



Institute of Physics

(An autonomous Research Institute of Department of Atomic Energy, Govt. of India)
P:O: Sainik School, Bhubaneswar, Orissa-751005

TENDER CALL NOTICE **FOR ELECTRICAL WORK**

Sealed tenders in two bid system (Technical & Financial bid separately) are invited from the Electrical Contractors with valid electrical contractor license issued by Chief Electrical Inspector, Government of Orissa for the “Electrical works of proposed I-net room Laser laboratory”. For details log on to www.iopb.res.in.

The estimated cost of the total job is Rs.268035/- (Rupees Two Lakh sixty eight thousand thirty five) only.

The sale of tender paper will be from 11.11.2011 to 01.12.2011 up to 12 noon.

The tender papers will be received up to 3PM on 01.12.2011 and Technical Bid will be opened on the same day at 4.30PM.

The authority of IOP reserves the right to reject any or all tenders without assigning any reason thereof.

REGISTRAR



INSTITUTE OF PHYSICS

*(AN AUTONOMOUS RESEARCH INSTITUTION OF DEPARTMENT OF ATOMIC ENERGY
GOVERNMENT OF INDIA)*

P.O. SAINIK SCHOOL, BHUBANESWAR-751005

TENDER DOCUMENT FOR

“Electrical works of proposed I-net room Laser Laboratory”

TECHNICAL BID

No. _____/IP-AC & Electrical

Date. _____

TENDER CALL NOTICE

Sealed tenders are invited by the “Director”, Institute of Physics, Bhubaneswar-751005, Orissa, comprising of technical and financial bid separately, from registered and reputed contractors, with valid Electrical License issued by Electrical Inspector of Government of Orissa for the “Electrical works of proposed I-net room Laser Laboratory”

Name of the work	Estimated Cost	Cost of the tender paper	EMD required for the work	Time for completion
“Electrical works of proposed I-net room Laser laboratory”	Rs.268035.00 (Rupees two lakh sixty eight Thousand thirty five only)	Rs.500.00	Rs.6700.00 (Rupees Six Thousand seven hundred)	Two Months from the date of issue of work order

The tender documents may be purchased from the office (Accounts Section) on payment of Rs.500.00 (Rupees five hundred only) (non refundable) by cash during the office hours from 10AM to 3 PM on working days only.

Bidders may download the Tender Documents and submit their bids as per the procedure mentioned in the tender document accompanied by a DD of Rs.500.00 (Non refundable) favoring “Institute of Physics” payable at “Bhubaneswar” towards the cost of tender paper along with the DD for EMD and other documents.

The estimated cost of the work is Rs.268035.00 (Rupees two lakh sixty eight thousand thirty five only)

The sale of tender paper will be from 11.11.2011 to 01.12.2011 up to 12 noon.

The tender papers will be received up to 3PM on 01.12.2011 and Technical Bid will be opened on the same day at 4.30PM (in case that day becomes a non-working day tenders (Technical Bid) shall be opened on next working day at the same time). The bidders or their authorized representative may remain present at the time of opening the tender (technical bid).

Date and time for opening of tender (Price bid): After evaluation of technical bid it will be intimated to the technically successful bidders.

The tender paper should accompany with the following documents at the time of submission:

1. Proof of registration with Govt. /Semi Govt. organizations like CPWD, State Electricity boards, Railways, Public sectors, DCSEM of DAE or worked for IOP etc.
2. Copy of PAN card, VAT clearance certificate
3. Copy of the Valid Electrical Contractor License.

4. Experience having successful completion of similar type of work during last three years. Copies of work order with detail work schedule & completion certificate for the same job is to be submitted for consideration as experience.
 5. List of similar type of works in hand/ continuing.
 6. List of equipments, accessories and infrastructure facilities possessed by the bidder.
 7. EMD amounting to Rs. 6700.00 in shape of (Rupees Six Thousand seven hundred) in shape of demand draft or bankers cheque drawn in favor of the Institute of Physics, Bhubaneswar.
 8. Any other document as mentioned in the section of special instructions to the tenderer of the tender document.
 9. If worked for Institute of Physics copies of the work orders is to be attached.
 10. Technical Bid, drawings, annexure of this tender document duly signed with seal in all pages along with other requirements as mentioned above from 1 to 9 to be kept in the envelope of technical bid.
 11. Price Bid duly filled and signed with seal in all pages is to be kept in Price Bid envelope.
- In the absence of any of the documents listed above the tender papers will not be considered.

Address for submission of tender: DIRECTOR, INSTITUTE OF PHYSICS, BHUBANESWAR – 751005, ORISSA.

Tenders should be submitted in sealed envelopes in two parts separately, i.e. “Technical bid” and “Price bid”. Both the parts should be further sealed in an envelope super-scribing Tender no. & name of work i.e. “Electrical works of the proposed I-net room Laser Laboratory”, due date for opening, bidder’s name and address. The tender duly filled in & signed on each page, accepting the terms and conditions, may be sent to above mentioned address either by post or hand delivered in tender box kept in the office of the Director, It should not be handed over to any employee of the Institute. No tender shall be accepted later than the time schedule specified above. Institute will not be responsible for delay in transit if sent by post.

- Note: 1) The tenderer is requested to go through the tender documents in detail and visit the work site to make himself conversant regarding the work before filling up the tender paper.
- 2) Authority, Institute of Physics reserves the right to reject any or all tenders without assigning any reason thereof.

REGISTRAR

PART - II
SPECIAL INSTRUCTIONS TO TENDERERS

PART-II: SPECIAL INSTRUCTIONS TO TENDERERS:

1. **Introduction:** Sealed tenders are invited on two part basis (i.e. 1.Technical Bid & 2. Price Bid), by the “Director, Institute of Physics, Bhubaneswar, Orissa for the work of “Electrical works of the proposed I-net room Laser Laboratory”. The tender paper consists of the following:

TECHNICAL BID

- Part-I - Tender Notice
- Part-II - Special Instructions to tenderers
- ANNEXURE - I, II, III, IV (For Drawings)
- ANNEXURE - V (Form for the credential of the bidder)

Draft for EMD

Draft towards cost of tender paper or the cash payment receipt if purchased from IOP Documents as asked in clause no.8.

PRICE BID - Schedule of quantities and rates

2. **Acceptance of Tenders:**

The Authority of Institute of Physics, Bhubaneswar reserves the right to reject any or all tenders without assigning any reasons therefore. The lowest or any tender will not necessarily be accepted. Any tender not supported by the information requested in tender documents or not complying the provisions in the tender is liable to be rejected.

3. **Compliance with specification and tender clarifications:**

Each bid shall deemed to be in full compliance with every clause of the specifications asked, unless exceptions are clearly defined and set forth in a separate sheet.

The tenderer shall note that if any clarifications regarding specifications, conditions of contract, schedule of quantities and scope of work required, he should contact Institute of Physics, Engineer-in-Charge. No claim on account of any ambiguity in any respect will be entertained after issue of work order.

4. **Sub Contractors:**

The contractor shall not sublet any/ whole part of the work without written consent of the competent authority of Institute of Physics.

5. **PRICES:**

The tenderers shall bid for the works in Indian Rupees for the Items listed in PRICE BID – Schedule of quantities and Rates.

Each tenderer shall submit unit prices and total price (as per schedule of quantities and rates). The quantities mentioned in this schedule (Price Bid – Schedule of quantities and Rates) shall be considered approximate only and the unit price entered in the schedule shall apply to the actual quantities measured in the completed work in accordance with the specifications. The prices quoted by the tenderer shall include the full cost of material, labour, equipment, transportation, overheads, insurance, taxes, profit and other costs associated with the completion of the work involved under the items and shall account for the full scope of the work.

Income Tax and Work Contract Tax at the prescribed rate shall be deducted at source from your bill and will be deposited with the concerned authority. Necessary TDS certificate will be issued in your favor.

The tenderer’s prices shall include all insurance, taxes and duties, all traveling, transportation and accommodation costs of all his staff including supervisory personnel.

6. **Miscellaneous Works:**

In addition to the items of work specifically set out in the form of tender schedule to be performed by the contractor as per the agreement, the contractor shall at the request of Engineer, whose decision in this regard shall be final, perform such works and supply such materials, facilities and services which are contingent to the work covered by the contract or are required for the completion of the works.

7. **Co-ordination of Works:**

The contractor shall plan his works suitably so as to avoid interference with the operations of the existing systems and the work will be carried out with minimum shut down of PDBs to be connected.

8 **Information to be included with the tender:** The tender shall be submitted as mentioned below:

8.1 **PRICE-BID:** All supporting data as required in PRICE-BID i.e. Schedule of Quantities and Rates has to be filled in the space provided in the same and to be submitted in separate sealed envelope as Price Bid. No other document is to be kept inside this envelope and the envelope is to be super scribed as ***“Price Bid for the Electrical works of the proposed I-net room Laser Laboratory”***. In this bid the bidder is required to quote his rates/ prices for the works mentioned in the scope of work & technical specifications. The rates/ price should be inclusive of all material cost, labor, services, charges for the plant/ machinery/ tools & tackles required for work, freight, insurance, octroi, Govt. duties, taxes, levies up to IOP site basis. No charges towards quantity variation, escalation, site difficulties, other hidden cost even though they may not have been explicitly mentioned in the scope and schedule of works shall be payable extra or separately. It is mandatory on bidder to quote all items rate as asked for in the BOQ/ Price schedule. Failure to adhere to this condition will lead to rejection of tender. The bidders should quote unconditional rates, neatly written without any overwriting/ white fluid/ erasing and duly signed & stamped at all pages.

8.2 **TECHNICAL-BID:** In this bid, the bidder should submit his company profile, organizational setup, credentials, list of plant, machinery & tools in his possession, copies of work orders successfully executed during last three years and earnest money draft. No deviations in respect of tender conditions are acceptable. **The bidder is required to attach entire tender conditions including the annexure (excluding Price Bid) & Drawings duly signed & stamped on each page as a token of acceptance to the tender conditions with this bid.** This envelope is to be super scribed as ***“Technical Bid for the Electrical works of the proposed I-net room Laser Laboratory”***.

The following specific conditions/ documents are essential for pre-qualification:

- 8.2.1 Proof of registration with Govt. /Semi Govt. organizations like CPWD, State Electricity boards, Railways, Public sectors, DCSEM of DAE or worked for IOP etc.
- 8.2.2 The full tender document (including all annexure & drawings) duly signed by the bidder on each page with seal has to be submitted as a token of acceptance of the terms and conditions mentioned therein.
- 8.2.3 Receipt of the cash deposit for the cost of tender paper/ DD towards the same
- 8.2.4 Copies of work orders with detailed work schedule & completion certificate of the similar works executed during last three years are to be enclosed.
- 8.2.5 List of similar type of works in hand/ continuing.
- 8.2.6 List of similar works executed earlier shall be submitted in Annexure-V.

- 8.2.7 Details of any deviations from the specifications.
- 8.2.8 Copy of TIN under VAT & PAN under IT act.
- 8.2.9 Copy of the Valid Electrical Contractor License.
- 8.2.10 Draft for EMD
- 8.2.11 List of equipments, accessories & infrastructure facilities possessed
- 8.2.12 Company Profile
- 8.2.13 A covering letter mentioning the contact address, Telephone no. and E-mail address and name of the contactor /authorized person with mobile telephone number in letterhead pad is to be submitted.

Both the parts (Technical Bid & Price Bid) should be further sealed in an envelope superscribing Tender no. & name of work (Electrical works of the proposed I-net room Laser Laboratory), due date for opening, bidder's name and address. The tender duly filled in & signed on each page, accepting the terms and conditions may be sent to DIRECTOR, INSTITUTE OF PHYSICS, BHUBANESWAR – 751005, ORISSA, either by post or hand delivered in tender box kept in the office of the Director, It should not be handed over to any employee of the Institute. No tender shall be accepted later than the time schedule specified above. Institute will not be responsible for delay in transit if sent by post.

09 **Terms of Payment:** 90% of the total work order value will be paid after supply, installation, testing and successful commissioning of all equipments. Balance 10% will be retained as security deposit, which will be refunded after successful completion of defect liability period (Guarantee period). However contractor may raise one running bill for payment after execution of 50% of the total work, which will be released after deduction of 10% towards SD and 20% towards commissioning of the total work. This 20% will be released along with the final bill payment.

10 **Penalty for the delay in completion:** If the contractor fails to execute and complete the work within the time specified i.e. 2 months from the date of work order or within the period of extension granted, except is so far as the delay is on the IOP account, the contractor shall accept reduction in the total amount payable to him by the IOP at the rate of **0.5% (Half percent) per week** of the contract value for the actual pay occasioned and until the work shall have been completed under the contract. Subject to maximum deduction of 5% of the total value of the work.

11 **Proof of Ability:** The contractor shall submit the details of similar works executed by him in the form given in the Annexure-V as a proof of his ability to carry put the specified work. At least three numbers of similar works should have been executed by the contractor during last three years. The copy of the work order with detailed work schedule and completion certificate is to be submitted for consideration of the same work as experience.

12 **Increase or Decrease in Scope of Work:** The contractor shall carry out extra work at their quoted prices in their tender document for respective items of work so long as the entire total cost of the work executed is within the limits of $\pm 20\%$ of the contract value. **The quantities mentioned in schedule of quantities are indicative only and actual requirement may vary in field.**

13 **Guarantee:** All supplied materials including hardware's and work executed by the contractor shall be guaranteed for one year from the date of commissioning.

14. **VALIDITY:** The tenders submitted should remain valid for acceptance for a period of 180 days from the date set for opening of the tender. The tenderer shall not be entitled during the said period of validity to revoke or cancel his tender or vary the tender given or any

item thereof. In case of tenderer revoking or canceling his tender, varying any terms in regard thereof, the earnest money paid by the tenderer along with the tender shall be forfeited by the Institute of Physics.

15 Security Deposit: 10% of contract value will be deducted as security deposit and will be released after one year from the date of completion of work (Defect liability period). No interest shall be paid on EMD/ Security deposit or the amount to the contractor under contract. However the amount towards security deposit can be released against submission of Bank Guarantee for the equivalent amount valid for the defect liability period (with one month more) by the contractor issued by a Nationalized/ Schedule Bank.

16 EMD: An earnest money of Rs.6700/- has to be deposited along with the technical bid. The EMD shall be only in the form of Bank Draft in favor of Institute of Physics, payable at Bhubaneswar. No Cheques/ cash shall be accepted. EMD of technically disqualified bidders will be returned within 30 days from the date of evaluation of the technical bids. EMD of successful bidder will be retained by IOP during pendency of the contract & shall be adjusted towards security deposit. No interest shall be given on such EMD

18. Escalation: No escalation over and above items' rates quoted by the bidder shall be paid during the execution of contract.

19 Rights reserved by IOP: Institute of Physics reserves the right to reject any or all the tenders in full or in part without assigning any reasons whatsoever, and the decision of the Institute in this regard will be binding on all the bidders. Tenders not complying any of the provisions stated in this tender document are liable to be rejected. **Director, IOP reserves the right to accept or reject any tender, either in full or part, without assigning any reasons thereof and does not bind himself to accept the lowest tender.**

20. Entry and exit of materials from IOP campus: Materials belonging to the contractor whether consumable or non consumable should be brought inside the IOP campus with proper entry at the main gate and any material to be taken out with proper gate pass issued by the Institute.

21. Termination of the contract: The Director, IOP reserves the right to terminate the contract on account of poor workmanship, failure to mobilize site, non-compliance of set norms/ specifications for the works, delay in progress of work, violation of any contract provisions by the contractor. In such cases the contractor is liable to pay liquidated damages amounting to 10% of the total work value.

22. Fabrication work: The sample of the items like JB, switch box, DBs etc, to be used are to be got approved by EIC before execution at site. **The distribution boards mentioned in work schedule/ price bid has to be fabricated in electrical panel fabrication shop approved by Institute of Physics.** The DBs will be inspected by our Engineer In-charge in 3 stages and for which it has to be informed accordingly.

23. Communication Address of Bidder: Bidder should mention their detailed contact address, telephone & Fax number, E-mail address, name of authorized contact person for this tender, mobile phone number etc. in their letter head pad and same is to be attached along with the technical bid.

23. Dispute: Any dispute arising out of this contract will be subjected to jurisdiction of Bhubaneswar.

24. Statutory condition: Tender once submitted will remain with the Institute and will never be returned to the bidders. The bids will be IOP property.

PRICE BID

PRICE BID OF THE WORK “ELECTRICAL WORKS OF I-NET ROOM LASER LABORATORY”

Sl. no	Description	Qty.	Unit	Supply	Installation	Total unit price	Amount (in Rupees)
01	<p>M.V. PVCA/XLPA CABLES: Supply, installation testing & commissioning of 1.1KV grade PVC/XLP insulated, inner sheath tapped, outer sheath PVC extruded, GI strip/armored, multi stranded/ Aluminum conductor power cable as per IS 1554 specifications, fixed on wall/column/slab/in existing hume pipes/ trenches by 5mm thick GI spacer fixed/coach screws/anchor fasteners in brick/stone wall /column/slab with 2mm thick GI saddle, all fixing accessories etc. complete including painting of saddle /flat/angle iron etc. The space between two supports shall be generally 600mm or in ground at a depth of 900mm, below ground including excavation in all types of soil excluding hard rock if any cutting of existing footpath, roads etc, sand bedding, laying of baked bricks as per IS on side & top, temporary reinstatement, back filling, de-watering if necessary, consolidation, disposal, of excess earth with in the radius of 500mtr. Etc. all as per the instructions of engineer-in-charge.</p> <p>The tinned copper earth wires to be laid along with the cables should be painted with two coats of black bituminous compound for earth wire in ground and green enamel paint for earth wire on surface & Jointing of the earth wire shall be solder joints with tinned copper cable sockets & GI nuts & bolts.</p> <p>Note: Scope includes all types of masonry work required making good to its original finish of holes through wall, roads, slopes etc. after laying of the cable. Make of cables: Finolex/ NICCO/ CCI/ Polycab or approved equivalent of the same.</p>						
1.1	1 no x 3 core x 16 Sqmm Al. PVCA cable and 01 no.s of 8 SWG tinned copper earth wire. (From 40A DP MCB after 10KVA UPS located at UPS room to UPS DB I-net room laser laboratory)	95	Mtr				
1.2	1 no x 4 core x 16 Sqmm Al. PVCA cable and 01 no.s of 8 SWG tinned copper earth wire. (From 63A TPN SFU located at Main Panel of Main Academic Building to Normal supply DB at I-net room laser laboratory)	125	Mtr				
02	<p><u>Wiring in PVC Casing & Capping:</u></p> <p>Supply Installation, testing & commissioning of 1100V FRLS grade PVC insulated multi stranded copper conductor wires in suitable casing & capping with double interlock, meeting with IB/IS specification. Arrangements to be made for holding the wires in position in trunk, on <i>(Aluminum Plate running on wall of plywood partition)/Plywood</i></p>						

	<p>partition/ceiling/ concrete or brick wall with counter sunk tinned brass wood screw fixed with nylon plug etc. complete with all accessories like right angle bend, outer inner bend, T-stopper, PVC clamps (preferable) suitable pull boxes/ junction boxes of suitable size as per the site condition wherever required & with necessary leads at both ends by approved copper lug, complete as per the instructions of Engineer-in charge.</p> <p>Note: 1. Connection shall be done with crimped type tinned copper lugs and washers.</p> <p>2. Casing & Capping should be white & make: Precision, Asian & circle IS 14927 marked or approved equivalent of the same.</p> <p>3. All PVC insulated copper conductor FRLS grade shall be ISI marked.</p> <p>4. Make of wires: Finolex/ L&T or approved equivalent of the same.</p>						
2.1	02 nos. of 4Sqmm + 1no. of 6Sqmm wire in PVC casing & capping.	70	Mtr				
2.2	2.5 nos. of 2.5Sqmm & 1 no. of 04Sqmm wire in PVC casing & capping.	10	Mtr				
2.3	2 nos. of 0.75Sqmm & 1 no. of 1.5Sqmm wire in PVC casing & capping.	50	Mtr				
2.4	3 nos. of 10Sqmm wire in PVC casing & capping/ PVC Conduit	10	Mtr.				
3	<p>DISTRIBUTION BOARDS: Supply, Installation, testing & commissioning of following medium voltage (415V) TP&N/ SP & N distribution boards single door complete with necessary SFU, MCCB, MCBs, etc. suitable for wall mounting with M.S. frame work of 40x40x5mm angle mounting with M.S. enclosure fabricated out of 16SWG thick M.S. CRCA sheet with concealed hinged door, cam type locking arrangement etc. Suitable tinned copper bus bars have to be provided for all phases, neutral and earth connections both for incoming and outgoing connections. Cable end box, wire way box, including interconnections with appropriate size of PVC insulated copper conductor, phase barriers, earth of DB, enameled danger board, name plate, neoprene gasket for joints & door has to be provided. Necessary metal treatment, two coats of red oxide paint & two coats of enameled paint has to be provided. A suitable Bakelite sheet with necessary cutouts for knobs/ operating levers of MCB's/ MCCB/ SFU etc is to be provided duly fixed on to the cabinet with nuts and bolts/ screws. The front door (MS sheet) should have the name of the DB in anodized aluminum plate. Phase distribution drawing etc. all as per drawings specifications etc. relevant IS & instruction of Engineer-in-charge (G.A. & fabrication drawing to be got approved before fabrication)</p> <p>Note:</p> <p>1.MCB's shall be minimum 10KA breaking capacity</p> <p>2. All tinned copper bus bars should be minimum of 200A rating or more than that as mentioned in the drawing.</p>						

	<p>3. All SFU units should have to be provided with HRC fuses</p> <p>4. Make of SFU: L & T, Siemens, or approved equivalent of the same & make of MCB: Legrand/ Siemens or approved equivalent of the same.</p> <p>5. All feeders including the Incoming are to be provided with proper nomenclature in anodized Aluminium plates near the MCB, output terminals & on DB as per requirement/ as per instruction of EIC.</p> <p>6. All terminals inside the DB has to be provided with suitable copper lugs/sockets for connection.</p> <p>7. The DBs are to be fabricated in electrical panel fabrication shop approved by Institute of Physics. The DBs will be inspected by our EIC in 3 stages and for which it has to be informed accordingly.</p>						
3.1	<p><u>UPS POWER SUPPLY DB-1(As per annexure-II)</u></p> <p>a) 40A DP MCB for In-comer -01no.</p> <p>b) 16A DP MCB for outgoing – 03 nos.</p> <p>c) 10A DP MCB for outgoing – 01 nos.</p> <p>d) 06A DP MCB for outgoing – 03 nos.</p>	01	Set				
3.2	<p><u>NORMAL POWER SUPPLY DB(As per annexure-IV)</u></p> <p>a) 63A TPN MCB for In-comer - 01set</p> <p>b) 16A TPN MCB for outgoing – 01 no.</p> <p>c) 40A DP MCB for outgoing – 01 no.</p> <p>d) 20A DP MCB for outgoing – 03no.</p> <p>e) 16A DP MCB for outgoing – 01 no.</p> <p>f) 06A DP MCB for outgoing – 01 no.</p>	01	Set				
04	<p><u>MCB BOX:</u></p> <p>Fabrication, supply, installation, Testing and commissioning on <i>Aluminum Plate running on wall of plywood partition</i>/concrete/brick wall/ plywood partition of local control MCB box made out of 16 SWG thick galvanized MS sheet with top cover also galvanized MS sheet duly fixed by SS screws. Necessary cut outs to be provided on the top cover for the operating lever of the MCB and suitable size gland holes at two ends has to be made for the MS conduits/ Readymade Legrand or approved equivalent make MCB mounting box . MCB shall be minimum of 10 KA breaking capacity. All complete as per the instructions of Engineer-in-charge.</p> <p>Note: All MCB should be of Legrand or approved equivalent make.</p>						
4.1	MCB box with DP MCB of 32A rating (for 7500W furnace from Normal DB)	01	Set				
4.2	MCB box with DP MCB of 20A rating (for 03 nos. of AC units)	03	Set				
4.3	MCB box with DP MCB of 16A rating (for Laser from UPS DB & 2500W Furnace)	02	Set				
4.4	MCB box with DP MCB of 40A rating	01	Set				

	(in between the 10KVA UPS and UPS DB)						
05	<p>OUTLET SWITCH & SOCKET BOXES:</p> <p>Fabrication, supply, installation, Testing and commissioning on (Aluminum Plate running on wall of plywood partition)/concrete/brick wall/ plywood partition of Legrand make plastic surface switch box with Legrand make switch, socket and cover plate. Necessary wiring inside the board has to be carried out using 2.5Sqmm copper PVC insulated single core flexible wire. All complete as per the instructions of EIC-IOP.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. All Modular switches, sockets should be of Legrand make or approved equivalent. Preferable model number of Legrand make is: Switch: One Way-SP-16A -674505, Socket-6/16A- 3pin combined-674515, Switch: 6A-one way-SP-674501. 2. The white Plastic Surface box with inside metal plate for fixing the switch, sockets & top white cover plate suitable for the above mentioned switch & Sockets should also be of Legrand make or approved equivalent of the same. 3. All wires to be used should be of Finolex/ L&T make. 4. All terminals of the wires to be connected inside the board should be provided with suitable copper lugs/ sockets. 5. Sample of all materials is to be got approved from EIC, IOP before execution. 						
5.1	The switch & Socket box will contain 2no.s of 16/ 6 Amp, 250Volt; 3pin combined Legrand make Modular socket & 2 no.s of 16Amp Legrand make Modular switches.	24	Set				
5.2	The switch box will contain 2no.s of 6 Amp, 250Volt Legrand make Modular switches.	02	Set				
06	<p>END TERMINATION OF ARMOURED CABLES:</p> <p>End termination and connection of the following cables by crimping with supply of all jointing materials like tinned copper cable sockets, cable glands, gland earthing insulation tape, flux, duplicate interconnection between gland earthing strip and the nearest earthing bus terminals as per the drawing, specifications, Aluminum cable tag is to be provided with each end termination and all as per the instruction of the Engineer in charge. Make of lugs/sockets: Dowels/Jainson.</p>						
6.1	4 core x 16 Sqmm Al. PVCA /XLPAcable	02	Nos.				
6.2	3 core x 16 Sqmm Al. PVCA/XLPA cable	02	Nos.				
7	<p>EARTHING CONNECTION:</p> <p>Supply, laying/fixing, testing & commissioning of tinned copper earth wire fixed to wall side of trench/slab/column/beam/shaft with thick GI spacers and GI saddles or in ground at 750mm below including excavation in ground with protective baked bricks, excavation in ground refilling and</p>						

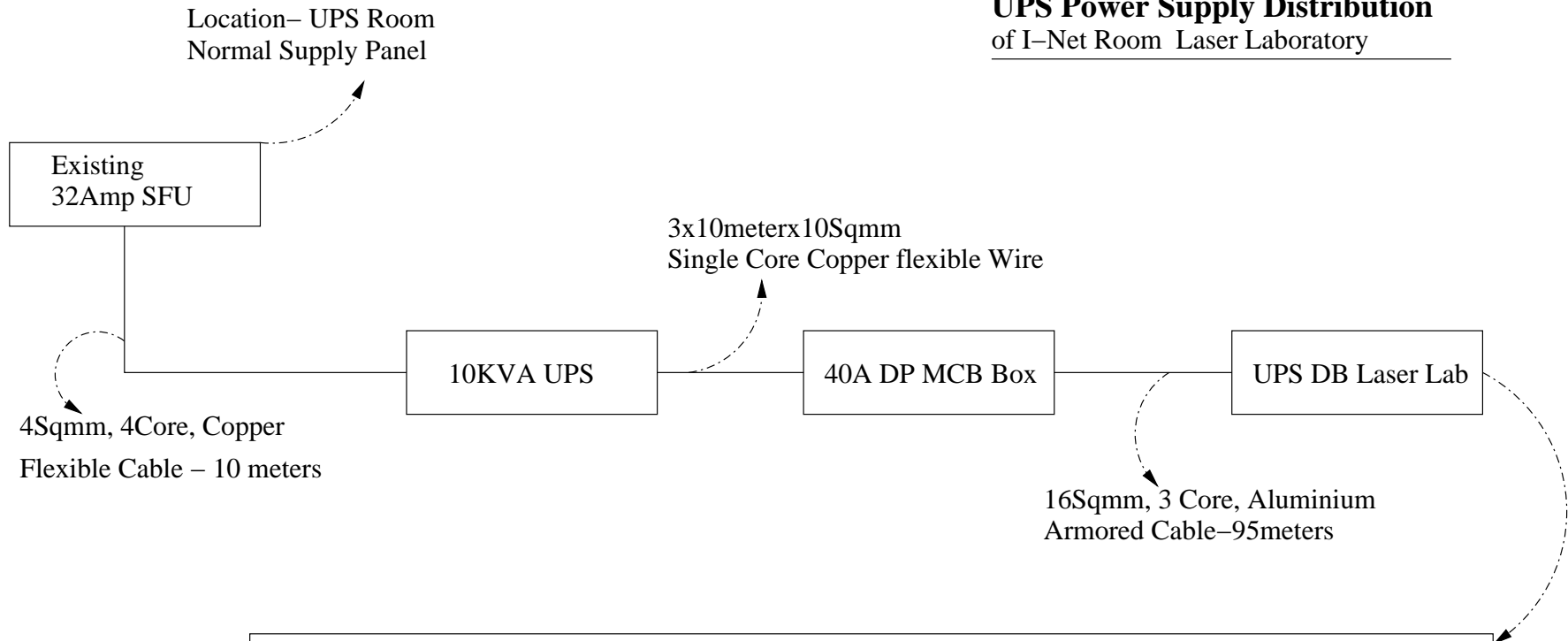
	back filling of trench, interconnection of earth wire /strip with GI nut bolts and washers and solder jointing, painting with two coats of black bituminous compound for earth wire/strip in ground and green enamel paint for earth wire/strip on surface as per the specifications and as per the instruction of Engineer-in-charge. Jointing of the earth wire shall be solder joints with tinned copper cable sockets						
7.1	Two numbers of 06 SWG copper wire	30	Mtr				
7.2	25 x 6 mm tinned copper strip (Scope includes supply and fixing of the suitable insulator for fixing the copper earth strip on concrete/ brick/ stone wall one at a span of 0.5 mtr).	2	Mtr				
08	<u>EARTH STATION:</u> Supply, installation, testing & commissioning of tinned copper plate electrode earth station, 2.5 mtr. below ground level conforming to latest IS specifications complete with all required materials like coke/charcoal, salt, brass, nut bolts & washers, watering arrangements (GI funnel), G.I. pipe-25mm (B class), masonry chamber, heavy duty cast iron cover plates and excavation in all types of soil in ground, refilling and removal of excess earth within a radius of 500mtr etc. as per instruction of EIC drawing & specification. Note: 1. Measurement of resistance of earth station and resistance of complete scheme of earthing shall be measured, recorded & got approved by EIC. 2. The copper plate should be of electrolytic grade. 3. Two nos. of 25 x 6 mm tinned copper earth flat is to be bolted to the earth plate and to be brought up to the top of pit.						
8.1	600 x 600 x 3.15 mm tinned copper plate electrode earth station	01	Set				
09	<u>63Amp TPN SFU:</u> Supply, Installation, Testing and Commissioning of 63A TPN SFU with fuse in the existing Main Distribution panel replacing the existing 32A TPN SFU. The job includes the following items: 1. Dismantling/ Removal of the existing 32A TPN SFU from the panel along with the connected wires from main Bus-Bar to the same SFU. The items dismantled/ removed is to be handed over to EIC, IOP. 2. Supply & Installation of the 63A, TPN, SFU in the same cabinet from which the 32A TPN SFU removed as per point no.1. 3. Supply & connection of 4 x 16sqmm x 1.5mtr copper, flexible, PVC insulated wires, both side terminals provided with suitable copper sockets, from incoming of the 63A TPN SFU installed as per item no.2 to the main Bus-bars of the panel 4. The 63A, TPN, SFU should be of L&T make for better compatibility as the existing SFU is of L&T make.	01	Set				

	All complete as per the instruction of EIC, IOP.						
10	<p><u>CONNECTION POINT BOX:</u> Fabrication, supply, installation, Testing and fixing on concrete/brick wall/ plywood partition of connection point boxes made out of 16 SWG thick galvanized MS sheet with top cover 3mm thick Bakelite Hylam laminated sheet duly fixed by SS screws. The box is to contain One number of 5A Ceiling Rose for connection of tube light fittings and fans etc. Suitable nut and bolt has to be provided on the side wall of the board for earth connection.</p>	03	Nos.				
11	<p><u>EXHAUST FAN:</u> Supply, Installation, testing & commissioning of following size of exhaust fans, single phase complete with blades, motor, Light weight, rustproof body & blades, scope includes supply of 3Core, copper 1.5 Sqmm, flexible chord of suitable length with 6A, 3 pin plug top, aluminum louvers, rag bolt/anchor fastener suitable MS angle iron frame made from 30x30x5 mm, 4 corners covered with 2mm thick MS sheet to form suitable circular opening with necessary fixing arrangement painting as per specification drawing & as per the instructions of EIC-IOP. Make: Crompoten Greaves model-BRISKAIR or approved equivalent of the same</p>						
11.1	150mm dia, 900rpm	01	Set				
12	<p><u>TUBE LIGHT FIXURES:</u> Supply, installation, testing commissioning of tube light fixtures and fittings complete with all accessories, tube / lamp etc. on surface of slab/ beam/ false ceiling by 2 numbers (minimum) of 6mm Anchor fasteners or on wall by means of 25 x 3mm GI strip bend to shape and with 2 no.s of wood screws, nylon plug etc. suitable supporting frame fixed with rag bolts grouted on the wall/ anchor fastener on the beam/ column & other fixing accessories etc., provision & connection with 1.5sq.mm multi-stranded copper conductor PVC insulated FRLS grade wires/ 2.5sq.mm copper conductor PVC insulated FRLS grade earth wire etc. with the fixture from the existing point, painting with two coats of red oxide & two coats of enameled paint, 6mm thick GI supports all as per drawing, specifications & as per the instruction of EIC. Note: <ol style="list-style-type: none"> 1. Sample fixture/ fitting shall be got approved from department with complete technical data. 2. All fittings should be supplied with the electronics heavy duty ballast and tube as per requirement 3. Extension MS rod/Ms Pipe duly painted with white enamel paint. </p>						

12.1	Fluorescent fixtures with Electronics choke/ Copper choke with starter & 2 x 36W tube/ lamp suitable for 230/ 250V, 50Hz supply system. (Make – PHILIPS, Cat no.TCS 306-236 or approved equivalent of same)	04	Nos.				
13	PEDESTAL FANS: Supply, Installation, testing & commissioning of 400 mm sweep pedestal fans , Black cast iron metal base, stand, guard, metal blades complete and all accessories, suitable for 230V/ 250V, 50Hz supply system. Make: Crompton Greaves, Model: SDX Black Gold or approved equivalent of the same.	04	Nos.				
14	GI Box: GI Box made out of 16 SWG GI sheet suitable to fix over the exhaust fan as mentioned in sl. no.11 with opening and fixing arrangement for connection to the Laser gas exhaust through a 150mm flexible hose.	01	Nos.				
	Total						
	(Total Rupees _____ only)						

ANEXURE-I

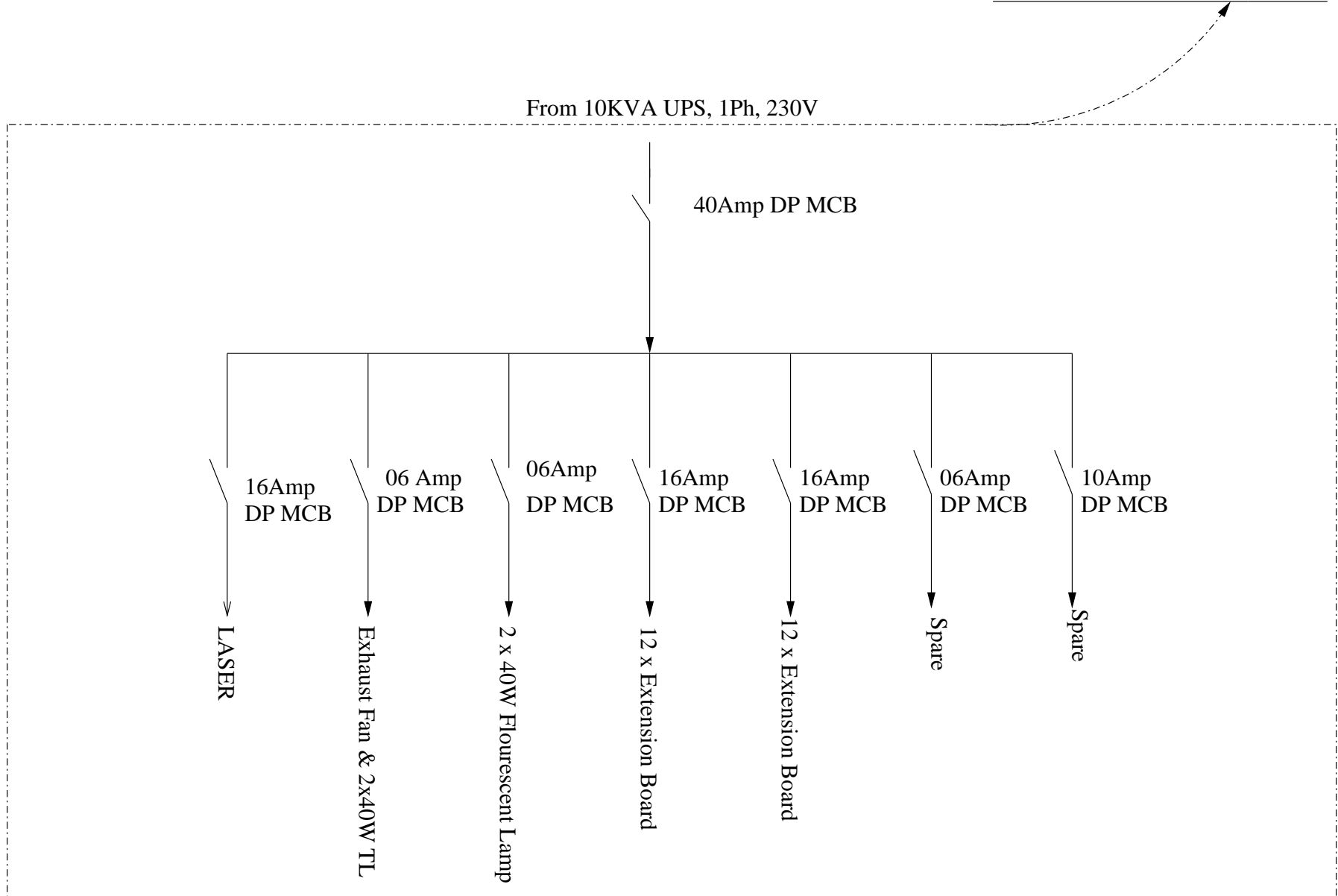
UPS Power Supply Distribution of I-Net Room Laser Laboratory



1. Laser–16Amp, 230V–2x2.5 + 1x4Sqmm Copper Wire – 10meters
2. Exhaust Fan – 2x0.75 + 1x1.5 Sqmm copper Wire – 10 meters
3. 2x2 nos 40W TL fittings – 2x0.75 + 1x1.5 Sqmm wire – 20 meters
4. 12x Extension Boards – (2x6/16 A Socket & 2x16A Switch)–1–2x4Sqmm+1x6Sqmm Wire–15 meter
5. 12x Extension Boards – (2x6/16 A Socket & 2x16A Switch)–2–2x4Sqmm+1x6Sqmm Wire–15 meter
7. Spare – 10Amp DP MCB

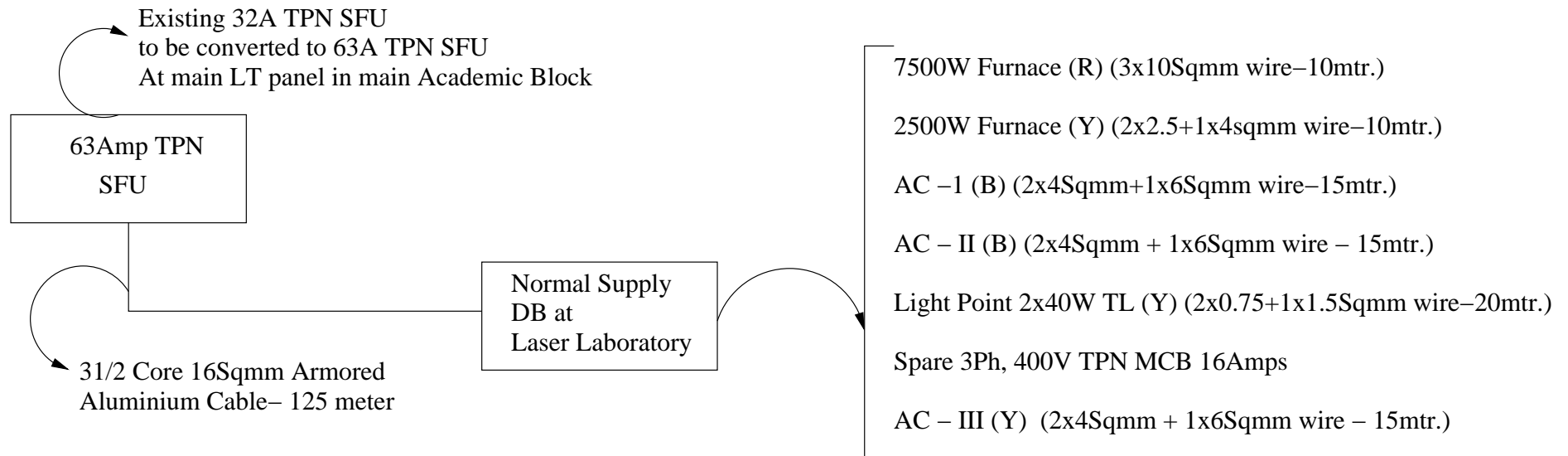
ANNEXURE-II

UPS POWER SUPPLY DB
I-NET ROOM LASER LAB



ANEXURE-III

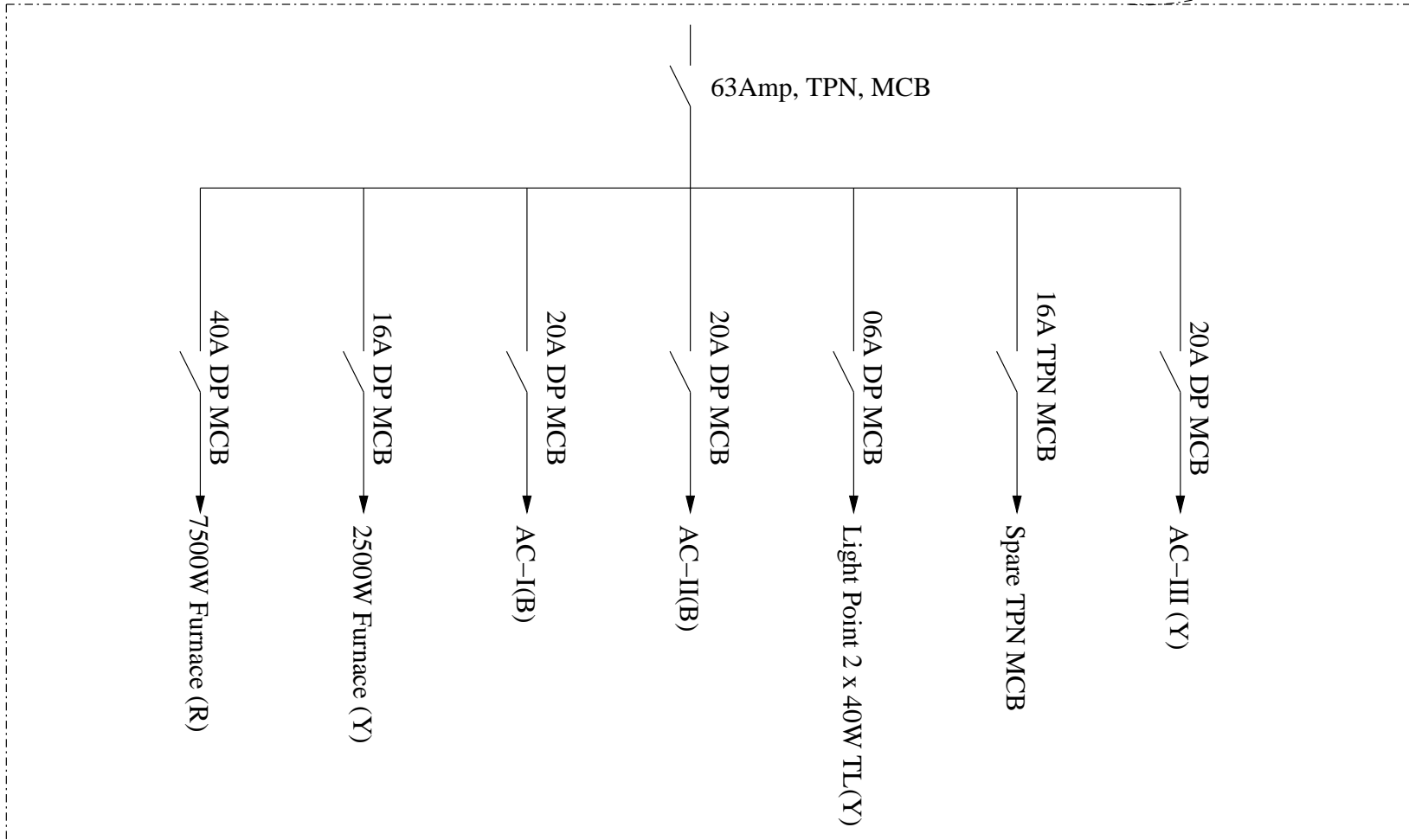
Normal Power Supply Distribution
of I-Net Room Laser Laboratory



ANEXURE-IV

NORMAL POWER SUPPLY DB
I-NET ROOM LASER LABORATORY

From Main LT Panel of Main Academic Building
63Amp, TPN SFU



ANNEXURE-V

WORKS COMPLETED AND IN PROGRESS DURING THE LAST 3 YEARS (INCLUDING ALL WORKS AWARDED)

{ADD ADDITIONAL SHEETS, IF NECESSARY}

Sl. No.	Name of Work	Date of start	<u>Date of Completion</u>		Reason for delay & compensation levied if any	Tendered Cost	Net Amount received	Name Designation & Complete address of the Authority for whom the Work was done
			<u>Stipulated</u>	<u>Actual</u>				

Signature of the tenderer with seal