

Estimate for the Internal E.I. Works of Extension of Ceramic Deptt., NIT at Rourkela

SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
A	Internal Electrification				
1	Wiring				
1.1	Wiring to light, with 1.5sqmm FR PVC insulated 1100 volt grade multistranded copper conductor wire for phase, neutral and earth continuity conductor from switch board upto points including circuit wiring with 2(1x2.5)+1(1x1.5) from BDB to Switch Board run inside 2mm thick PVC conduit pipe of required sizes recessed in wall/ column/ ceiling of the building including supply of materials such as flush type piano switches, GI concealed box, wire, ceiling rose, angle / batten holder, m.s. junction box, pull box, PVC conduit accessories, etc as per technical specifications complete with making good the damages caused as required and as per direction of Engineer-in-charge.				
(a)	Single light point or first light point of group control controlled by one 5A switch	Nos	250.0	658.00	164,500.00
(b)	Subsequent light point for the group of lights	Nos	20.0	492.00	9,840.00
(c)	Ceiling fan point including flush type stepped fan regulator & fan hook made out of 12mm plain round steel .	Nos	106.0	962.00	101,972.00
(d)	Exhaust fan point	Nos	3.0	658.00	1,974.00
(e)	5A plug on same board	Nos	21.0	144.00	3,024.00
(f)	5A plug on separate board	Nos	4.0	569.00	2,276.00
(g)	Two numbers 5A plug with switches for computer plug outlet	Nos	65.0	625.00	40,625.00
(h)	Three numbers 5A plug with switches for computer plug outlet for Faculty rooms	Nos	66.0	676.00	44,616.00
1.2	Supply, delivery, installation & testing of 5 / 15 ampere plug boards consisting of a 15 amp flush type piano switch with indicator and a 5/15 amp flush type piano plug socket fixed on GI concealed box including interconnections and making good the damages caused complete as required and as per direction of Engineer-in-charge.				
(a)	1no. 15A plug point in a separate board (For AC IDU, PPs)	Nos	185.0	475.00	87,875.00
(b)	1no. 5A+15A plug points in a separate board	Nos	10.0	456.00	4,560.00
1.3	Supply, delivery, installation & testing of 25 ampere switch boards consisting of a 25 amp flush type DP switch with indicator fixed on metallic concealed box including interconnections and making good the damages caused complete as required and as per direction of Engineer-in-charge (for Win/Split AC) .	Nos	20.0	1,450.00	104,400.00
1.4	Wiring for circuits and submain with following number & sizes of FR PVC insulated 1100 volt grade multistranded copper conductor wire run inside 2mm thick PVC conduit pipe recessed in ceiling/ column/ walls of building including supply of all materials such as wires, PVC conduit pipe & accessories, ms junction box & pull box etc complete with making good the damages caused as required and as per direction of Engineer-in-charge.				
(a)	2 numbers single core 2.5 sqmm copper wire for phase & neutral and 1 number single core 1.5 sqmm copper wire for earth continuity conductor.(for Lighting ckt/Comp. out-lets/ 15A+5A plug boards in each Labs)	Metre	1750.0	135.00	236,250.00
(b)	2 numbers single core 4.0 sqmm copper wire for phase & neutral and 1 number single core 2.5 sqmm copper wire for earth continuity conductor	Metre	300.0	169.00	50,700.00
(c)	4 numbers single core 4.0 sqmm copper wire for phase & neutral and 2 number single core 2.5 sqmm copper wire for earth continuity conductor (For 3Phase outlet boards in each labs)	Metre	330.0	272.00	89,760.00

SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
(d)	4 numbers single core 6.0 sqmm copper wire for phase & neutral and 2 number single core 4 sqmm copper wire for earth continuity conductor.(For 3Phase outlet boards in each labs, BDB-L1L2(GF) BDB-L3/L4(1F)/BDB-L5/L6 (2F).	Metre	150.0	374.00	56,100.00
(e)	4 numbers single core 10.0 sqmm copper wire for phase & neutral and 2 number single core 6 sqmm copper wire for earth continuity conductor (For PDB-II in each labs)	Metre	225.0	612.00	137,700.00
(f)	4 numbers single core 16.0 sqmm copper wire for phase & neutral and 2 number single core 10.0 sqmm copper wire for earth continuity conductor.(For PDB-I of Lab-1/2/3/4/5(GF), Lab-6/7/8/9/10(1F)	Metre	10.0	772.00	7,720.00
1.5	Supply & fixing of telephone outlet boards containing a flush type telephone cord outlet fixed on sheet steel box including laying of PVC conduit pipes and making good the damages caused complete as required and as per direction of Engineer-in-charge.	Nos	20.0	108.00	2,160.00
1.6	Wiring to telephone socket outlet from junction box with 0.5mm twin pair copper conductor wire run inside pre-laid PVC conduit pipe complete including termination, testing etc complete as required and as per direction of Engineer-in-charge.	Mtr	500.0	18.30	9,150.00
1.7	Supply, delivery and laying of following sizes of 2mm wall thicknees rigid PVC conduit concealed in wall/ column/ roof slab of the building or mounted on surface alongwith other accessories and 18 swg GI fish wire complete for telephone / TV / Circiut or Submain wiring as required and as per direction of Engineer-in-charge.				
(a)	19mm dia	Metre	250.0	40.00	10,000.00
(b)	25mm dia	Metre	200.0	51.00	10,200.00
(c)	32mm dia	Metre	350.0	74.00	25,900.00
1.8	Supply , Laying & testing of following size of XLPE insulated, PVC sheathed, round/strip armoured aluminium conductor power cable of 1100 volt grade clamped on surface of wall/ column/ existing RCC/ stone ware/ masonry cable trench/ cable tray/ through G.I. pipe/ hume pipe as the case may be, including cost of saddles/ clamps/ markers etc but excluding the cost of G. I. pipe/ hume pipe compete with making good the damages caused and returning the balance unused cables to stores as required and as per direction of Engineer-in-charge.				
(a)	4 core x 16 sqmm A2XFY	Metre	30.0	268.00	8,040.00
(b)	4 core x 25 sqmm A2XFY	Metre	150.0	320.00	48,000.00
(c)	4 core x 95 sqmm A2XFY	Metre	200.0	756.00	151,200.00
1.9	Supply of materials and end termination of following cables including supply of double compression brass cable glands, cable sockets etc complete as required and as per direction of Engineer-in-charge.				
(a)	4 core x 16 sqmm A2XFY	Nos	2.0	180.00	360.00
(b)	4 core x 25 sqmm A2XFY	Nos	10.0	220.00	2,200.00
(c)	4 core x 95 sqmm A2XFY	Nos	4.0	450.00	1,800.00

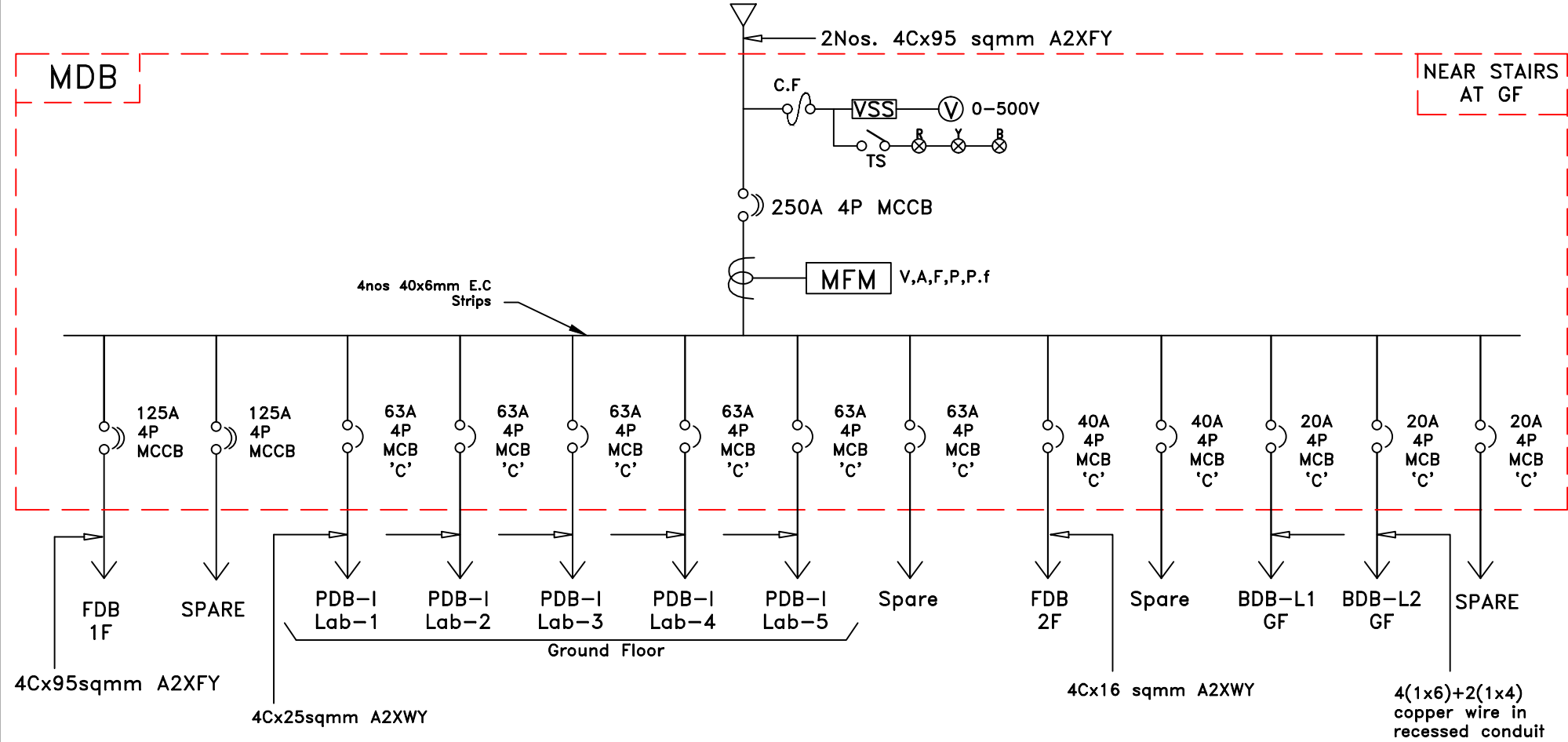
SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
2.	<u>Distribution Boards</u>				
2.1	<p>Supply, delivery, installation, testing & commissioning of L.T. indoor floor/ wall mounted type distribution boards made out of 2 mm thick CR sheet metal cubicle fixed on m.s. channel base, duly acid treated for derusting, primered and painted with 2 coats of enamel paint of approved shade; dust, damp & vermin proof ; having hinged door and compartmental arrangement for each equipment & busbar chamber on the top of the panel with busbars(Red,Yellow,& Black coloured) running horizontally; having provision for cable/ conduit entry, earthing studs as per specification mentioned below duly factory wired conforming to the relevant ISS and as per special conditions of contract making good the damages caused complete as per the direction of Engineer-in-charge.</p> <p>Wires/Busbars sizes for Main busbars</p> <p>1. For 250A MCCB=4nos. 40x6mm E.C strips 2. For 125A MCCB=4nos. 25x4mm E.C strips 3. For 50A MCB=4nos. 25x3mm E.C strips 4. For 40A 4 Pole MCB=4nos 16sqmm 1.1KV grade FR PVC insulated multistranded copper conductor wires. 5. for32A 4Pole MCB=4nos. 10sqmm 1.1KV grade FR PVC insulated multistranded copper conductor wires.</p> <p>NOTE:- Colours coded wires such as Red,Yellow,Blue Black & Green for Phases,Neutral&earth shall be used for the internal wiring of the panel.</p> <p>MCCB's connected with spreader links.</p>				
(a)	MDB (Extension Building of Ceramic Deptt)				
	Incomer: 1 no.250A 4P MCCB.with adjustable thermal setting				
	Bus bar: 4 nos. 40x6mm E.C strips				
	Outgoing: 2 Nos 125A 4P MCCB with adjustable thermal setting & 6 Nos 63A 4P MCB 'C'				
	2 Nos 40A 4P MCB 'C'				
	3 Nos 20A 4P MCB 'C' as per SLD.				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.				
	1 no.Multifunction meter to indicate Voltage,Current,frequency,KWh & Powerr factor.				
	1 nos.digital type 0-500V a c voltmeter with selector switch & control fuses.	Set	1.0	103,400.00	103,400.00
(b)	FDB - 1F				
	Incomer: 1 no. 125A 4P MCCB .with thermal setting				
	Bus bar: 4 nos. 25x4mm E.C strips				
	Outgoing: 6 Nos 63A 4P MCB 'C'				
	3 Nos 20A 4P MCB 'C' as per SLD.				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.				
	1 nos.digital type 0-500V a c voltmeter with selector switch & control fuses.	Set	1.0	49,900.00	49,900.00
(c)	FDB - 2F				
	Incomer: 1 no. 40A 4P MCB .				
	Bus bar: 4 nos. 20x3mm E.C strips				
	Outgoing: 4 Nos 20A 4P MCB 'C' as per SLD.				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.				
	1 nos.digital type 0-500V a c voltmeter with selector switch & control fuses.	Set	1.0	16,000.00	16,000.00


SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
(d)	PDB - I for Labs 1/2/3/4/5 (at GF) Incomer: 1 no. 63A 4P MCB 'C' . Outgoing: 1 no. 50A 4P MCB 'C'.,2 No 32A 4P MCB 'C' , 2 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	5.0	23,300.00	116,500.00
(e)	PDB - II for Labs 1/2/3/4/5 (at GF) Incomer: 1 no. 50A 4P MCB 'C' Outgoing: 2 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	5.0	15,400.00	77,000.00
(f)	PDB - I for Labs 6/7/8/9/10 (at 1F) Incomer: 1 no. 50A 4P MCB 'C' Outgoing: 3 Nos 32A 4P MCB 'C' ,2 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	5.0	23,300.00	116,500.00
(g)	PDB - II for Labs 6/7/8/9/10 (at 1F) Incomer: 1 No 32A 4P MCB 'C' , Outgoing: 2 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	5.0	14,400.00	72,000.00
2.2	Supply, delivery, installation, testing & commissioning of L.T. indoor type wall mounted original factory made metal one way enclosures for power supply to different Laboratory equipments.				
(a)	Metal one way enclosure with 20A 4P MCB 'C'	Nos	40.0	1,860.00	74,400.00
(b)	Metal one way enclosure with 35A 4P MCB 'C'	Nos	20.0	1,860.00	37,200.00
2.3	Supply, delivery, installation, testing & commissioning of L.T. indoor wall mounted double door type distribution boards of original factory made enclosures of the same brand as the MCB conforming to the relevant ISS and as per special conditions of contract making good the damages caused complete as per the direction of Engineer-in-charge.				
(a)	BDB-L1/L2(GF) / BDB-L3/L4(FF) / BDB-L5/L6(2F) (4way 7 segment TPN DB) Incoming: 1 No 32A 4P MCI Outgoing : 3 Nos 25A 2P RCCB (30mA) each followed 6 Nos 6-32 Amp 1P MCB 'C' as per SLD	Set	6.0	15,800.00	94,800.00
3	Fittings & Fixtures				
3.1	Supply& fixing of 1x18 watt CFL lamp on existing Angle/batten holder	Nos	6.0	191.00	1,146.00
(b)	Supply & Fixing of 1x14 W T5 FTL , testing & making connection from suitable point outlet with supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	66.0	550.00	36,300.00
(b)	Supply & Fixing of 1x28 W T5 FTL in CRCA steel sheet with epoxy coated body and cover channel fittings of pf not less than 0.95 and THD not more than 10 % ,testing & making connection from suitable point outlet with supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	204.0	850.00	173,400.00

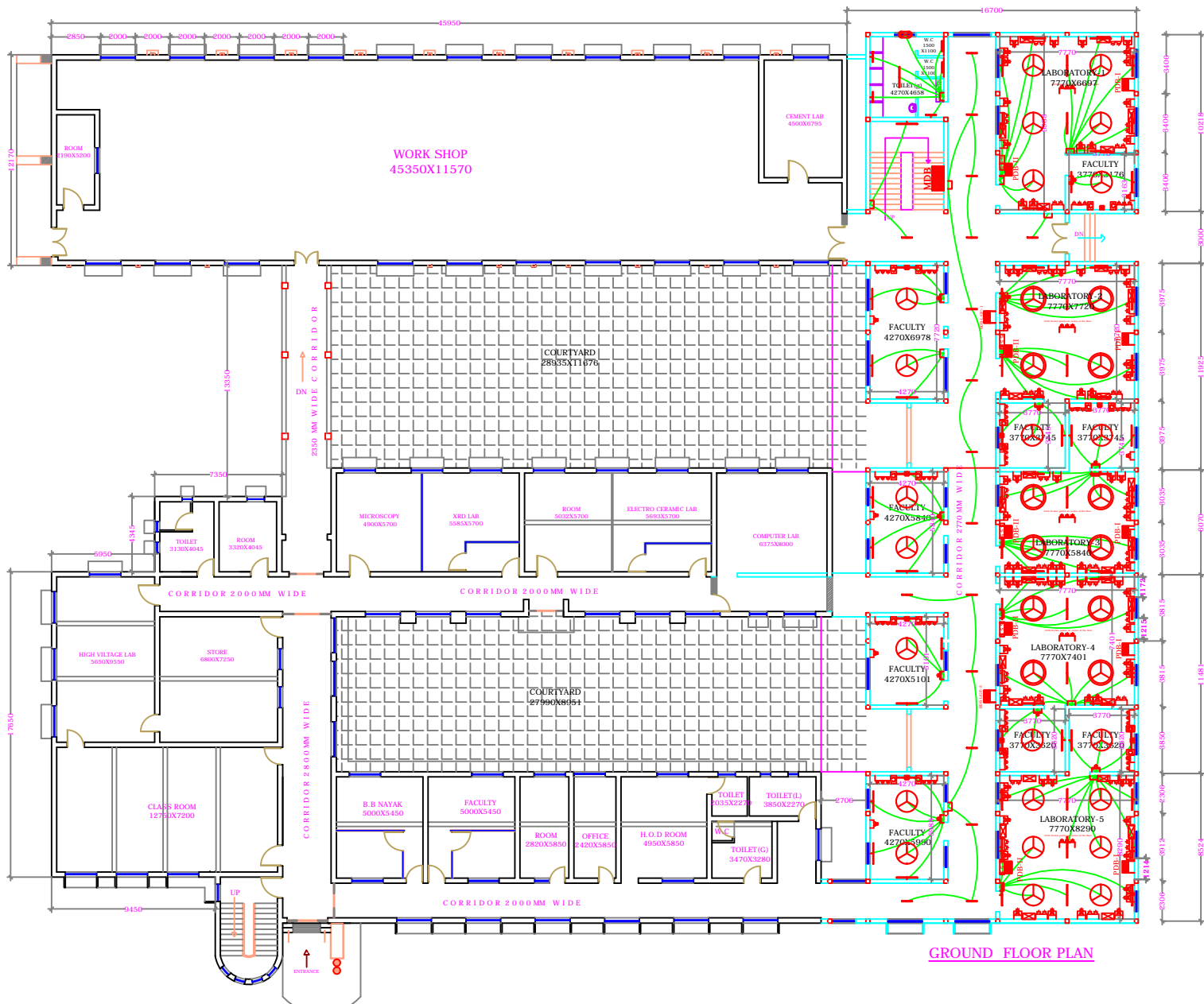
SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
(c)	Supply & Fixing of 1200mm energy efficient Ceiling Fan of BEE 5 star rating , testing & making connection from suitable point outlet with supply supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	106.0	1,692.00	179,352.00
3.2	Supply, delivery, installation & testing of following sweeps and speed of double ball bearing exhaust fans suitable for operation at 250 volt, 50 Hz, a.c. supply complete with a set of propeller metallic blade, tripod leg for mounting of motor, ring frame, gravity louvre complete assembly including supply of sundry materials, making hole of suitable size for housing of exhaust fan, making connection from suitable point outlet, making good the damages caused complete as required and as per direction of Engineer-in-charge.				
(a)	300mm sweep, 1400 rpm.	Nos	3.0	1,990.00	5,970.00
(b)	Supply, Installation, testing & commissioning of 2.0 KVA Microtek make Inverter complete as required. 2X150 AH Tubular battery	Nos	1.0	32,000.00	32,000.00
4	Earthing				
4.1	Supply of materials and installation of copper plate earth electrode made out of 600 x 600 x 3.15 mm thick tinned copper plate alongwith one number 40x5mm tinned copper strip brazed with the plate buried vertically with top edge of plate at a depth of 2400 mm with arrangements for termination of copper strip of earth continuity conductor including cost of charcoal, salt, foreign soil, 20mm dia G.I. pipe for water pouring arrangements, brick masonry enclosure on top with removable cast iron cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	2.0	12,000.00	24,000.00
4.2	Supply of materials and installation of pipe earth electrode made out of 50mm dia class B G.I. pipe of 3.0 metre long with arrangements for fitting/ termination of G.I. flat / wire with G. I. nut bolts & washers including cost of charcoal, salt, foreign soil, water pouring arrangements, brick masonry enclosure on top with removable RCC cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	12.0	3,000.00	36,000.00
4.3	Supply of materials and laying of 25 x 5 mm GI flat laid under ground including cost of jointing by welding, nut bolts, bituminous tape & bituminous paint, labour charges for excavation of trench in all kinds of soil etc complete as required from earthing electrode upto the GF of Elect room & then GF to 2F as earthing busbar.etc.	Mtr	200.0	100.00	20,000.00
4.4	Supply of materials and laying of 25 x 3 mm Cu flat laid under ground including cost of jointing by welding, nut bolts, bituminous tape & bituminous paint, labour charges for excavation of trench in all kinds of soil etc complete as required	Mtr	50.0	420.00	21,000.00
4.5	Supply of materials and laying under ground / floor / wall including making end termination and testing of 8 swg G.I. wire for loop earthing of equipments, switch boards & panels as required complete as per direction of Engineer-in-charge.				
(a)	8 swg	Metre	100.0	10.00	1,000.00
4.6	Supply and laying of following size PVC pipe underground / floor / wall including making as required complete as per direction of Engineer-in-charge.				
(a)	50mm dia	Metre	160.0	180.00	28,800.00
(b)	100 mm dia	Metre	50.0	350.00	17,500.00

SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
4.7	Supply and laying of 80mm dia GI pipe underground / floor including making for road crossing as required complete as per direction of Engineer-in-charge.	Metre	10.0	450	4,500.00
4.8	Lightning Arrestor				-
(a)	Supply of materials and installation of pipe earth electrode made out of 50mm dia class B G.I. pipe of 3.0 metre long with arrangements for fitting/ termination of G.I. flat / wire with G. I. nut bolts & washers including cost of charcoal, salt, foreign soil, water pouring arrangements, brick masonry enclosure on top with removable RCC cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	4.0	3,000.00	12,000.00
(b)	Supplying & laying Earth lead 25x 5mm GI flat to fix on the wall with proper saddles cutting of wall & ground & making good the damages complete in all respects.	Mtr	300.0	100	30,000.00
©	Supplying & Fixing Lighting arrestor of GI size minimum 1.0 mtr long 20mm dia	No	4.0	1,000.00	4,000.00
				Total:- Rs	2,797,570.00
				or Say	2,797,600.00

Owner's Source of Supply



	TITLE	SINGLE LINE DIAGRAM OF MDB FOR P/S TO EXTENSION BUILDING OF CERAMIC DEPTT. OF NIT AT ROURKELA.	DATE	03.01.13	R.STATUS	01
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA.	SCALE	NTS		
	ARCHITECT		DRAWING NO.	ECS/NIT/2012-13		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	1 OF 5		




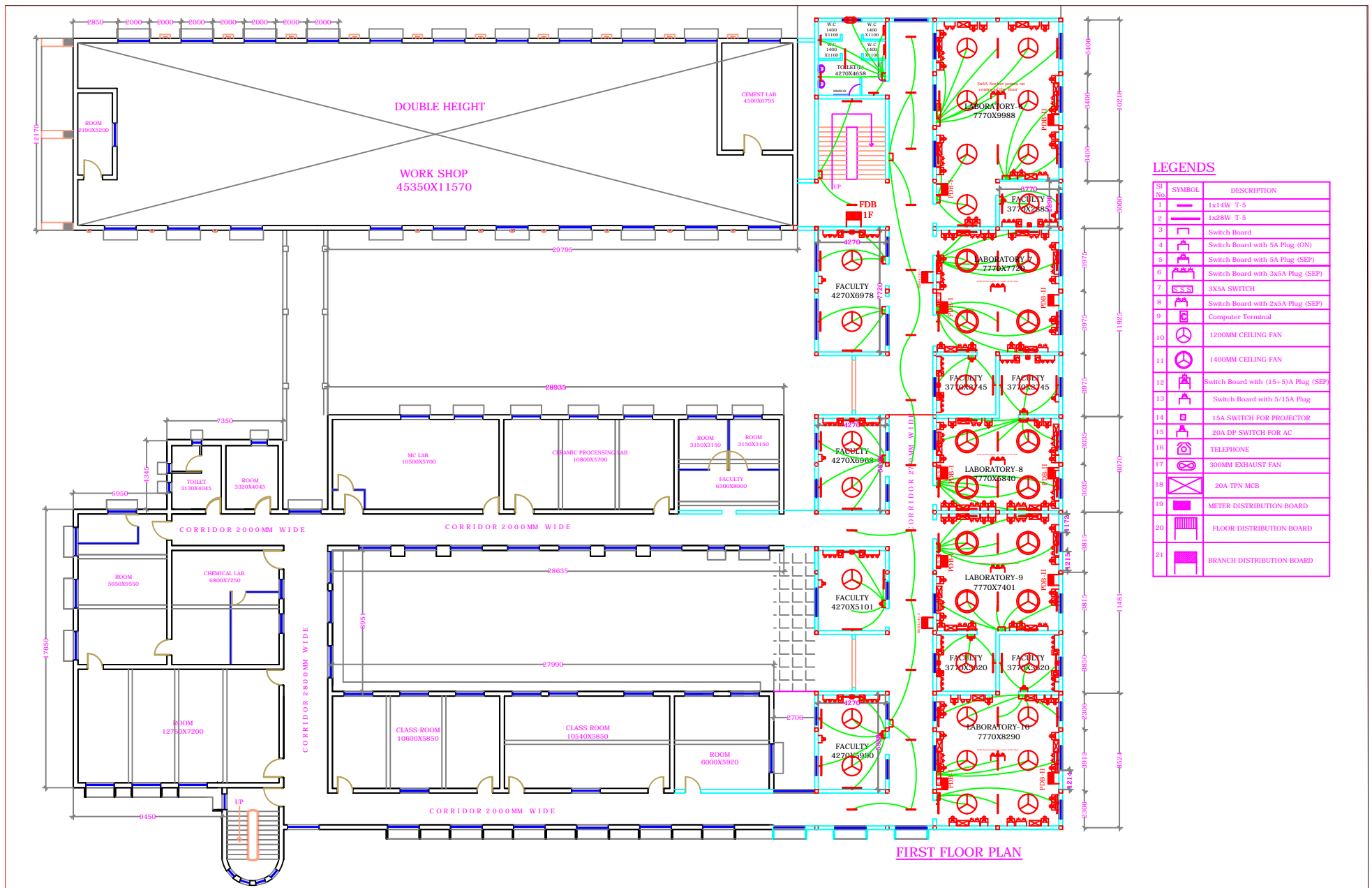
LEGENDS

Sr No.	SYMBOL	DESCRIPTION
1	[Symbol]	1x14W T-5
2	[Symbol]	1x28W T-5
3	[Symbol]	Switch Board
4	[Symbol]	Switch Board with 5A Plug (ON)
5	[Symbol]	Switch Board with 5A Plug (SEP)
6	[Symbol]	Switch Board with 3x5A Plug (SEP)
7	[Symbol]	3X5A SWITCH
8	[Symbol]	Switch Board with 2x5A Plug (SEP)
9	[Symbol]	Computer Terminal
10	[Symbol]	1200MM CEILING FAN
11	[Symbol]	1400MM CEILING FAN
12	[Symbol]	Switch Board with (15+5)A Plug (SEP)
13	[Symbol]	Switch Board with 5/15A Plug
14	[Symbol]	15A SWITCH FOR PROJECTOR
15	[Symbol]	20A DP SWITCH FOR AC
16	[Symbol]	TELEPHONE
17	[Symbol]	300MM EXHAUST FAN
18	[Symbol]	20A TPN MCB
19	[Symbol]	METER DISTRIBUTION BOARD
20	[Symbol]	FLOOR DISTRIBUTION BOARD
21	[Symbol]	BRANCH DISTRIBUTION BOARD

GROUND FLOOR PLAN



	TITLE	ELECTRICAL LAYOUT OF GROUND FLOOR FOR EXTENSION BUILDING OF CERAMIC DEPTT.AT NIT,ROURKELA	DATE	22.6.01	R.STATUS	NIL
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY	SCALE	1"=8'		
	ARCHITECT		DRAWING NO.	ECS/188ADC/___		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	_ OF _		

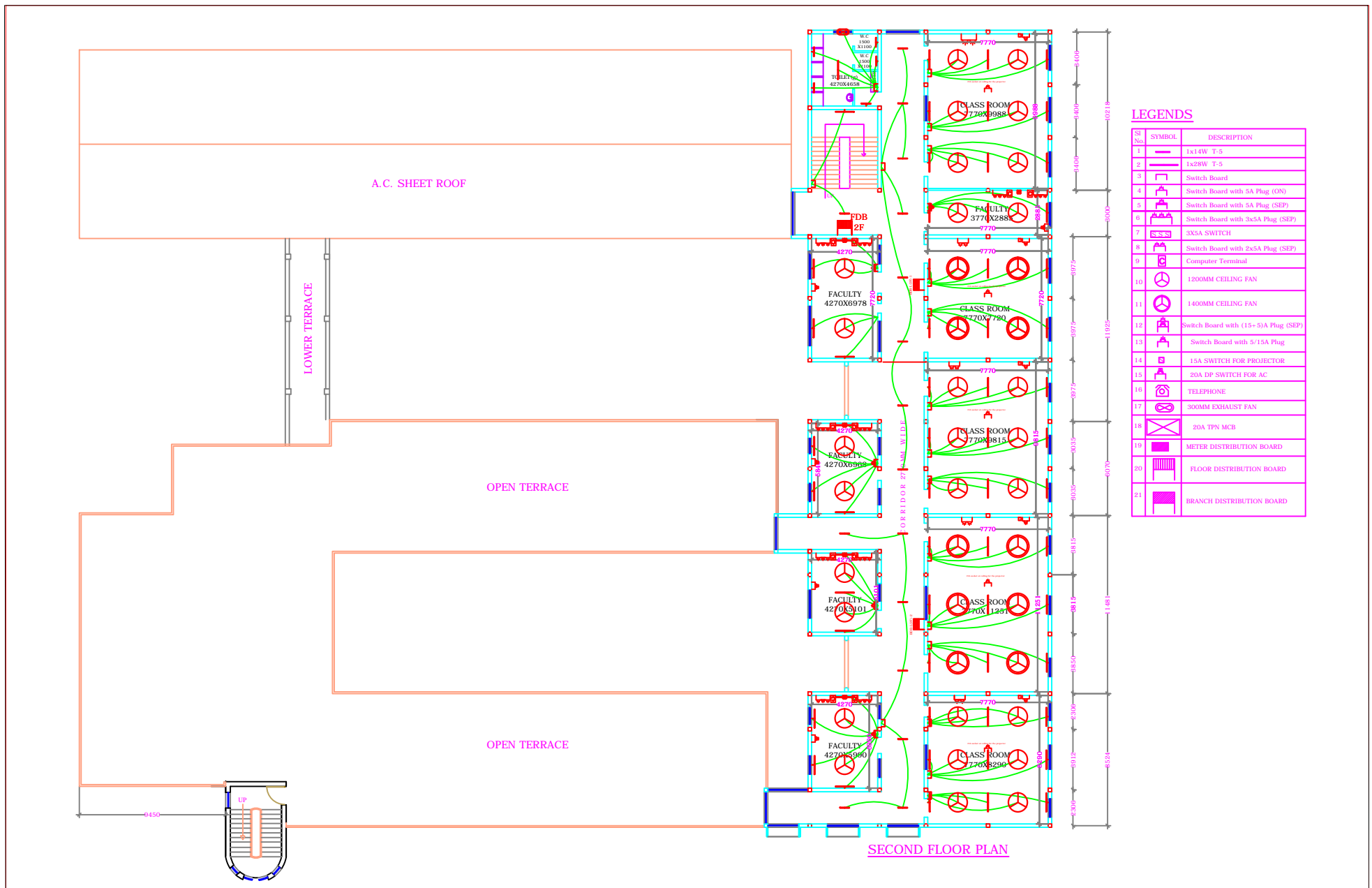


LEGENDS

Sl. No.	SYMBOL	DESCRIPTION
1		1x14W T-5
2		1x28W T-5
3		Switch Board
4		Switch Board with 5A Plug (ON)
5		Switch Board with 5A Plug (SEP)
6		Switch Board with 3x5A Plug (SEP)
7		3X5A SWITCH
8		Switch Board with 2x5A Plug (SEP)
9		Computer Terminal
10		1200MM CEILING FAN
11		1400MM CEILING FAN
12		Switch Board with (15+5)A Plug (SEP)
13		Switch Board with 5/15A Plug
14		15A SWITCH FOR PROJECTOR
15		20A DP SWITCH FOR AC
16		TELEPHONE
17		300MM EXHAUST FAN
18		20A TPN MCB
19		METER DISTRIBUTION BOARD
20		FLOOR DISTRIBUTION BOARD
21		BRANCH DISTRIBUTION BOARD



	TITLE	ELECTRICAL LAYOUT OF FIRST FLOOR FOR EXTENSION BUILDING OF CERAMIC DEPTT.AT NIT,ROURKELA	DATE	5.01.13	R.STATUS	NIL
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY	SCALE	1"=8'		
	ARCHITECT		DRAWING NO.	ECS/188ADC/___		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	_ OF _		



LEGENDS

Sl. No.	SYMBOL	DESCRIPTION
1		1x14W T-5
2		1x28W T-5
3		Switch Board
4		Switch Board with 5A Plug (ON)
5		Switch Board with 5A Plug (SEP)
6		Switch Board with 3x5A Plug (SEP)
7		3X5A SWITCH
8		Switch Board with 2x5A Plug (SEP)
9		Computer Terminal
10		1200MM CEILING FAN
11		1400MM CEILING FAN
12		Switch Board with (15+5)A Plug (SEP)
13		Switch Board with 5/15A Plug
14		15A SWITCH FOR PROJECTOR
15		20A DP SWITCH FOR AC
16		TELEPHONE
17		300MM EXHAUST FAN
18		20A TPN MCB
19		METER DISTRIBUTION BOARD
20		FLOOR DISTRIBUTION BOARD
21		BRANCH DISTRIBUTION BOARD

SECOND FLOOR PLAN

	TITLE	ELECTRICAL LAYOUT OF SECOND FLOOR FOR EXTENSION BULDING OF CERAMIC DEPTT.AT NIT,ROURKELA	DATE	5.01.13	R.STATUS	NIL
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY	SCALE	1"=8'		
	ARCHITECT		DRAWING NO.	ECS/188ADC/___		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	_ OF _		

Estimate for the Internal E.I. Works of Extension of Mining Deptt., NIT at Rourkela					
SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
A	<u>Internal Electrification</u>				
1	<u>Wiring</u>				
1.1	Wiring to light, with 1.5sqmm FR PVC insulated 1100 volt grade multistranded copper conductor wire for phase, neutral and earth continuity conductor from switch board upto points including circuit wiring with 2(1x2.5)+1(1x1.5) from BDB to Switch Board run inside 2mm thick PVC conduit pipe of required sizes recessed in wall/ column/ ceiling of the building including supply of materials such as flush type piano switches, GI concealed box, wire, ceiling rose, angle / batten holder, m.s. junction box, pull box, PVC conduit accessories, etc as per technical specifications complete with making good the damages caused as required and as per direction of Engineer-in-charge.				
(a)	Single light point or first light point of group control controlled by one 5A switch	Nos	217.0	658.00	142,786.00
(b)	Subsequent light point for the group of lights	Nos	20.0	492.00	9,840.00
(c)	Ceiling fan point including flush type stepped fan regulator & fan hook made out of 12mm plain round steel .	Nos	91.0	962.00	87,542.00
(d)	Exhaust fan point	Nos	2.0	658.00	1,316.00
(e)	5A plug on same board	Nos	20.0	144.00	2,880.00
(f)	5A plug on separate board	Nos	10.0	569.00	5,690.00
(g)	Two numbers 5A plug with switches for computer plug outlet	Nos	48.0	625.00	30,000.00
(h)	Three numbers 5A plug with switches for computer plug outlet for Faculty rooms	Nos	53.0	676.00	35,828.00
1.2	Supply, delivery, installation & testing of 5 / 15 ampere plug boards consisting of a 15 amp flush type piano switch with indicator and a 5/15 amp flush type piano plug socket fixed on GI concealed box including interconnections and making good the damages caused complete as required and as per direction of Engineer-in-charge.				
(a)	1no. 15A plug point in a separate board (For AC IDU, PPs)	Nos	26.0	475.00	12,350.00
(b)	1no. 5A+15A plug points in a separate board	Nos	144.0	456.00	65,664.00
1.3	Supply, delivery, installation & testing of 25 ampere switch boards consisting of a 25 amp flush type DP switch with indicator fixed on metallic concealed box including interconnections and making good the damages caused complete as required and as per direction of Engineer-in-charge (for Win/Split AC) .	Nos	14.0	1,450.00	104,400.00
1.4	Wiring for circuits and submain with following number & sizes of FR PVC insulated 1100 volt grade multistranded copper conductor wire run inside 2mm thick PVC conduit pipe recessed in ceiling/ column/ walls of building including supply of all materials such as wires, PVC conduit pipe & accessories, ms junction box & pull box etc complete with making good the damages caused as required and as per direction of Engineer-in-charge.				
(a)	2 numbers single core 2.5 sqmm copper wire for phase & neutral and 1 number single core 1.5 sqmm copper wire for earth continuity conductor.(for Lighting ckt/Comp. out-lets/ 15A+5A plug boards in each Labs)	Metre	1386.0	135.00	187,110.00
(b)	2 numbers single core 4.0 sqmm copper wire for phase & neutral and 1 number single core 2.5 sqmm copper wire for earth continuity conductor.	Metre	300.0	169.00	50,700.00
(c)	4 numbers single core 4.0 sqmm copper wire for phase & neutral and 2 number single core 2.5 sqmm copper wire for earth continuity conductor (For 3Phase outlet boards in each labs)	Metre	528.0	272.00	143,616.00

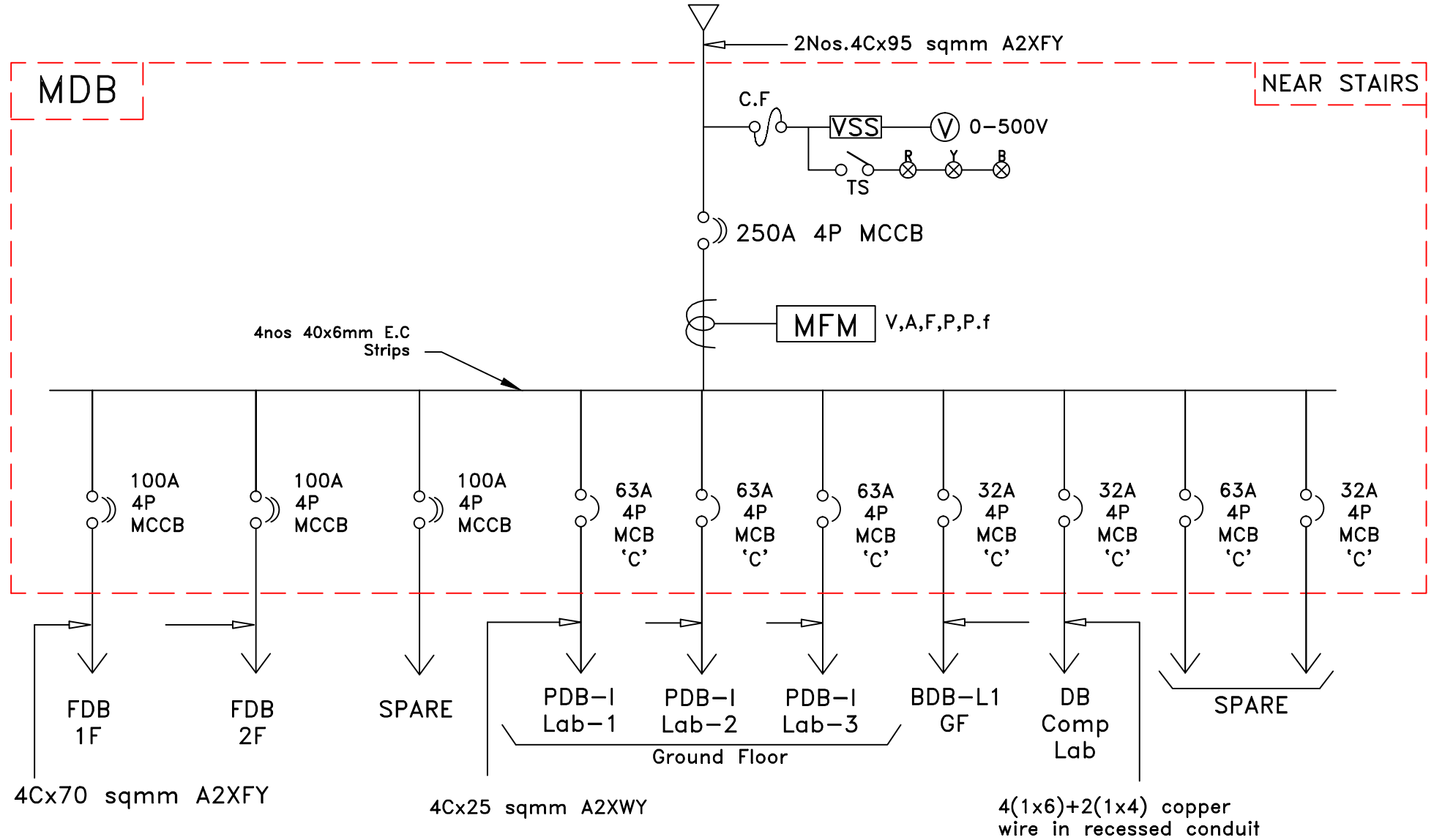
SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
(d)	4 numbers single core 6.0 sqmm copper wire for phase & neutral and 2 number single core 4 sqmm copper wire for earth continuity conductor.(For BDB-L1 (GF) BDB-L2/L3 (1F)/BDB-L2/L3 (2F)/ DB Comp Lab).	Metre	150.0	374.00	56,100.00
(e)	4 numbers single core 10.0 sqmm copper wire for phase & neutral and 2 number single core 6 sqmm copper wire for earth continuity conductor (For PDB-II in each labs)	Metre	225.0	612.00	137,700.00
(f)	4 numbers single core 16.0 sqmm copper wire for phase & neutral and 2 number single core 10.0 sqmm copper wire for earth continuity conductor.(For PDB-I of Lab-4/5/6(1F),Llab-7/8/9(2F)	Metre	120.0	772.00	92,640.00
1.5	Supply & fixing of telephone outlet boards containing a flush type telephone cord outlet fixed on sheet steel box including laying of PVC conduit pipes and making good the damages caused complete as required and as per direction of Engineer-in-charge.	Nos	25.0	108.00	2,700.00
1.6	Wiring to telephone socket outlet from junction box with 0.5mm twin pair copper conductor wire run inside pre-laid PVC conduit pipe complete including termination, testing etc complete as required and as per direction of Engineer-in-charge.	Mtr	750.0	18.30	13,725.00
1.7	Supply & fixing of TV antenna outlet boards containing a flush type piano TV antenna socket fixed on GI concealed box including connections and making good the damages caused complete as required and as per direction of Engineer-in-charge.	Nos	1.0	123.00	123.00
1.8	Wiring to TV antenna outlet from junction box with RG-6 coaxial copper conductor TV antenna cable run inside prelaidd PVC conduit complete including termination, testing etc complete as required and as per direction of Engineer-in-charge.	Metre	25.0	27.00	675.00
1.9	Supply, delivery and laying of following sizes of 2mm wall thicknees rigid PVC conduit concealed in wall/ column/ roof slab of the building or mounted on surface alongwith other accessories and 18 swg GI fish wire complete for telephone / TV / Circiut or Submain wiring as required and as per direction of Engineer-in-charge.				
(a)	19mm dia	Metre	350.0	40.00	14,000.00
(b)	25mm dia	Metre	500.0	51.00	25,500.00
(c)	32mm dia	Metre	250.0	74.00	18,500.00
1.10	Supply , Laying & testing of following size of XLPE insulated, PVC sheathed, round/strip armoured aluminium conductor power cable of 1100 volt grade clamped on surface of wall/ column/ existing RCC/ stone ware/ masonry cable trench/ cable tray/ through G.I. pipe/ hume pipe as the case may be, including cost of saddles/ clamps/ markers etc but excluding the cost of G. I. pipe/ hume pipe compete with making good the damages caused and returning the balance unused cables to stores as required and as per direction of Engineer-in-charge.				
(a)	4 core x 25 sqmm 2AXFY	Metre	75.0	320.00	24,000.00
(b)	4 core x 70 sqmm 2AXFY	Metre	20.0	604.00	12,080.00
(c)	4 core x 95 sqmm 2AXFY	Metre	200.0	756.00	151,200.00
1.11	Supply of materials and end termination of following cables including supply of single compression brass cable glands, cable sockets etc complete as required and as per direction of Engineer-in-charge.				
(a)	4 core x 25 sqmm 2AXFY	Nos	6.0	220.00	1,320.00
(b)	4 core x 70 sqmm 2AXFY	Nos	4.0	350.00	1,400.00
(c)	4 core x 95 sqmm 2AXFY	Nos	4.0	450.00	1,800.00
2.	Distribution Boards				

SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
2.1	Supply, delivery, installation, testing & commissioning of L.T. indoor floor/ wall mounted type distribution boards made out of 2 mm thick CR sheet metal cubicle fixed on m.s. channel base, duly acid treated for derusting, primered and painted with 2 coats of enamel paint of approved shade; dust, damp & vermin proof ; having hinged door and compartmental arrangement for each equipment & busbar chamber on the top of the panel with busbars(Red,Yellow,& Black coloured) running horizontally; having provision for cable/ conduit entry, earthing studs as per specification mentioned below duly factory wired conforming to the relevant ISS and as per special conditions of contract making good the damages caused complete as per the direction of Engineer-in-charge. Wires/Busbars sizes for Main busbars 1. For 250A MCCB=4nos. 40x6mm E.C strips 2. For 100A MCCB=4nos. 25x4mm E.C strips 3. For 63A MCB=4nos. 25x3mm E.C strips 4. For 40A 4 Pole MCB=4nos 16sqmm 1.1KV grade FR PVC insulated multistranded copper conductor wires. 5. for32A 4Pole MCB=4nos. 10sqmm 1.1KV grade FR PVC insulated multistranded copper conductor wires. NOTE:- Colours coded wires such as Red,Yellow,Blue Black & Green for Phases,Neutral&earth shall be used for the internal wiring of the panel. MCCB's connected with spreader links.				
(a)	MDB (Extension Building of Minning Deptt)				
	Incomer: 1 no.250A 4P MCCB.with adjustable thermal setting				
	Bus bar: 4 nos. 40x6mm E.C strips				
	Outgoing: 3 Nos 100A 4P MCCB with adjustable thermal setting				
	4 Nos 32A 4P MCB 'C'				
	3 Nos 32A 4P MCB 'C' as per SLD.				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.				
	1 no.Multifunction meter to indicate Voltage,Current,frequency,KWh & Power factor.				
	1 nos.digital type 0-500V a c voltmeter with selector switch & control fuses.	Set	1.0	100,400.00	100,400.00
(b)	FDB - 1F/2F				
	Incomer: 1 no. 100A 4P MCCB .with thermal setting				
	Bus bar: 4 nos. 25x5mm E.C strips				
	Outgoing: 4 Nos 63A 4P MCB.'C'				
	3 Nos 32A 4P MCB 'C' as per SLD.				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.				
	1 nos.digital type 0-500V a c voltmeter with selector switch & control fuses.	Set	2.0	52,200.00	104,400.00
(c)	PDB - I for Labs 1/2/3 (GF)				
	Incomer: 1 no. 63A 4P MCB.'C'				
	Outgoing: 1 No 40A 4P MCB 'C' , 4 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	3.0	23,300.00	69,900.00
(d)	PDB - I for Labs 4/5/6(1F),7/8/9(2F)				
	Incomer: 1 no. 50A 4P MCB.'C'				
	Outgoing: 1 No 40A 4P MCB 'C' , 4 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD				
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	6.0	23,300.00	139,800.00
(e)	PDB - II for Lab 1/2/3 (GF),Lab 4/5/6 (1F),Lab 7/8/9 (2F)				
	Incomer: 1 No 32A 4P MCB 'C' ,				
	Outgoing: 4 Nos 25A 4P MCB 'C' & 6 Nos 16A 2P MCB 'C as per SLD				

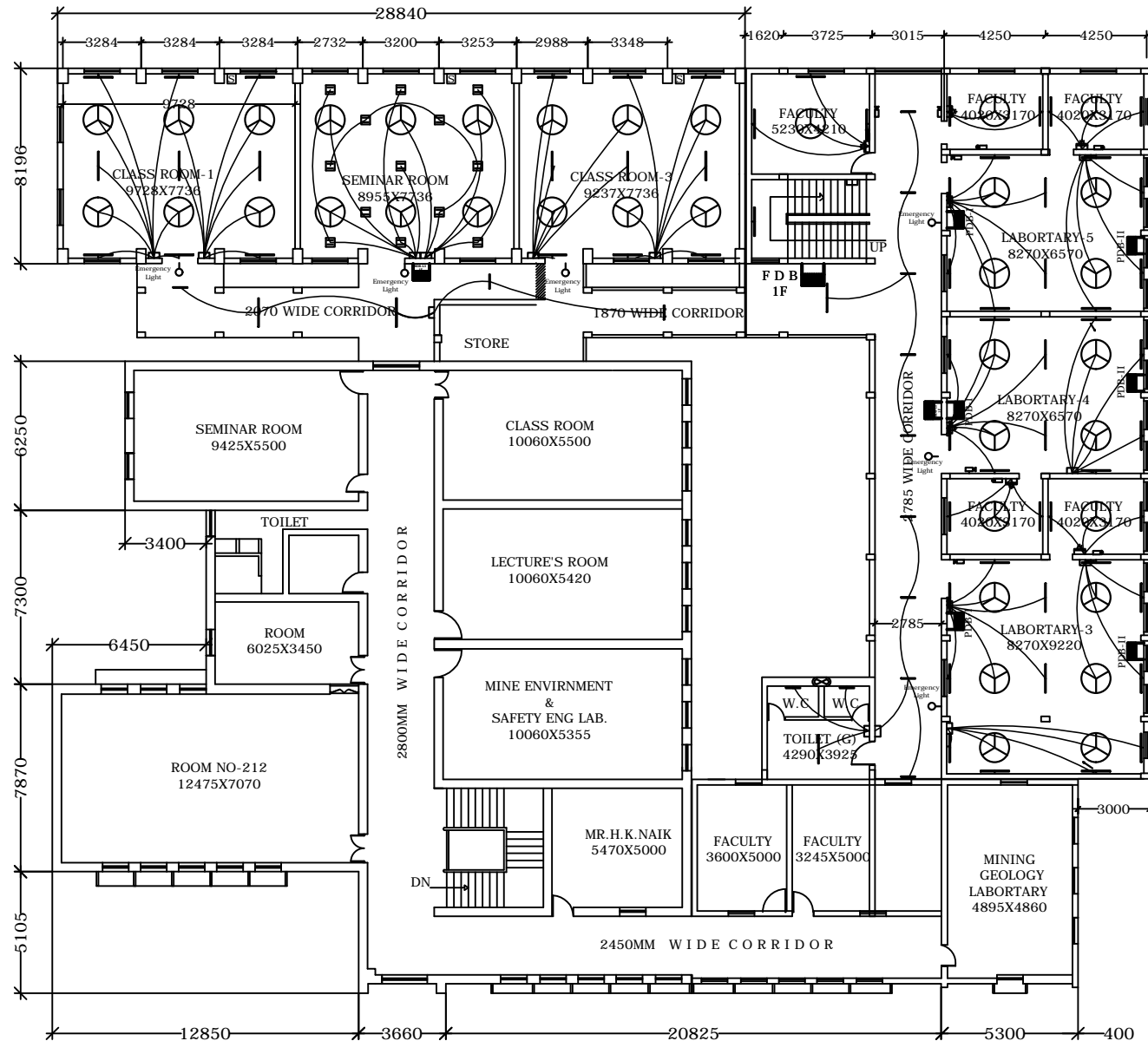
SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
	Instruments: 3 nos.LED type phase indicating lamps with control fuses & toggle switch.	Set	9.0	18,900.00	170,100.00
2.2	Supply, delivery, installation, testing & commissioning of L.T. indoor type wall mounted original factory made metal one way enclosures for power supply to different Laboratory equipments.				
(a)	Metal one way enclosure with 20A 4P MCB 'C'	Nos	72.0	1,860.00	133,920.00
2.3	Supply, delivery, installation, testing & commissioning of L.T. indoor wall mounted double door type distribution boards of original factory made enclosures of the same brand as the MCB conforming to the relevant ISS and as per special conditions of contract making good the damages caused complete as per the direction of Engineer-in-charge.				
(a)	DB-Comp Lab (6way 7 segment TPN DB)				
	Incoming: 1 No 32A 4P MCI				
	Outgoing : 3 Nos 25A 2P RCCB (30mA) each followed 6 Nos 6-32 Amp 1P MCB 'C' as per SLD	Set	1.0	17,800.00	17,800.00
(b)	BDB-L1(GF) / BDB-L2/L3(FF) / BDB-L4/L5(2F) (4way 7 segment TPN DB)				
	Incoming: 1 No 32A 4P MCI				
	Outgoing : 3 Nos 25A 2P RCCB (30mA) each followed 6 Nos 6-32 Amp 1P MCB 'C' as per SLD	Set	5.0	15,800.00	79,000.00
3	Fittings & Fixtures				
3.1	Supply& fixing of 1x18 watt CFL lamp on existing Angle/batten holder				
(a)		Nos	17.0	191.00	3,247.00
(b)	Supply & Fixing of 1x14 W T5 FTL , testing & making connection from suitable point outlet with supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	38.0	550.00	20,900.00
(c)	Supply & Fixing of 1x28 W T5 FTL in CRCA steel sheet with epoxy coated body and cover channel fittings of pf not less than 0.95 and THD not more than 10 % ,testing & making connection from suitable point outlet with supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	186.0	850.00	158,100.00
(d)	Fixing of 1200mm energy efficient Ceiling Fan of BEE 5 star rating ,testing & making connection from suitable point outlet with supply supply & connection with 3core 0.5sqmm unarmoured round flexible copper cord complete as required and as per direction of Engineer-in-charge.	Nos	91.0	1,692.00	153,972.00
3.2	Supply, delivery, installation & testing of following sweeps and speed of double ball bearing exhaust fans suitable for operation at 250 volt, 50 Hz, a.c. supply complete with a set of propeller metallic blade, tripod leg for mounting of motor, ring frame,gravity louvre complete assembly including supply of sundry materials, making hole of suitable size for housing of exhaust fan, making connection from suitable point outlet, making good the damages caused complete as required and as per direction of Engineer-in-charge.				
(a)	300mm sweep, 1400 rpm.	Nos	2.0	1,990.00	3,980.00
(b)	Supply,Installation, testing & commisioning of 2.0 KVA Microtek make Inverter complete as required.2X150 AH	Nos	1.0	32,000.00	32,000.00

SINo	DESCRIPTION	Unit	Qty	Supply of Materials	
				Rate	Amount
4	Earthing				
4.1	Supply of materials and installation of copper plate earth electrode made out of 600 x 600 x 3.15 mm thick tinned copper plate alongwith one number 40x5mm tinned copper strip brazed with the plate buried vertically with top edge of plate at a depth of 2400 mm with arrangements for termination of copper strip of earth continuity conductor including cost of charcoal, salt, foreign soil, 20mm dia G.I. pipe for water pouring arrangements, brick masonry enclosure on top with removable cast iron cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	2.0	12,000.00	24,000.00
4.2	Supply of materials and installation of pipe earth electrode made out of 50mm dia class B G.I. pipe of 3.0 metre long with arrangements for fitting/ termination of G.I. flat / wire with G. I. nut bolts & washers including cost of charcoal, salt, foreign soil, water pouring arrangements, brick masonry enclosure on top with removable RCC cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	8.0	3,000.00	24,000.00
4.3	Supply of materials and laying of 25 x 5 mm GI flat laid under ground including cost of jointing by welding, nut bolts, bituminous tape & bituminous paint, labour charges for excavation of trench in all kinds of soil etc complete as required from earthing electrode upto the GF of Elect room & then GF to 2F as earthing busbar.etc.	Mtr	200.0	100.00	20,000.00
4.4	Supply of materials and laying of 25 x 3 mm Cu flat laid under ground including cost of jointing by welding, nut bolts, bituminous tape & bituminous paint, labour charges for excavation of trench in all kinds of soil etc complete as required	Mtr	50.0	420.00	21,000.00
4.5	Supply of materials and laying under ground / floor / wall including making end termination and testing of 8 swg G.I. wire for loop earthing of equipments, switch boards & panels as required complete as per direction of Engineer-in-charge.				
(a)	8 swg	Metre	100.0	10.00	1,000.00
4.6	Supply and laying of following size PVC pipe underground / floor / wall including making as required complete as per direction of Engineer-in-charge.				
(a)	50mm dia	Metre	150.0	180.00	27,000.00
(b)	100 mm dia	Metre	50.0	350.00	17,500.00
4.7	Supply and laying of 80mm dia GI pipe underground / floor including making for road crossing as required complete as per direction of Engineer-in-charge.	Metre	10.0	450	4,500.00
4.8	Lightning Arrestor				-
(a)	Supply of materials and installation of pipe earth electrode made out of 50mm dia class B G.I. pipe of 3.0 metre long with arrangements for fitting/ termination of G.I. flat / wire with G. I. nut bolts & washers including cost of charcoal, salt, foreign soil, water pouring arrangements, brick masonry enclosure on top with removable RCC cover complete with labour for excavation of pit in all kinds of soil & rock as required and as per direction of Engineer-in-charge.	Nos	4.0	3,000.00	12,000.00
(b)	Supplying & laying Earth lead 25x 5mm GI flat to fix on the wall with proper saddles cutting of wall & ground & making good the damages complete in all respects.	Mtr	300.0	100	30,000.00
©	Supplying & Fixing Lighting arrestor of GI size minimum 1.0 mtr long 20mm dia	No	4.0	1,000.00	4,000.00
				Total:- Rs	2,805,704.00
				or Say	2,805,700.00

Owner's Source of Supply



	TITLE	SINGLE LINE DIAGRAM OF MDB FOR P/S TO EXTENSION BUILDING OF MINNING DEPTT. OF NIT AT ROURKELA.	DATE	03.01.13	R.STATUS	01
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA.	SCALE	NTS		
	ARCHITECT		DRAWING NO.		ECS/NIT/2012-13	
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.		1 OF 5	

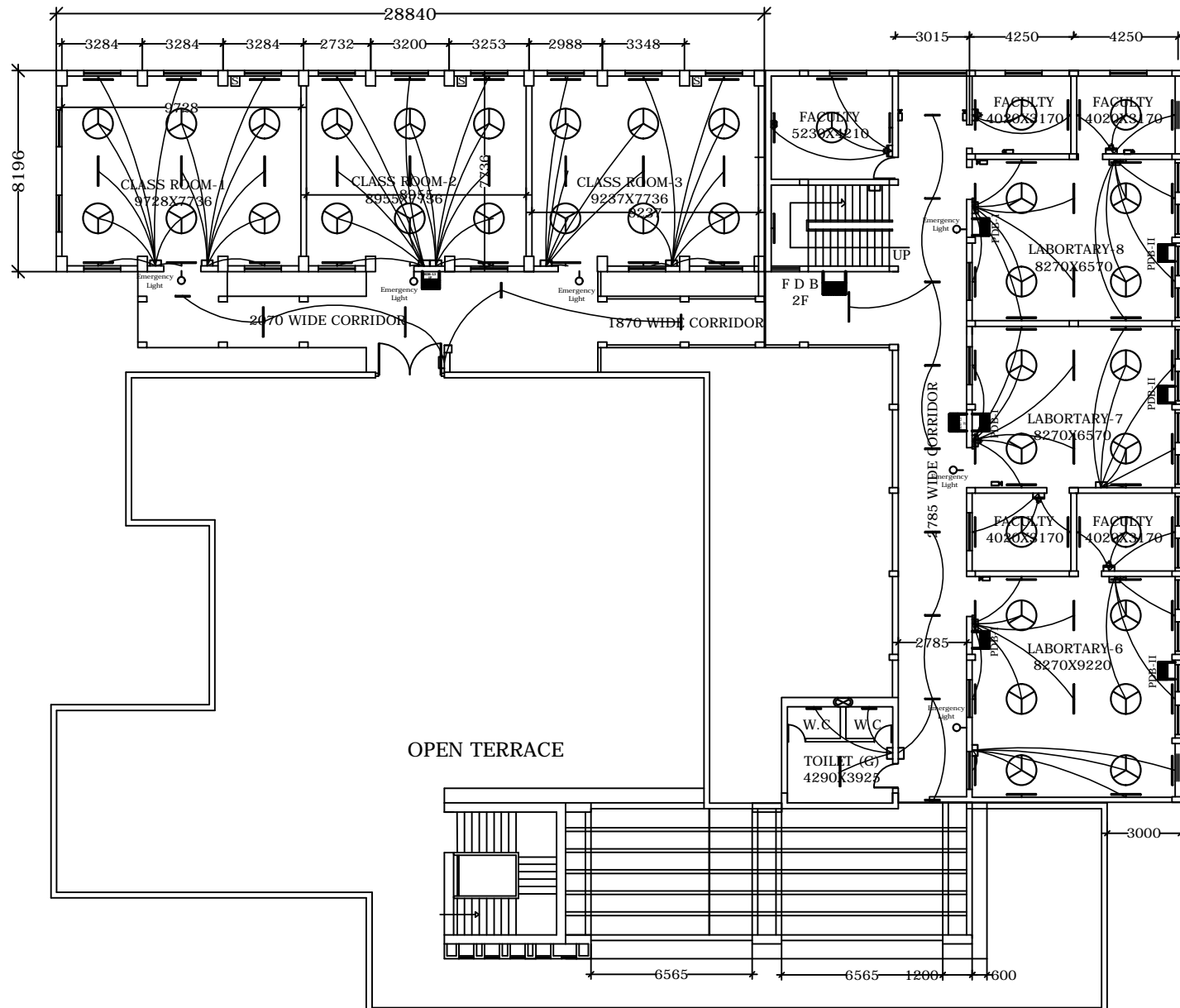


LEGENDS

Sl No.	SYMBOL	DESCRIPTION
1		1x14W T-5
2		1x28W T-5
3		Switch Board
4		Switch Board with 5A Plug (ON)
5		Switch Board with 5A Plug (SEP)
6		Switch Board with 3x5A Plug (SEP)
7		3X5A SWITCH FOR PROJECTOR
8		Switch Board with (15+5)A Plug (SEP)
9		Switch Board with 2x5A Plug (SEP)
10		Computer Terminal
11		300MM EXHAUST FAN
12		1200MM CEILING FAN
13		1400MM CEILING FAN
14		Switch Board with 5/15A Plug
15		15A SWITCH FOR PROJECTOR
16		20A DP SWITCH FOR AC
17		TELEPHONE
18		20A TPN MCB
19		METER DISTRIBUTION BOARD
20		FLOOR DISTRIBUTION BOARD
21		BRANCH DISTRIBUTION BOARD



	TITLE	ELECTRICAL LAYOUT OF FIRST FLOOR FOR EXTENSION BUILDING OF MINING DEPTT.AT NIT,ROURKELA	DATE	5.01.13	R.STATUS	NIL
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY	SCALE	1"=8'		
	ARCHITECT		DRAWING NO.	ECS/188ADC/___		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	_ OF _		



LEGENDS

Sl No	SYMBOL	DESCRIPTION
1		1x14W T-5
2		1x28W T-5
3		Switch Board
4		Switch Board with 5A Plug (ON)
5		Switch Board with 5A Plug (SEP)
6		Switch Board with 3x5A Plug (SEP)
7		3X5A SWITCH FOR PROJECTOR
8		Switch Board with (15+5)A Plug (SEP)
9		Switch Board with 2x5A Plug (SEP)
10		Computer Terminal
11		300MM EXHAUST FAN
12		1200MM CEILING FAN
13		1400MM CEILING FAN
14		Switch Board with 5/15A Plug
15		15A SWITCH FOR PROJECTOR
16		20A DP SWITCH FOR AC
17		TELEPHONE
18		20A TPN MCB
19		METER DISTRIBUTION BOARD
20		FLOOR DISTRIBUTION BOARD
21		BRANCH DISTRIBUTION BOARD



	TITLE	ELECTRICAL LAYOUT OF SECOND FLOOR FOR EXTENSION BULDING OF MINING DEPTT.AT NIT,ROURKELA	DATE	5.01.13	R.STATUS	NIL
	CLIENT	NATIONAL INSTITUTE OF TECHNOLOGY	SCALE	1"=8'		
	ARCHITECT		DRAWING NO.	ECS/188ADC/___		
	CONSULTANT	ELECTRICAL CONSULTANCY & SERVICES, 565, LAXMIVIHAR, BBSR.	SHEET NO.	_ OF _		