rose, rigid and flexible conduit (PVC / GI/ MS) as may be required, connectors and terminal blocks of proper rating etc. & sleeves etc. including lugs/ thimbles for terminations.				
12	Switch, socket outlet and necessary blank plates wherever required.				
13	PVC insulated copper conductor stranded flexible wire of Green colour with yellow bands for earthing of fixtures, outlet boxes and third pin of socket outlet.				
14	All wires shall be PVC insulated FRLS copper conductor stranded flexible 1100 volts grade and shall be of approved make.				
15	All sockets shall be shuttered type and with earth terminal.				
16	Suitable rating of plugs top shall be provided for all splash proof industrial socket outlets.				
17	Separate neutral and earthing wire shall be provided for each circuit.				
18	Lighting and power circuit to be kept separate.				
19	Wiring shall include conduiting and wiring (Phase, Neutral, Earth) of light points/ fan points/ UPS and raw sockets outlets of any length from the distribution board via switch to the point.				
SI.No.	DESCRIPTION	UNIT	Qty.	RATE IN Rs.	AMOUNT IN Rs.
A. POINT WIRING					
Note:-					

	Point wiring rates are inclusive of 2 x 2.5 mm² FRLS PVC insulated stranded copper conductor wires for circuit and + 1 x 1.5 mm² (Earth) mm FRLS PVC insulated copper conductor insulated earth wire, All wire shall be FRLS.				
3	6A or 16A, 5pin Raw supply switched socket outlet wiring on walls / ceiling/counters etc wiring with 2 x 2.5mm ² + 1 x 1.5 mm ² (Earth) for First & Looped point both in 25mm dia FRLS PVC conduit for circuit & 20mm dia FRLS PVC conduit for looping :				
i.	First Point wiring with 6A,5pin wall socket outlet and controlled by a 6A switch including cover plate 5 sided G.I. outlet boxes complete as required etc.	Nos.	0		-
ii.	Extra loop point wiring with 6A, 5 pin wall socket outlet and controlled by a 6A switch including cover plate 5 sided G.I. outlet boxes complete as required etc.	Nos.	0		-
5	16A, 6pin combined shuttered Raw / UPS supply switched socket outlet with cover plate 5 sided G.I. outlet boxes including,wiring on walls / ceiling / counters etc wiring with 2 x 4.0mm ² + 1 x 2.5 mm ² (Earth) for First & Looped point both in 25mm dia FRLS PVC conduit for circuit & 20mm dia conduit for looping :-				
i.	First Point wiring with 16A, 6Pin combined shuttered wall socket outlet and controlled by a 16A one way switch with cover plate 5 sided G.I outlet boxes complete as required etc.	Nos.	7		-
ii.	Extra loop point wiring with 16A, 3Pin combined shuttered wall socket outlet and controlled by a 16A one way switch with cover plate 5 sided G.I. outlet boxes complete as required etc.	Nos.	7		-
6	Wiring for 6/13A, 5pin Raw / UPS supply switched socket outlet on work stations/Wall/ table/ counter etc. including wiring with three core, 2.5 mm ² FRLS PVC Insulated and PVC sheathed flexible cable with bright annealed electrolytic copper conductor , 1100 volt grade conforming to IS : 694/1994 with latest amendments, Points wiring partly in 25mm dia conduit for circuit & 20mm dia conduit (in wall) or PVC Flexible (in furniture) for looping and partly in raceway.				
a	First Point wiring				
ii	1 x 6A Universal socket outlets controlled by a 6A one way switch	Nos.	0		-
iii	2 x 6A Universal socket outlets controlled by a 10A one way switch	Nos.	0		-
iii	3 x 6A Universal socket outlets controlled by a 10A one way switch	Nos.	5		-
b.	Looped Point wiring				
ii	1 x 6A Universal socket outlets controlled by a 6A one way switch	Nos.	0		-
iii	2 x 6A Universal socket outlets controlled by a 10A one way switch	Nos.	0		-
iii	3 x 6A Universal socket outlets controlled by a 10A one way switch	Nos.	9		-

7	Wiring for 6/16A, 6pin Raw / UPS supply switched socket outlet on Wall/ table/ counter etc. including wiring with three core, 4 mm2 FRLS PVC Insulated and PVC sheathed flexible cable with bright annealed electrolytic copper conductor,1100 volt grade confirming to IS : 694/1994 with latest amendments, Points wiring partly in 25mm dia. FRLS PVC conduit for circuit & 20/25mm dia FRLS PVC conduit (in wall) or PVC Flexible (in furniture) for looping and partly in raceway.				
a	First Point wiring				
i.	6/16 amp flush type 6 pin socket and 16 amp switch, cover plate, 5 sided G.I Boxes for housing switches and sockets and earthing complete as required.	Nos.	2		-
ii.	2nos 6/16 amp flush type 6 pin socket and 16 amp switch, cover plate, 5 sided G.I Boxes for housing switches and sockets and earthing complete as required.	Nos.	20		-
b.	Looped Point wiring				-
i.	6/16 amp flush type 6 pin socket and 16 amp switch, cover plate, 5 sided G.I Boxes for housing switches and sockets and earthing complete as required.	Nos.	2		-
ii.	2nos 6/16 amp flush type 6 pin socket and 16 amp switch, cover plate, 5 sided G.I Boxes for housing switches and sockets and earthing complete as required.	Nos.	16		-
8	Wiring for inline fan points with 3 x 2.5 mm2 FRLS PVC insulated stranded copper conductor wires in concealed M.S. conduits in F.ceiling/ walls/ Ceiling as directed including providing and fixing of 16 amps flush type switches 16 amps 3 pin socket near inline fan, 5 sided G.I. boxes for housing switches and 16 amps 3 pin socket outlet and earthing and complete as required.(including body earth for GI boxes)	Nos.	2		-
9	Wiring for AC point with 2X4 sqmm copper conductor FRLS insulated wires with1X4Sq.mm earth FRLS insulated wire 1100V grade for AC point.The points shall starts from DB or SDB & shall finish with the supply & installation for 32A,6pin modular socket controlled by 32A Tiny Trip SP MCB , all work complete with accessories as required. (For Spilt unit)	Nos.	2		-
TOTAL CARRIED OVER TO SUMMARY					-
B.	CONDUITING FOR TELEPHONE , COMPUTER & CONDUITING AND WIRING FOR T.V. SYSTEM.				
1	Providing and fixing in position the following FRLS PVC heavy duty conduits including all accessories concealed/exposed in F. ceiling / wall complete as required including 1.6 / 2.0 mm thick PVC junction or pull boxes with 3mm thick perspex sheet cover plate complete with 1.6 mm dia G.I. pull wires in the length of conduit.				
a.	20 mm dia conduit (1.6 mm wall thickness)	RM	0		0.00

b.	25 mm dia conduit (1.6 mm wall thickness)	RM	150		0.00
2	Providing and fixing in position the following PVC flexible conduits including all fixing accessories on to the modelur furniture				
a.	20 mm dia flexible conduit with end couplers	RM	0		0.00
b.	25 mm dia flexible conduit with end couplers	RM	35		0.00
c.	32 mm dia flexible conduit with end couplers	RM	0		0.00
3	Providing and fixing in position suitable 1.2 mm thick G.I./ PVC outlet box along with 1no. RJ- 45 computer/Voice outlet with all fixing accessories as required.	Nos.	18		0.00
4	Supply and Laying including numbering / ferruling of wire (8 digit) and the continuity test for each cable of Cat 6 - Telephone/Data cable in existing G.I Channel.	RM	540		-
TOTAL CARRIED OVER TO SUMMARY					0.00
C. EARTHING SYSTEM					
1	Providing and fixing in position the following copper / G.I. strips in heat shrinkable black colour PVC sleeves for only neutral / dedicated earthing strips and wires including providing, laying in Ground / tray / Conduit pipe with all fixing accessories and effecting proper connections.				
a	G.I tape 25 mm x 6 mm	RM	0		0.00
b	Copper wire 8 SWG	RM	50		0.00
b	GI wire 8 SWG	RM	50		0.00
2	Supply, laying, erecting, proper connections, testing & commissioning of the following sizes of 1.1 KV unarmoured PVC insulated PVC sheathed copper conductor cables conforming to IS : 1554 Part I - 1976 with latest amendments laid over MS supports in existing RCC ducts / laid in ground /laid on Cable Trays including clamping the cables to supports in an approved manner as required complete with all accessories.				
a	1C x 6 sqmm. unarmoured PVC insulated PVC Sheathed copper conductor cable.	RM	20		0.00
3	Supplying and making terminal joints for the following size of 1.1 KV PVC insulated copper conductor armoured cables including providing heavy duty copper terminal crimping lugs, solder, insulation tape, approved sealing epoxy compound, double compression brass cable glands, effecting gland connections and effecting terminal connections to the equipment complete as required.				
a	1C x 6sqmm. unarmoured PVC insulated PVC Sheathed copper conductor cable.	Jt	2		0.00
TOTAL CARRIED OVER TO SUMMARY					0.00
E. CABLES ,MAINS & SUBMAINS					

1	Supply and laying , effecting proper connections, testing & commissioning of the following sizes of 1.1 KV armoured/ unarmoured PVC insulated PVC sheathed aluminium /copper conductor cables conforming to IS : 1554 Part I - 1976 with latest amendments laid over MS supports in existing RCC ducts/ laid in ground /laid on Cable Trays including clamping the cables to supports in an approved manner as required complete with all accessories.				
a.	3.5cx185 sq.mm Al Ar. XLPE cable	RM	0		0.00
b.	3.5 c x150 sq.mm Al Ar. XLPE cable	RM	0		0.00
c.	3.5 c x 50 sq.mm Al Ar. XLPE cable.	RM	0		0.00
d.	3.5 c x 35 sq.mm Al Ar. XLPE cable	RM	0		0.00
e.	4 c x 25 sq.mm Al Ar. XLPE cable .(Main cable)	RM	45		0.00
f.	4c x 16 sq.mm Al Ar. XLPE cable . (Power DB)	RM	20		0.00
g.	4 c x 4 sq.mm Cu Ar. XLPE cable	RM	0		0.00
h.	4 c x 6 sq.mm Cu Ar. XLPE cable (3 phase equipment)	RM	35		0.00
i.	4 c x 10 sq.mm Cu Ar. XLPE cable	RM	0		0.00
j.	4 c x 16 sq.mm Cu Ar. XLPE cable	RM	0		0.00
k.	2 c x 16 sq.mm Cu Ar. XLPE cable . (Ups db)	RM	25		0.00
l.	2 c x 10 sq.mm Cu Ar. XLPE cable	RM	0		0.00
m.	3 c x 6 sq.mm Cu Ar. XLPE cable	RM	0		0.00
o.	1C x 6 sqmm. unarmoured PVC insulated PVC Sheathed copper conductor cable.	RM	0		0.00
2	Supplying and making terminal joints for the following size of 1.1 KV PVC insulated copper/Aluminium conductor armoured/unarmoured cables including providing heavy duty copper terminal crimping lugs, solder, insulation tape, approved sealing epoxy compound, Single/double compression brass cable glands, effecting gland connections and effecting terminal connections to the equipment complete as required.				
a.	3.5cx185 sq.mm Al Ar. XLPE cable	Jt	0		0.00
b.	3.5 c x150 sq.mm Al Ar. XLPE cable	Jt	0		0.00
c.	3.5 c x 50 sq.mm Al Ar. XLPE cable	Jt	0		0.00
d.	3.5 c x 35 sq.mm Al Ar. XLPE cable	Jt	2		0.00
e.	4c x 25sq.mm Al Ar. XLPE cable	Jt	0		0.00
f.	4c x 16 sq.mm Al Ar. XLPE cable	Jt	2		0.00
g.	4 c x 4 sq.mm Cu Ar. XLPE cable	Jt	0		0.00

h.	4 c x 6 sq.mm Cu Ar. XLPE cable	Jt	4		0.00
i.	4 c x 10 sq.mm Cu Ar. XLPE cable	Jt	0		0.00
j.	4 c x 16 sq.mm Cu Ar. XLPE cable	Jt	0		0.00
k.	2 c x 16 sq.mm Cu Ar. XLPE cable .(UPS DB)	Jt	2		0.00
l.	2 c x 10 sq.mm Cu Ar. XLPE cable	Jt	0		0.00
m	3 c x 6 sq.mm Cu Ar. XLPE cable	Jt	0		0.00
o	1C x 6 sqmm. unarmoured PVC insulated PVC Sheathed copper conductor cable.	Jt	0		0.00
TOTAL CARRIED OVER TO SUMMARY					0.00
G.	DISTRIBUTION BOARDS				
1	Supplying, installing ,connecting testing and commissioning of the following double door 1/4 rows vertical type 1.6mm thick sheet steel enclosed fully recessed type, TPN Miniature Circuit Breakers Distribution Boards dust proof, verm-in proof, with hinged and lockable doors complete with DP MCB's and inter-connection with copper wires, or copper tapes, cable glands-/conduit entry bushes, bonding to earth and paint-ing. Also provide separate neutral busbar for each phase. Provide separate Earth Links. Use brass thimbles for connections of all wires. 1 row for single phase and 4 rows for 3 phase. Provide separate 4 way 63 A main neutral link also.				
a	Use 'B' curve MCB's for lighting & small power circuits, 'C' curve for motor duty i.e. for pumps, AC motors, AHU 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.				
b	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 125A.				
c	UPS DB's shall have a dedicated Earthing link fixed on insulated supports, which will be in addition to body earth link.				
d	All internal inter connecting wiring with in the DB's shall be PVC insulated flexible copper conductor wires of adequate capacity as per the current rating.				
e	Inside each DB, a DB chart is to be fixed.				
1	DB type- (Power DB -1) 10Way DB. (For Office Area)				
	Incoming:				
	One (1) 63 Amp TPN MCB 10 KA as incomer				
	Three (3) nos. 40A DP ELCB on each phase.				

	Outgoing:				
	30 nos 6-20A SP MCBs, 10 KA.	Set	1		0
2	DB type- UPS DB 12 Way DB.				
	Incoming:				
	One (1) 63 Amp DP MCB 10 KA as incomer				
	Outgoing:				
	10 nos 6-25A DP MCBs, 10 KA.	Set	1		0
3	Supply, installation, testing and commissioning of sheet metal enclosed 63 A DP MCB (10 KA) for UPS.(This shall include cable entry boxes both for incoming and outgoing cable)	Nos.	1		0
4	Supply, installation, testing and commissioning of 1.6 mm thickness weather proof polycarbonate enclosures fitted with 32/40 A TPN MCB (10KA).(Hensel Make)	Nos.	2		0
	TOTAL CARRIED OVER TO SUMMARY				0.00
H	SUB DISTRIBUTION PANELS				
1	SDB's Light & Power				
	Design, manufacture, supplying at site,installing,testing and commissioning of the following cubical type, dead front, 2mm thick sheet steel enclosed, free standing indoor type extendible Sub Distribution Panel with vermin proof hinged lockable doors for each compartment provide bus bar interconnections for incoming and outgoing including feeders earthing and painting and as per specifications.				
a.	The MAIN VTPN DB 3 PHASE (10 WAY TPN DB 3 PHASE) shall consist of :-				
	INCOMER				
	100 A 4P MCCB(25 KA) terminal suitable for aluminium arm. conductor cable connection on one side and Busbar connection on the other side.				
	BUSBARS				
	200 amps 4P pole busbar chamber of suitable length with COPPER busbars.				
	3 nos phase indicating lamps each backed up with MCB and switch shall be provided for incomers.				
	OUTGOINGS				

	03Nos 32A SP MCB (10 kA) terminals suitable to receive 3x 6sq mm CU Conductor cable on one side and cable connection to Bus bars. (FOR SPLIT UNIT +Spare)				
	02 Nos 63 A 4P MCB (10 kA) terminals suitable to receive 3 x 6sq mm YFY Cable on one side and wire connection to Bus bars. (Power DB+ spare)				
	03 Nos 32 A 4P MCB (10 kA) terminals suitable to receive 3 x 6sq mm YFY Cable on one side and wire connection to Bus bars.(for 3 phase equipment)				
	02 Nos 40/63 A DP MCB (10 kA) terminals suitable to receive 3 x 6sq mm YFY Cable on one side and wire connection to Bus bars. (ForUPS DB +spare)				
	The VTPN DB as described above and specifications complete.	Set	1		0
2	Providing and fixing carbon dioxide (CO2) type fire extinguishers fully charged of following capacity				
(a)	4.5 KG	Each	3		0
6	Supply, installation, testing and commissioning of 1.6 mm thickness sheet metal enclosures fitted with 100A 4P MCCB (35 KA).(This shall include cable entry boxes both for incoming and outgoing cable) .(For LT isolation)	Nos.	0		0.00
TOTAL CARRIED OVER TO SUMMARY					0