

**STATE BANK OF INDIA**  
**SCHEDULE OF WORKS: ELECTRICAL AND AIR CONDITIONING WORKS**  
 NALANDA UNIVERSITY BRANCH: RBO NALANDA : AO GAYA

NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>ELECTRICAL</b>					
1	<b>MAIN INCOMING SOURCE PANEL (MISP) :</b> <u>Supply, installation, testing and commissioning of main incoming (MIP) Panel suitable for wall / floor mounted indoor type, air insulated, totally enclosed vermin-proof (IP 42), dead front, cubicle type, 2 mm thick sheet steel enclosure use on 415 V, 3 Ph., 4 wire, 50 Hz. A.C. system, instrumental panel, CTs, incoming and outgoing cable compartment. The Panel shall be complete with switches as per site requirement, interconnection, G.I. earth busbar of adequate size covering the total length of switch board with drilled holes, G.I. bolts, nuts, washers etc. as directed by E-I-C. The cubicle should be painted with two coats of light grey synthetic enamel paint over two coats of zinc chromate primer. The complete fabrication, construction shall be done as per the site condition and conforming to the relevant IS. Name plate of Panels Danger Board, incoming and outgoing feeders with Ampere rating of switches are to be fixed up on front door above or below the respective switches. Approval of Manufacturer's drawings from E-I-C. The Panel consists of the following (ABB/LEGRAND/SEIMENS)</u>				
1.1	<b>INCOMING :</b> (ABB/LEGRAND/SEIMENS) <b>1 No. : 415V, 100A 4P MCCB (36 KA) for Mains, (Ics=Icu=100%)</b> <b>1 No. : 415V, 100A 4P On-Load Changeover Switch</b> <b>1 No. : Digital Multi Function Meter (MFM) for Current, Voltage, Frequency, Power.</b> <b>3 Nos.: LED Phase indicating lamps, 3 Nos.: Suitable CTS(100/5)</b> <b>PVC sleeved TPN Tinned Copper Busbar(2 sets)</b> <b>35mm x 6mm for phases and neutral.</b> <b>G.I. EARTH BUSBAR - 25mm x 3mm covering the total length of panel.</b> <b>OUTGOING :</b> <b>1 No 40A DP MCB for Glow Sign Board, 1 No 63A 4P MCCB(25KA) for Raw Power and AC VTPN , 1 No 63A 4P MCB for UPS,</b> <b>1 No 63A 4P MCCB SPARE, 2 NO 40A DP SPARE</b>	SET	1		
2.1	<b>(A) UPS INCOMING DB:</b> Supply of all required materials and fixing of input UPS box (Company made) having provision of the following arrangement complete with all respects per the direction of engineer in charge. <b>Incoming:</b> 1 No. 63A (10KA) TPN MCB <b>Outgoing:</b> 2 Nos. 63 A (10KA) DP MCB	No.	1		
2.2	<b>(B) UPS OUTGOING DB:</b> Supply of all required materials and fixing of output UPS box (Company made) having provision of the following arrangement complete with all respects per the direction of engineer in charge. <b>Incoming:</b> 1 no. 63 A DP MCB <b>Outgoing:</b> 3 No. 40A (10KA) DP MCB	No.	1		
<b>DISTRIBUTION BOARDS</b>					
3	<b>SITC of following VTPN Distribution Board (HVAC DB), having vertical fishbone busbar type, factory assembled wall mounted, sheet metal fabricated, fully powder coated, having dust proof &amp; vermin proof hinged door with all internals such as DIN channels, neutral link, internal wiring complete with double earthing lugs including DB wiring dressing with ferruling, termination of circuits with ping type copper lugs, etc. housing following switchgears. (Schneider / ABB/ Legrand / Siemens / L&amp;T make)</b>				
3.1	<b>Incoming: 1 no 415V ,4P,63A MCCB,25/36KA</b> <b>Rating(L&amp;T/ABB/SIEMENS ) outgoing:- 8 nos 40A SP MCB(10KA),</b> <b>FOR RPDB/LDB/AC points &amp; spare etc</b>	SET	1		
4	<b>RAW POWER DB/ LIGHT DB / COMPUTER DB</b> <b>Supply and installation of following metallic double door MCB Distribution Board with MCB having breaking capacity of 10 KA (minimum) complete with busbar, interconnection, painting, mounted on flat iron frame on wall/flushed with finished wall by chase cutting, mending good to original finish painting etc. as required. Name plate &amp; number of DBs are to be fixed up on front door of DBs for their identification.</b>				

a	CDB : Consumer unit SPN MCB DB complete with busbar and the following MCBs. INCOMING : 1 No. 240V 40A (10KA) DP RCBO OUTGOING : 8 Nos. 240V 10A (10 KA) SP MCB	No.	1		
b	Double pole MCB DB in sheet steel enclosure with Incoming: 1 no. 25A DP ELCB, Outgoing: 2 no. 10A SPN MCB complete with interconnection, timer(QT-31) & contactor (2P 25A) for glow sign board and Street Light. (LEGRAND/ABB/SEIMENS)	No	1		
c	LDB : Consumer unit SPN MCB DB complete with busbar and the following MCBs. INCOMING : 1 No. 240V 40A (10KA) DP RCBO OUTGOING : 8 Nos. 240V 10A (10 KA) SP MCB	No.	2		
d	UPS Essential DB for CCTv, Fire Alarm Etc: Consumer unit SPN MCB DB complete with busbar and the following MCBs. INCOMING : 1 No. 240V 40A (10KA) DP RCBO OUTGOING : 6 Nos. 240V 10A (10 KA) SP MCB	No.	1		
e	RPDB : Consumer unit SPN MCB DB complete with busbar and the following MCBs. INCOMING : 1 No. 240V 40A (10KA) DP RCBO OUTGOING : 8 Nos. 240V 10A (10 KA) SP MCB	No.	1		
	WIRING				
5	Wiring flame retardant FRLS/FRLSH as mentioned in rows below in MS conduit of IS specification of proper size with all material supply installation and commissioning complete from DB .The wiring shall be carried out on surface above false ceiling, and below of false ceiling by chiseling the existing surface and plastering the same with cement etc., or as cutting of tiles(with finishing), as per site conditions after fixing the MS conduit with all accessories like saddles screws, bends T-joint etc				
a	With FRLS 2 nos. 6 Sq.mm + 1 no. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire in ms conduit for UPS Outgoing to LDB/ RPDB/CDB	Mtr	90		
b	With FRLS 4 nos. 6 Sq.mm + 1 no. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire in ms conduit for UPS input	Mtr	25		
c	With FRLS 4 nos. 10 Sq.mm + 1 no. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire in ms conduit for VTPN MCCB DB	Mtr	25		
d	With FRLS 2 nos. 4 Sq.mm + 1 no. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire in ms conduit for AC (1.5 tr) as per direction of E-I-C.	Mtr	50		
	POWER CABLES				
6	SUPPLY, LAYING, LUGGING, DRESSING, GLANDING, FINISHING, TESTING AND COMMISSIONING OF POWER CABLE: Following 1.1KV grade fire resistant <b>A2XFY</b> XLPE armored aluminium conductor cable with one no. <b>10 SWG GI wire</b> , laying of the cable partly on wall/column including supply and fixing with 300mm apart MS clamps/galvanized bar saddles and double compression type <b>brass</b> cable gland <b>Dowel make</b> along with rubber rings for dust and moisture proof entry of the cable and finishing the ends by crimping method.. (POLYCAB/FINOLEX/NICCO/UNIVERSAL)				
6.1	SITC of 3.5CX 50 SQMM cable incoming cable	Mtr	200		
	COMPUTER SOCKET WITH WIRING				
7	(A) COMPUTER SOCKET OUTLET WITH WIRING <u>Computer socket outlet cluster point including supply and fixing of modular type socket outlet clusters components and its wiring from CDB, complete in all respect as detailed below. Each computer socket outlet cluster comprising the following</u> 5 Nos. 6/16A 5 pin modular type International sockets 1 No. 16A modular type common controlling switch with indicator on table top with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm.FRLS (green colour for earth) PVC insulated copper wire in pre - laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from CDB to Computer point.	No.	4		

	<p><b>(B) COMPUTER SOCKET OUTLET AND ITS WIRING</b>  Computer socket outlet cluster point including supply and fixing of modular type socket outlet clusters components complete in all respect as detailed below. Each computer socket outlet cluster comprising the following</p> <p><b>3 Nos. 6/16A 5 pin modular type International sockets</b>  <b>1 No. 16A modular type common controlling switch with indicator on table top with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. PVC insulated copper wire (1.1 KV grade FRLS/FR-LSH) in pre - laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from CDB to Computer point. (proper colour code must be followed)</b></p>	No.	2		
	<p><b>C) UPS/ RAW POWER SOCKET OUTLET AND ITS WIRING</b>  Raw power socket outlet cluster point including supply and fixing of modular type socket outlet clusters components AND WIRING 1100V grade, FRLS complete in all respect as detailed below. Each computer socket outlet cluster comprising the following</p> <p><b>2 Nos. 6A/16A 5 pin modular type International sockets.</b>  <b>1 No. 16/20A modular type controlling switch with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. (green colour for earth) PVC insulated copper wire in pre - laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from RPDB to Raw Power Outlet. Proper colour code must be followed.</b></p>	No.	5		
	<p><b>D) UPS / RAW POWER SOCKET OUTLET AND ITS WIRING</b>  Raw power socket outlet cluster point including supply and fixing of modular type socket outlet clusters components AND WIRING 1100V grade, FRLS complete in all respect as detailed below. Each computer socket outlet cluster comprising the following</p> <p><b>1 Nos. 6A/16A 5 pin modular type International sockets with indicator</b>  <b>1 No. 16/20A modular type controlling switch with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. (green colour for earth) PVC insulated copper wire in pre - laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from RPDB to Raw Power Outlet. Proper colour code must be followed.</b></p>	No.	2		
8	<p>SITC of metal clad socket(ABB/LEGRAND/SEIMENS) MCB for AC point with controlling 32 A DP MCB with industrial top complete in all respects in suitable enclosure.</p>	No.	4		
<b>EARTHING</b>					
9	<p>SITC of <b>OBO Betterman</b> make earthing system - * - UL Listed Earth Electrode - <u>Copper bonded</u> low carbon steel electrode, coating 250 microns</p> <ul style="list-style-type: none"> <li>- Tested as per IEC 62561-2</li> <li>- Meets the requirement of IS 3043 and IEC 60364-5-54</li> <li>- Tested for short circuit withstanding capacity</li> <li>- High tensile strength</li> </ul> <p>In one set it should include:</p> <p>a) One nos of Earthing rod-Type 17 3000 CCER, Length - <u>3000 mm</u>  Outer Dia - 17.2 mm Copper bonded low carbon steel Electrode WITH 250 microns copper bonded</p> <p>b) One bag (25 KG) Earth Enhancement Compound confirming to IEC 62561-7</p> <p>c) One nos of universal clamp .The work shall also include required masonry work, CI cover plate &amp; Earthing name plate. The vendor shall also submit the earth test report with required values. Pics of earthing to be shown.</p>	No.	2		

10.1	SITC of Earth distribution Box (Bus Bar Station) to be installed in the branch near Main Panel and UPS, comprising of a bus bar of 3x25x180mm cu strip	SET	2		
10.2	Supply and laying of 8 SWG Cu cotton coated wire in 20mm dia rigid PVC conduit for earthing From the existing earth pit to the Main panel/UPS	Mtr.	50		
10.3	SITC of Surge Protection Device , OBO Betterman/PHOENIX/DHEN make as V25-B+C/3 + NPE- FS-320, Class B+C (Lightning & Switching protection) SPD in suitable enclosure and necessary interconnection as required.	No.	1		
	POINT WIRING				
11	<b>POINT WIRING AND CIRCUIT WIRING</b> Point wiring with FRLS 1100 V grade 3 nos. single core 1.5 sq.mm. and 1 for common earth by looping method) PVC insulated stranded copper conductor wire (IS:694) through suitable size M.S. conduit (ISI marked embossed on conduit surface) by thred cutting, complete with junction box, circular box, elbows, bends, couplers and other accessories on surface above false ceiling or concealed by chase cutting on wall from light & fan switch board to light, fan & 6A socket outlet on the same switch board or separately mounted switch board. The work includes supply and fixing of all materials such as modular type 6A switch for light and fan point, 6A 2/3 pin shuttered socket outlet with switch in each switch board, 3 plate ceiling rose / angle or batten holder etc. as required. <u>The point wiring also includes circuit wiring with FRLS 1100 V grade 2 nos. single core 2.5 sq.mm. + 1 no. single core 1.5 sq.mm. PVC insulated stranded copper conductor cable (IS:694) through suitable size M.S. conduit as described above from DB to switch board, interconnection, mending good all damages to original finish, painting etc.</u>				
a	1 Light control by 1 switch	No.	30		
b	2 /3 Light control by 1 switch	No.	8		
c	UPS light point	No.	4		
d	Glow sign board wiring	No.	1		
e	Exhaust fan point	No.	3		
f	Ceiling fan point with supply and fixing of Electronic Regulator as required as per site conditions.	No.	2		
g	1x16A 2/3 pin modular socket with switch on separate switch board outside the Cash Room complete with wiring. Suitable Top to be provided for supply to Cash Room. /RECORD ROOM/STATIONERY ROOM	No.	2		
h	Wall fan point with socket	No.	5		
i	3 pin 6/10A modular socket with switch in board	No.	2		
12	Supply and fixing of ding-dong calling bell with complete wiring in BM's Chamber as per direction of E-I-C	No.	1		
13.1	<b>MAIN TPN SFU:</b> Supply, installation, testing and commissioning (SITC) of following TPN SFU with HRC fuses in sheet steel enclosure with cable end-box on MS Angle Frame/ MS Legs/ wall with interconnection, painting and finishing.				
	<b>100A TPN SFU with HRC fuses</b>	No.	1		
13.2	<b>SITC OF SHEET STEEL CABLE END GLAND BOX complete in all respects</b>	No.	1		
	<b>PART B-SUPPLY AND FITTING OF ELECTRICAL FITTINGS</b>				
14	Supply & Fixing of 36W-2'x2' LED Panel light recessed mounted make complete with all accessories.	No.	12		
15	Supply & Fixing of 15W LED Downlighter recessed mounted of make complete with all accessories	No.	5		
16	Supply & fixing of 20W/22W LED T5 Batten fitting complete with all respect.	No.	10		
17	Supply & fixing of 35W LED Street Light with suitable mounting pipe etc. Of complete in all respect	No.	4		
18	Supply & fixing of 450mm sweep, oscillating type, wall mounting, multi speed wall fan metal blades three pin complete with all respect as per direction of Bank/E-I-C.	No.	3		
19	SITC of 1200MM ceiling fan( white clour ) BLDC design with 60% power saving, Energy Saving Fan with BEE 5 Star Certification with IR remote.	No.	2		
20	SITC of 9" dia 230V,1400 rpm exhaust fan as in toilets, ups room, toilets etc.	No.	2		

	<b>PART C- LAN CABLING WORK</b>				
21	Supply of 1 mtr. Long E-CAT 6 PATCH CHORD (Make: D-LINK, AMP, HCL, Legrand)	No.	6		
22	Supply of 2 mtr. Long E-CAT 6 PATCH CHORD (Make: D-LINK, AMP, HCL, Legrand)	No.	6		
23	INTERNET SOCKET WITH DATA CABLE:: SITC of modular RJ-45 internet sockets with suitable mounting box (modular type) including all inter-connections as required with front plate D link or equivalent make approved by the bank connections etc as required along with supply , laying ,concealing of CAT 6 LAN cables upto 30 metres or less or as per site conditions in rigid pvc conduit pipes complete in all respects from Data Rack to I/O points. Rates to include cost of LAN cable and its installation.	No.	10		
24	Supply & installation of 9U Rack with power supply arrangement, ventilation fan, mounting racks ect. Complete with all accessories.	No.	1		
25	<b>Charges for making and submitting neat and clean computerised Electrical Drawing of the Branch indicating SLD of the Branch, indicating DB, switch boards, etc along with proper numbering and indicating power flow and laminating the same.</b>	SET	1		
26	<b>Charges for making and submitting neat and clean computerised lan WIRING Drawing of the Branch indicating Data Rack , lan wiring to different I/O boxes etc along with proper numbering and laminating the same..</b>	SET	1		
27	Supply & Installation of single color (warm white / any other approved color) flexible LED strip light for cove including required rated driver / power supply in multiples of 1 Rmtr as approved along with all necessary hardware & accessories, etc. Complete as required (PHILIPS / WIPRO / CGL / GE / Bajaj/Syska)	Rmt	45		
28	SITC of LED 5W/6w light & fixture recessed type ROUND DOWNLIGHTER in gypsum cove with all interconnection and fixing arrangements as Required.	No.	30		
29	SITC of 100A 4P MCCB in sheet steel enclosure complete in all respects as per direction of E-I-C.	No.	1		
30	Supplying,installation,testing an d commissioning of Passive Infrared(PIR) technology based occupancy sensor having high preformance, non regulating programmable type, suitable for connected load upto 10Amp , for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as Required with connections.	SET	1		
	<b>Air conditioning Works</b>				
	Design,Supply , installation, testing & commissioning of air-conditioning units (including MS frames/stands for standard installation of indoor and outdoor units )as per the details of scope of work, specifications and components given else where in the tender. (please read before quoting)Note:The contractor will attend to all defects noticed during defect liability period. Within 24 hours from the time of complain If the contractor fails to attend to the defects within 24 hours time these defects will be rectified by the Bank and the expenditure incurred on this account will be recovered from security deposit, or any other money due on to time. The Entire Job Shall be Executed in Total Co. Ordination with the Other Agencies Working on this Project more particulary with the False Ceiling. The quantities as mentioned of AC are provisional may increase/decrease/withdrawn as per requirement of site or instruction of Bank.				
	<b>High Side Items</b>				
31	Supply of Hi-Wall mounted Split AC unit complete with Indoor / Outdoor units along with cordless remote controller. (R-32/ R410 A)				
31.1	Supply of <b>1.5 TR</b> Hi wall split Air Conditioner Unit ( <b>5 STAR inverter type copper</b> ) , standard kit, refrigerant pipe(3mtr), cable etc & fixing accessories. (Make: LG/ Daikin / Carrier / Hitachi / Mitsubishi / Bluestar)	No.	4		
	<b>Low Side Works</b>				

32	Refrigerant copper piping both in and out, laid between indoor & outdoor unit as per OEM's specifications duly insulated with Class "O" fire retardant 6 mm sleeve type elastomeric nitrite rubber insulation. It shall be in total clamping manner above false ceiling & in total concealed manner below false ceiling level. From the structural ceiling it should hang or shall be fixed on wall / beam etc. with clamps & the distance between two clamp shall be less than 1 meter. It shall not be placed over the false ceiling nor it shall be fixed with false ceiling members. The diameter / gauge of the ref.pipe shall be as per the specifications of the Manufacturing company (OEM) only for each type of machine.				
32.1	Extra refrigerant pipe for split AC	Rmt	8		
33	Drain Piping: Insulated Condensate Water Drain piping constructed out of PVC / HDPE hard pipes, fitting, accessories, bends, elbows, tees, flanges, tappings, wall sleeves, hangers, supports, anchors Fastners.				
33.1	Drain pipe	Rmt	30		
34	Installation charges of the 1.5TR/1.0 TR Copper Split AC , including elastomeric nitrite rubber insulation for refriferant piping, including outdoor frame / stands to withstand the full load of outdoor units and making good all the damage.	No.	4		
<b>SUPPLY &amp; INSTALLATION OF STABILISERS</b>					
35	For 1.5 ton/ 1 ton Cassette AC/split stabiliser with metal body (4 KVA)	No.	4		
36	All sort of Civil work required to be executed in order to make the Air-conditioning system installed & put in working condition. The item includes, making holes / gaps in walls to pass duct & pipes, making zaries required for various types of drain, refrigerant & drain water pipes / lines in walls, floor etc. using cutter machine, including core cutting , wall cutting etc as required. The scaffolding if required is also in scope of vendor.	Job	1		
		<b>TOTAL (Rs.)</b>			
	Contingency (5%)				
	<b>Grand Total</b>				
	(GST will be extra as applicable)				
NOTE:	The rate quoted shall be firm and shall include all costs, allowances, Charges, levies, Royalties, Cess, transportation etc. but excluding GST as applicable which will be reimbursed by the Bank as per Government norms prevailing from time to time. Contractor's are advised to visit the site before quoting. The quantities are tentative may increase or decrease as per site requirement.				

## RECOMMENDED MANUFACTURERS

1	Cables- (POLYCAB/FINOLEX/NICCO/UNIVERSAL)
2	WIRES – (POLYCAB/KEI/FINOLEX/RR-KABEL)
3	DB/MCCB/MCB/RCBO/ELCB- ABB/LEGRAND/SEIMENS
4	CHANGE-OVER-SWITCH - L&T/HPL /SOCOMEC/ABB/LEGRAND
5	SWITCHES/SOCKETS/REGULATOR- ABB/LEGRAND(MYRIUS)/NORTH WEST/ROMA
6	METAL CLAD SOCKET & PLUG- L&T/LEGRAND/ABB/C&S
7	MEASURING INSTRUMENTS- AE/ IMP/ L&T/ GE/ TELEMECANIQUE/ PROK/EQUIVALENT
8	LED LIGHTS – PHILIPS/HAVELLS/CROMPTON/WIPRO/EQUIVALENT AS APPROVED BY E-I-C.
9	CEILING FAN/WALL FAN/EXHAUST FAN- CROMPTON/HAVELLS/ALMONARD/USHA/POLAR
10	EXHAUST FAN - CROMPTON/ BAJAJ/ALSTOM/ALMONARD/GOLD MEDAL/HAVELLS