

ELECTRICAL INPUT

MISCELLANEOUS WORKS FOR QC

LABORATORY FOR BCPL



ब्रम्हपुत्र पेट्रोकेमिकल कांम्पलेक्स परियोजना
BRAHMAPUTRA PETROCHEMICAL COMPLEX PROJECT

SCOPE OF WORK & SUPPLY
(GENERAL CIVIL)
FOR
MISCELLANEOUS WORKS TENDER
(CIVIL & ELECTRICAL)

PROJECT : PMC SERVICES FOR ESTABLISHMENT OF
LABORATORY AT BCPL, LEPETKATA
OWNER : BRAHMAPUTRA PETROCHEMICAL COMPLEX
CONSULTANT : ENGINEERS INDIA LIMITED
JOB NO. : A416

0	03.07.2013	ISSUED WITH TENDER	CS	RS	PG
Rev. No	Date	Purpose	Prepared by	Checked by	Approved by

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1. GENERAL

1.1 INTRODUCTION

- 1.1.1 The intent of this specification, is to define the requirements for the supply (wherever specified), installation, testing and commissioning of the electrical power distribution system consisting of various electrical equipment, lighting system, earthing & lightning protection system and cabling system and other miscellaneous works for Establishment of Laboratory at BCPL complex, located at BCPL Lepetkata, Dibrugarh.
- 1.1.2 The work shall be carried out in best workmanship-like manner, in conformity with these specifications, approved drawings and the instructions, from time to time, of the Owner/ EIL or Engineer-in-Charge.
- 1.1.3 The scope of Contract shall include clearing of temporary constructions, waste materials and loose earth which might get collected in and nearby the work site consequent to the execution of work under this Contract.

1.2 STANDARDS

- 1.2.1 The work shall be performed in conformity with these specifications, installation standards and Codes of Practice specified or referred in the Tender. In case of any conflict, the stipulations under these specifications shall govern.
- 1.2.2 In addition, work shall also conform to the requirements of latest editions/ amendments of the following:
- CEA guidelines
 - Fire Insurance Regulations
 - Regulations laid down by the Central Electricity Authority
 - Regulations laid down by the Factory Inspectorate
 - The Petroleum Rules
 - OISD standards
 - Regulations laid down by the Chief Controller of Explosives, TAC, LPCB
 - Applicable Codes of Practice of the Bureau of Indian Standards
 - Any other regulations laid down by the Central, State or Local Authorities from time to time and during the execution of this contract.

In case of any conflict in requirement specified in various codes and standards referred above, the more stringent requirement shall govern. Owner's concurrence shall always be obtained in any such matter.

1.3 GUARANTEE

- 1.3.1 The CONTRACTOR shall guarantee the installation against any defects of workmanship and materials (supplied by the CONTRACTOR) for a period of 12 months from date of issue of completion certificate. Any damage or defects connected with the erection of material(s)/ equipment and with the materials/ equipment supplied by the Contractor that may be undiscovered at the time of issue of completion certificate or may arise or come to light thereafter, shall be rectified or replaced by the CONTRACTOR at his own expense as deemed necessary and as per instructions of Engineer-in-Charge/Owner/EIL, within time limit specified by the Owner/EIL/Engineer-in-Charge.
- 1.3.2 The above guarantee shall be applicable for the quality of the work executed as well as for all equipment/ cables/ fixtures/ fittings/ other materials supplied by the Contractor.

1.4 SITE CONDITIONS

The equipment and the installation shall be suitable for continuous operation under the following site conditions:

Max./ Min. Ambient Temperature	:	39.8°C / 1°C
Design Temperature	:	40°C
Max. Relative Humidity	:	93%
Altitude	:	Less than 1000 m above MSL
Environment	:	Dust and Corrosive as found in refineries & petrochemical plants
Location	:	Dibrugarh, Assam

1.5 UTILIZATION VOLTAGES

MV distribution voltage	:	415V $\pm$ 6%
Power Panel input	:	415 V AC $\pm$ 6%
Lighting Panel input	:	415 V AC $\pm$ 6%
3-Phase sockets	:	415 V AC $\pm$ 6%
1-phase sockets/Convenience outlets	:	240 V AC SPN $\pm$ 6%
Lighting	:	240 V AC SPN $\pm$ 6%

1.6 BRIEF DESCRIPTION OF ELECTRICAL SYSTEM

The scope of work under the tender includes, but is not limited to, the following:

LABORATORY Building

Establishment of Laboratory building.

Power Supply Distribution System

Total Load of Laboratory building shall be fed from existing substation at 415V. 2 Nos. 415V, 630A feeders from Owner's existing 415V switchboard shall be utilized for feeding complete load of LAB such as Lab instruments, PCs, Printers, Air-Conditioning, Lighting & miscellaneous loads through 2 Nos. 415V Main distribution boards (MDBs) with single incomer scheme one in each floor of the laboratory building. Details of existing substation will be provided to successful bidder. Out of 2 no. MDBs, 1 no. is existing (MDB-0131) and the same shall be utilized for ground floor power distribution. Further distribution to all loads of the laboratory shall be as per key Single Line Diagram A416-000-16-50-1001, A416-000-16-50-1002.

Distribution of power to 240V AC 1-phase sockets (for instruments, PCs, printers and air-conditioning units) shall be through Power Panels (PP), having TPN MCB+ELCB incoming and DP MCB outgoing circuits, as required. Power panels shall be wall-mounted type and shall be fed from 415V PDBs. Separate power panels shall be provided for instruments/ PCs/ printers and for A/C sockets. Lighting loads of the lab building shall be fed through Lighting Panels (LP), similar to power panels

415V AC 3-phase sockets shall be fed from 415V switchboard through wall-mounted distribution boards (MDB), having 3-phase MCCB incoming and 3-phase MCB+ELCB outgoing circuits, as required.

Supply, Laying & Termination of main incoming power cables to the MDBs from Owner's substation will be done by Owner/other Contractor.

2. AREA CLASSIFICATION

Although the Laboratory Building is located in safe area and is not classified, the following rooms shall be provided with flameproof lighting fixtures and switch sockets as mentioned below:

- i. Rooms to be provided with flameproof Ex(d), gas group IIA, IIB lighting fixtures and flameproof Ex(d) gas group IIA, IIB switch sockets:
 - i) Polymer QC Lab-1 & 2 (Ground Floor)
 - ii) Polymer Process Lab-1 & 2 (Ground Floor)
 - iii) Petrochemical Lab (First Floor)
- ii. Rooms to be provided with Flameproof Ex(d), gas group IIC lighting fixtures and Flameproof Ex(d) gas group IIC switch sockets:
 - i) Spectroscopic Lab (First Floor)
 - ii) Gas Chromatographic Lab (First Floor)
- iii. Rooms to be provided with flameproof Ex(d), gas group IIA, IIB lighting fixtures only:

- i) Chemical Reagent Room (Ground Floor)
- ii) Glass ware store (Ground Floor)

All other rooms/areas including corridors have been provided with safe area lighting fixtures and switch sockets. All electrical equipment for hazardous areas shall be tested by CMRI/ CIMFR (Central Institute of Mines and Fuel Research) or equivalent authorized testing agency of the country of origin and approved by PESo/ CCoE. Surface temperature for all hazardous area equipment shall be limited to 200°C (T3 class).

3. SCOPE OF WORK

The scope of this tender includes but is not limited to the following works. The scope shall also include handling, transportation of equipment/ material from Owner's stores/ warehouse to the place of installation and supply of commissioning spares wherever required.

3.1 Supply, Installation, Testing and Commissioning (Equipment/ Material supplied by contractor) Contractor shall supply all items/ equipment required for completion of work except those specifically mentioned under Cl. No. 3.4 below. The equipment/ materials in Contractor's scope shall include but not be limited to the following. The quantities indicated in SOR Doc. No. A416-000-16-50-CP-T-0010 are for general guidance.

- 3.1.1 415 V, 630A, 31.5KA for 1 sec, 50Hz, single front fixed type Main Distribution Board (MDB), floor mounting type, including power pack mounted with in the switchboard, for meeting the DC supply requirement of beakers and suitable for terminating incoming 3Rx3.5Cx300 Sq.mm Al conductor, PVC insulated and armoured cable.
- 3.1.2 415V, 315A, 31.5KA for 1 sec, 50Hz, single front fixed type Power distribution boards as per single line diagram (A416-000-16-50-1001, A416-000-16-50-1002).
- 3.1.3 240V AC, 1-phase, sockets suitable for safe area, Group IIA/IIB & IIC area.
- 3.1.4 415V AC, 3-phase, flameproof sockets suitable for Group IIA/IIB & IIC area.
- 3.1.5 Lighting system consisting of lighting & power panels, flameproof lighting fixtures, switches, convenience receptacles etc.
- 3.1.6 All MV cables for power, control, lighting-armoured type including all accessories. Existing cabling shall be utilized for maximum extent.
- 3.1.7 GI pipes for cable protection above ground, floor sleeves and supports wherever necessary, MS Black enameled conduits etc.
- 3.1.8 Crimping type Tinned copper lugs, Single/Double compression type Ni-plated Brass cable Glands, plugs for unused entries, Flat/spring washers etc.
- 3.1.9 All Civil works required for installation of electrical equipment, supports for cables/ cable trays/ concrete lined trenches for completion of electrical works. Hot dip galvanized pre fabricated GI cable trays (ladder and perforated) and accessories including all materials, fittings and GI cable tray

covers, GI sheet fire protective cover, wherever specified including providing its supports, painting and related civil works.

- 3.1.10 Cable markers/ identification tags, GI saddles, saddle bars and associated accessories.
- 3.1.11 Earthing system including GI earth electrodes in test pits, earthing grid, wire ropes, earth plates, earthing cables / strips of various sizes, flexible connections, associated connectors and accessories etc.
- 3.1.12 MS frames, structural steel, anchor fasteners, brackets for miscellaneous electrical equipment including welding, bolting etc. and necessary supplies and connected works inclusive of painting as specified.
- 3.1.13 All other hardware like nuts, bolts, washers, spring washers, grouting bolts etc. necessary for completion of job.
- 3.1.14 Supply & Installation of Chequered plates for covering floor cut outs.
- 3.1.15 Safety equipment like insulation mat, First Aid Box etc. wherever specified in relevant drawings / specifications.
- 3.1.16 Supply of commissioning spares and special tools and tackles as required for supplied equipment
- 3.1.17 Exhaust fans- 1no. for Polymer processing Lab, 2 nos. for Gas Chromatography labs, 1 no. for Water Lab, 1 no. for petrochemical Lab, 1 no. for chemicals/Reagent storage room and 2nos for Electrical room.
- 3.1.18 Clean earth pits /plates as required
- 3.1.19 Modification in existing boards such as disconnection & removal of existing feeder components including supply & mounting of new feeder components of required rating.
- 3.1.20 Any other material (not covered under Owner's supply at clause 3.2) though not specifically mentioned above but required for completion of the work as per specifications, drawings and instruction of Engineer-in-Charge.

Note: 1. Quantities given in SOR are tentative. Contractor shall take Owner's approval before ordering.

3.2 Installation, Testing and Commissioning (Equipment/ Material supplied by Owner)

- 3.2.1 Testing & commissioning of Existing installed MV switchboards (MDB/PDB)

3.3 Miscellaneous

- 3.3.1 The job includes disconnection/removal of existing wiring, fixtures & sockets in the following rooms and handing over the removed equipments/ items to Client:
 - Polymer QC Lab-1 & 2 (GF)
 - Polymer Process Lab-1 & 2 (GF)
 - Petrochemical Lab (FF)
 - Spectroscopic Lab (FF)
 - Gas Chromatographic Lab (FF)
 - Chemical Reagent Room (GF)
 - Glass ware store (GF)

Flameproof Lighting fixtures and/or sockets suitable as stated in Cl. 2 above, shall be provided in the above rooms, after disconnection & removal of existing safe area lighting fixtures, sockets etc.

- 3.3.2 Removal of cabling from existing boards MDBs/PDBs to PDBs/LP/PP and re-routing of cables to MDBs/PDBs/LP/PP as per Single Line Diagram A416-000-16-50-1001, A416-000-16-50-1002.
- 3.3.3 Dismantling/ removal of false ceiling in certain room as mentioned in Cl.3.3.1 above and providing false ceiling to make it suitable for mounting of flameproof lighting fixtures & wiring.
- 3.3.4 Termination of Owner's incoming 3Rx3.5Cx300 Sq.mm Al conductor, PVC insulated and armoured cable in Main Distribution Boards including supply of all materials for termination.
- 3.3.5 Breaking/chipping/digging of Electrical room floor including consolidation & disposal of surplus earth for providing Elevated trenches, suitable cut-outs, provision of plates, welding, bolting, riveting making it suitable for installation of panels including supply of all labour & materials.
- 3.3.6 Vendor shall visit the site in consultation with EIL/BCPL before offer submission and ascertain that there are no problems in existing switchboards/panels and feeder modifications. Vendor shall inform problems if any & their resolution, based on the site visit.
- 3.3.7 The job includes repairing of all civil works damaged during installation of electrical facilities and civil works connected with grouting of equipment, providing foundations. Scope of work under this contract shall be inclusive of breaking of walls/ floors and chipping of concrete foundations necessary for the installation of equipment, materials and making good of the same.
- 3.3.8 Minor modifications, wherever needed, for the equipment/ devices to enable cable entry/ termination, wiring changes etc.
- 3.3.9 Sealing of openings made in walls/ floors for cables etc., using acceptable practices and standards.
- 3.3.10 Coordination between various agencies/ equipment vendor/ other contractors working at site and providing all assistance and interface connections as per drawings to enable others to take up testing and commissioning activities of their equipment/ systems.
- 3.3.11 Supply and installation of all other accessories not specifically mentioned herein but nevertheless necessary for completion of job.
- 3.3.12 Engineering and preparation of specifications and drawings for electrical equipment and installation wherever applicable/ required by Owner and submitting the same to Owner for approval/ comments.
- 3.3.13 Correction and submission of all Owners' drawings for As-built status.
- 3.3.14 Obtaining clearance and approvals for installation/ drawings from Central Electricity Authority/ Chief Controller of Explosives (CCoE) any other statutory authority for energizing the complete electrical facilities covered under this Tender. It may be noted that no separate payment shall be made for any statutory approvals and the cost shall be deemed to be built in the rates quoted for various SOR items.
- 3.3.15 Fire resistant paint shall be provided for all terminations (upto 1.0m) from cable gland at switchgear end.
- 3.3.16 All nuts, bolts, washers wherever used shall be of stainless steel SS304.

Note: Wherever separate SOR items do not cover above activities, these shall be deemed to be included in Contractor's scope without any extra price and cost implication.

3.4 Works excluded

Works listed herein are specifically excluded from the scope of this Contract:

- 3.4.1 Supply & Laying of main incoming cable from Owner's Substation to Main Distribution Boards (MDB0131, MDB-0132) in Lab Building Electrical room.
- 3.4.2 Lighting in rooms other than those listed under CL.2 above, consisting of safe area lighting fixtures, lighting and power panels, lighting junction boxes, switches, TPN sockets, convenience receptacles etc.
- 3.4.3 Procurement & supply including installation, testing & commissioning of LAN system, PA system, Fire Alarm system, Telephone system
- 3.4.4 Supply of equipment/ material as listed under Cl. 3.2 above
- 3.4.5 Major civil works.

3.5 Co-ordination with other Contractors/ Agencies

It is the responsibility of the Contractor to coordinate and provide all necessary assistance to other agencies/ vendors involved in the Complex for proper and timely execution of the works.

4. JOB SPECIFICATIONS

- 4.1 Various electrical works covered under this Contract like equipment installation, cabling, lighting and earthing works, etc. shall be performed in accordance with the following standards (certain clauses of specifications which are applicable to equipment or systems not covered under this Contract shall be omitted):
 - 6-51-0081 Specification for Electrical Equipment Installation
 - 6-51-0082 Specification for Cable Installation
 - 6-51-0083 Specification for Lighting Installation
 - 6-51-0084 Specification for Earthing Installation
 - 6-51-0087 Specification for field inspection, testing and commissioning of electrical installations.
- 4.2 Erection, testing and commissioning of equipment shall be performed in accordance with supplier's instructions and directions of the Engineer-in-Charge.
- 4.3 The installation shall also conform to EIL specifications and installation standards attached with this Tender and referred therein.
- 4.4 Documents attached are as per list of attachments included in this specification.
- 4.5 All flameproof (Ex 'd') equipment shall be suitable for gas group IIA, IIB, IIC and temperature class T3 as specified in SOR specifications, area classification drawings & relevant layouts.
- 4.6 All MCCBs shall be current limiting type
- 4.7 Makes of electrical materials/ components shall be selected out of the list given in this specification. Makes of electrical equipment shall be selected out of the list given elsewhere in this Tender. All electrical equipment shall be brand new with state of art technology and proven record. No prototype

shall be offered. The make and type of equipment, if not specified in this Tender shall be subject to OWNER / EIL approval.

- 4.8 Contractor shall ensure the availability of spare parts and maintenances support services for the offered equipment at least for 15 years from the date of supply.
- 4.9 All electrical equipment shall be said to be installed and mechanically complete after circuit testing, primary and secondary injection testing and loop simulation is complete. Due care and consideration shall be given to the installation of all equipment, material and facilities.
- 4.10 Contractor shall coordinate with manufacturer of other equipment wherever required and shall freely and readily supply all technical information for this purpose as and when called for.
- 4.11 All other Electrical equipment, materials and work not explicitly mentioned but nevertheless required to fulfill the following minimum requirements shall be deemed to be included in the scope of the CONTRACTOR with no additional cost and time implication to OWNER / EIL
 - 4.11.1 Achieving the plant equipment and personnel safety.
 - 4.11.2 To meet the equipment and environment safety
 - 4.11.3 To suit site facilities and environmental conditions.
 - 4.11.4 To meet the requirement of statutory approving authority
 - 4.11.5 To co-ordinate with other Contractors and agencies involved in at site for other activities and site work.

5. SPECIFIC JOB REQUIREMENTS

Various equipments as a part of Contractor's scope of supply shall conform to the requirements of respective equipment specification, and datasheet.

6. STATUTORY APPROVAL OF WORKS

- 6.1 Contractor shall make an application on behalf of the Owner for submission to CEA/ Electrical Inspectorate along with copies of required certificates complete in all respects and submit to the Engineer-in-Charge for onward transmission well ahead of time so that the actual commissioning of system/ equipment is not delayed for want of inspection by the Inspector. Contractor shall arrange the actual inspection of work by the Electrical Inspector. Necessary coordination and liaison work in this respect shall be the responsibility of the Contractor.
- 6.2 The Inspection and acceptance of work as above shall not absolve the Contractor from any of his responsibilities under this Contract.
- 6.3 Any other statutory approval of works required for the electrical installation (such as TAC, CCoE, etc.) is also included in Contractor's scope.

7. INSPECTION, TESTING AND COMMISSIONING

Site inspection, testing and commissioning of electrical installation shall be carried out as per enclosed Specification no. 6-51-0087 and Inspection and Test Plans included or referred in this Tender.

- 7.1 All the equipments installed by the contractor shall be tested and commissioned, as required and no separate payments shall be made unless otherwise specified in the Schedule of Rates. Contractor shall carefully inspect all equipment before receiving them from Owner/ EIL for installation purposes. Any damage or defect noticed shall be brought to the notice of the Engineer-in-Charge at that time.
- 7.2 Any work not conforming to the execution drawings, specifications or codes shall be rejected forthwith and the contractor shall carry out the rectification at his own cost.
- 7.3 The contractor shall carry out all the tests as enumerated in the tender and technical specifications and technical documents which may be furnished to him during performance of the work.
- 7.4 Before the electrical system is made live, the electrical contractor shall carry out suitable tests to establish to the satisfaction of Engineer-in-Charge/ Owner that the installation of equipment, cabling/ wiring and connections have been correctly done and are in good working condition and that the system/ equipment will operate as intended.
- 7.5 All tests shall be conducted in the presence of Owner/ Engineer-in-Charge or his authorized representative unless he waives this requirement in writing. Contractor shall arrange testing equipment, as required to carry out the tests. Test results shall be recorded on approved Performa and certified records of the tests shall be submitted to Owner/ Engineer-in-Charge.
- 7.6 After the completion of all tests and rectification of all defects pointed out during final inspection, plant start-up trials shall commence. During the start-up trials, contractor shall provide skilled/ unskilled personnel and supervision round the clock at his own cost. The Engineer-in-Charge/ Owner will decide the number and the category of workmen and their duration. Any defects noticed during the start-up trials relating to the equipment supplied and work carried out by the contractor, shall be rectified by the contractor at his own cost.
- 7.7 Owner/ EIL/ Engineer-in-Charge shall have the right to get the defects rectified at the risk and cost of the contractor if he fails to attend to the defects immediately as desired.
- 7.8 The following equipment/ items as included in Contractor's scope of supply shall be tested and inspected by EIL/ Owner or his authorized representative before dispatch at the manufacturer's works. Test certificates duly signed by EIL/ Owner/ Owner's authorized representative shall be submitted by the contractor as part of the final document:
 - i. MV cables
 - ii. All flameproof Exd equipment
 - iii. For other equipment not mentioned above, Contractor shall ensure that any shop inspection/ testing, as required, to ensure delivery of equipment meeting the contract requirement is suitably arranged by Contractor.
- 7.9 Contractor shall also avail OEM (Original Equipment Manufacturer) services for testing and commissioning of equipment as required.

- 7.10 Contractor shall furnish Site Acceptance Test (SAT) procedures from the equipment supplier and get it approved from OWNER / EIL before carrying out the same at site.
- 7.11 Contractor shall prepare detailed testing, pre-commissioning and commissioning procedures for the entire installation. These shall include Performa for defining activities and recording of test results.

8. SYSTEM TESTS AND START-UP

- 8.1 Complete testing of power distribution system in the Lab would be carried out under the supervision of the owner/ EIL/ Engineer-in-Charge. The contractor shall provide as part of the works and within his quoted rates, on round the clock basis, skilled personnel and supervisors to carry out the plant testing. The number and category of skilled personnel to be deployed by the contractor shall be decided by the Engineer-in-Charge and the contractor shall abide by his decision.
- 8.2 During start-up of the plant, the Contractor's responsibilities would be limited to attending to the defects attributable to him in the Lab as and when they are brought to his notice. Defects shall be rectified at the risk and cost of the contractor if he fails to attend to these defects immediately.
- 8.3 After the operating conditions are fully achieved in Lab and the requirement as stated in General Conditions of Contract are fulfilled, the contractor would be eligible for applying for a completion certificate.
- 8.4 Where the works are carried out at the cost of the contractor, the Engineer-in-Charge would recover the actual cost incurred towards, labor, supervision and materials, consumables or otherwise, plus 10% towards overheads, from any pending bill of the contract or the security deposit.
- 8.5 Contractor shall include painting and marking of all buses, individual incomers, all outgoing feeders etc. with detail such as Tag no., feeder rating, sending end source reference etc. for all switchboards.

9. DRAWINGS

- 9.1 The drawings accompanying the tender document are indicative of the nature of work and issued for tendering purpose only. The purpose of these drawings is to enable the tenderer to make an offer in line with the requirements of the Owner. However, no extra claim, whatsoever, shall be entertained for any variation between the 'Approved for Construction (AFC)' and 'Tender Drawings' regarding any changes. Construction shall be carried out as per drawings/ specifications issued/ approved by the engineer-in-charge during the course of execution of work. Detailed construction drawings on the basis of which actual execution of work is to proceed will be furnished to the contractor progressively based on the detailed construction program evolved after the award of work and also based on construction progress achieved by the contractor.
- 9.2 Prospective tendered shall be deemed to have studied the drawings enclosed with tender or displayed for scrutiny and fully understood the nature and magnitude of the work before submitting the bids.

- 9.3 Where the contractor has to prepare drawings, e.g. for fabrication of panels etc., contractor shall submit the drawings to Engineer-in-Charge and the approval in writing of the Engineer-in-Charge shall be obtained before commencing fabrication.
- 9.4 After the job completion, contractor shall prepare 'As-Built' drawings. Final certified 'As- Built' drawings shall be submitted by the contractor to owner in bound volumes with one set of reproducible original sepia plus ten sets of prints.
- 9.5 Contractor shall submit equipment manufacturer's drawing for supply items like cable trays, lighting fixtures etc. for the review of Engineer-in-Charge in five sets of prints and the approval in writing of the Engineer-in-Charge shall be obtained before commencing manufacture. However, it is to be understood that the review of drawings shall not absolve the basic responsibility of contractor to check total compliance to specifications included in tender document. Final drawings in bound volumes with one set of reproducible original sepia plus ten sets of prints shall be submitted by contractor along with supply of materials at site.

10. APPROVED MAKES OF MATERIALS/ COMPONENTS

ITEM	VENDOR
Switchboard-MV (MDB/PDB-fixed type)	Accusonic controls Pvt. Ltd., Dharia switchgear & control, Electro allied products, Maktel systems, Nitya Electro controls, Positronics pvt. Ltd., Popular switchgears, Tricolite Electrical Industries, United Electric Co. Pvt. Ltd., Vidhyut Control Pvt. Ltd., Larsen & Toubro Ltd., M K Engineers Ltd., Zenith Engineering corporation
Cables-Medium Voltage -Power	Associated Flexibles and Wires(P) Ltd., Finolex Cables Ltd., Gemscab Industries Ltd., KEI Industries Limited, Polycab Wires Pvt. Ltd., Rallison Electricals Pvt. Ltd., Torrent Cables Ltd., Universal Cables Ltd., Havells India Ltd.
Cable-Control (PVC)	Associated Cables Pvt. Ltd., Associated Flexibles and Wires(P) Ltd., CMI Limited, Delton Cables Ltd., Ecko Cables Pvt. Ltd., Elkay Telelinks Ltd., Finolex cables, Thermo Cables Ltd., Gemscab Industries Ltd., Havell's India Pvt. Ltd., KEI Industries Ltd., NICCO Corporation Ltd., Polycab Wires Pvt. Ltd., Rallison Electricals Pvt. Ltd., Suyog Electricals Ltd., Torrent Cables Ltd., Universal Cables Ltd., Sriram Cables Ltd., Scot Innovation wires & cables Ltd.,
Lighting Fixtures & Accessories- non- Hazardous area	Bajaj Electricals Ltd., Crompton Greaves Ltd., Havell's India Pvt. Ltd., Philips Electronics India Ltd.
Lighting Fixtures & Accessories- Hazardous area	Bajaj Electricals Ltd., Baliga Lighting Equipments (P) Limited, Crompton Greaves Ltd., Flexpro Electrical Ltd., Flameproof Equipments Ltd., FCG Power Industries Pvt. Ltd., FCG Flameproof Control Gears P. Ltd., Govan Industries India Ltd.
Plugs/Sockets/Hand Lamps	Baliga Lighting Equipments (P) Limited, Flexpro Electrical Ltd., Flameproof Equipments Ltd., FCG Power Industries Pvt. Ltd., FCG Flameproof Control Gears P. Ltd., Govan Industries India Ltd.
Cable glands for Hazardous Area	Baliga Lighting Equipments (P) Limited, Comet Brass Products, Comet Industries, FCG Flameproof Control Gears P. Ltd., FCG Power Industries Pvt. Ltd., , Flameproof Equipments Pvt. Ltd., Flexpro Electricals Pvt. Ltd., Standard Metal Industries.
Cable termination and	Three M Electro & communication Pvt. Ltd., Raychem RPG Limited,

ITEM	VENDOR
jointing kits	Heat Shrink Technologies, Yamuna Power And Infrastructure Ltd.,
Lighting & power Panels- Safe area	Controls & Switchgear Co. Ltd., Havell's India Pvt. Ltd., ABB Ltd.
Fuse Switch Combination	ABB Ltd. (Bangalore), Controls & Switchgear Co. Ltd., Havell's India Pvt. Ltd., Indo Asian Fusegear Ltd., Larsen & Toubro Ltd., Schneider Electric India Pvt. Ltd., Siemens Limited, Standard Electricals Ltd., GE India Industrial PVT Ltd
Fuses	GE India Industrial Pvt. Ltd., Indo Asian Fusegear Ltd., Larsen & Toubro Ltd., Siemens Limited, Cooper Bussman India Pvt Ltd
Instrument Transformer (CT/PT) – MV	Gilbert & Maxwell Electricals Pvt. Ltd., Kalpa Elektrikal Pvt. Ltd., Kappa Electricals, Narayan Powertech Pvt. Ltd., Pragati Electricals Pvt. Ltd., Precise Electricals, Silkaans Electricals Mfg. Co. Pvt. Ltd.
Meters	Automatic Electric Ltd., MECO Instruments Pvt. Ltd., Nippen Electrical Instruments Co., Rishabh Instruments Pvt. Ltd.
MCCB	GE India Industrial Pvt. Ltd., Larsen & Toubro Ltd., Schneider Electric India Pvt. Ltd., Siemens Limited
MCB	Controls & Switchgear Co. Ltd., Havell's India Pvt. Ltd., ABB Ltd., Indiana Current Control Ltd., Indo Asian Fusegear Ltd., Legrand (India) Pvt. Ltd., Standard Electricals Ltd. Schneider Electric India PVT Ltd., Siemens Limited, Novateur Electrical & Digital systems.
ELCB	Datar Switchgear Pvt. Ltd., Indo Asian Fusegear Ltd., Legrand (India) Pvt. Ltd., Schneider Electric India Pvt. Ltd., Havell's India Ltd.

Notes:

- Contractor/ vendor while ordering shall ensure the availability of spare parts and maintenance support services for the offered equipment at least for 15 years from the date of supply. Contractor/ vendor shall give a notice of at least one year to the Owner and PMC before phasing out the products/spares to enable the owner for placement of order for spares and services.
- Contractor/ Vendor may procure material from any of owner/ EIL-approved vendors. However current validity and range of approval as per EIL enlistment letter, workload, stability and solvency need to be verified by the vendor/contractor before placement of order.
- Contractor/ Vendor can offer equipment/components of makes other than specified in the tender during order execution. The alternate make of equipment/components will be evaluated post order, based on the satisfactory track record and test certificates to be furnished by the Vendor/ Contractor. In case the alternate makes are not found acceptable, equipment/components shall be strictly as per vendor list enclosed with the tender.

11. LIST OF ATTACHMENTS

11.1 List of drawings

S. No.	Title	Drawing No.	Rev. No.
1.	Single line diagram-Lab Building (Ground Floor)	A416-000-16-50-1001	0
2.	Single line diagram-Lab Building (First Floor)	A416-000-16-50-1002	0

11.2 List of Data Sheets

S. No.	Title	Drawing No.	Rev. No.
1.	Data sheet Lighting Fixtures Schedule	A416-000-16-50-0011	0
2.	Data sheet MV cables & its accessories	A416-000-16-50-0012	0
3.	Data Sheet for MV Switchboard	A416-000-16-50-0013	0
4.	Data sheet Lighting Panel/Power panel	A416-000-16-50-0014	0
5.	Data sheet MDB/PDB incomer	A416-000-16-50-0015	0
6.	VDR for MV Cables	A416-000-16-50-0016	0
7.	VDR for MV Switchboard	A416-000-16-VR-0017	0
8.	VDR for Flameproof Plugs, sockets	A416-000-16-VR-0018	0
9.	VDR for Lighting/Power Panels	A416-000-16-VR-0019	0
10.	VDR for Light Fittings for Hazardous area	A416-000-16-VR-0020	0

11.3 List of Specifications

S. No.	Title	Drawing No.	Rev. No.
1.	Specification for medium voltage switchboards fixed type for package equipment	6-51-0012	3
2.	Specification For Flameproof Plugs, Sockets And Hand lamps	6-51-0021	4
3.	Specification For Medium And High Voltage Cables And Accessories	6-51-0051	6
4.	Specification for hazardous area lighting fixtures and junctions boxes	6-51-0061	4
5.	Specification for elect. Equipment installation	6-51-0081	3
6.	Specification for Cable installation	6-51-0082	3
7.	Specification for lighting installation	6-51-0083	3
8.	Specification for earthing installation	6-51-0084	3
9.	Specification for field inspection, testing and commissioning of electrical installations.	6-51-0087	2
10.	Design philosophy for electrical facilities	6-51-0099	5
11.	Specification for documentation requirements from contractors	6-78-0002	0
12.	Specification for documentation requirements from suppliers	6-78-0003	0
13.	Standard specification for health, safety & environment (HSE) management at construction sites	6-82-0001	5

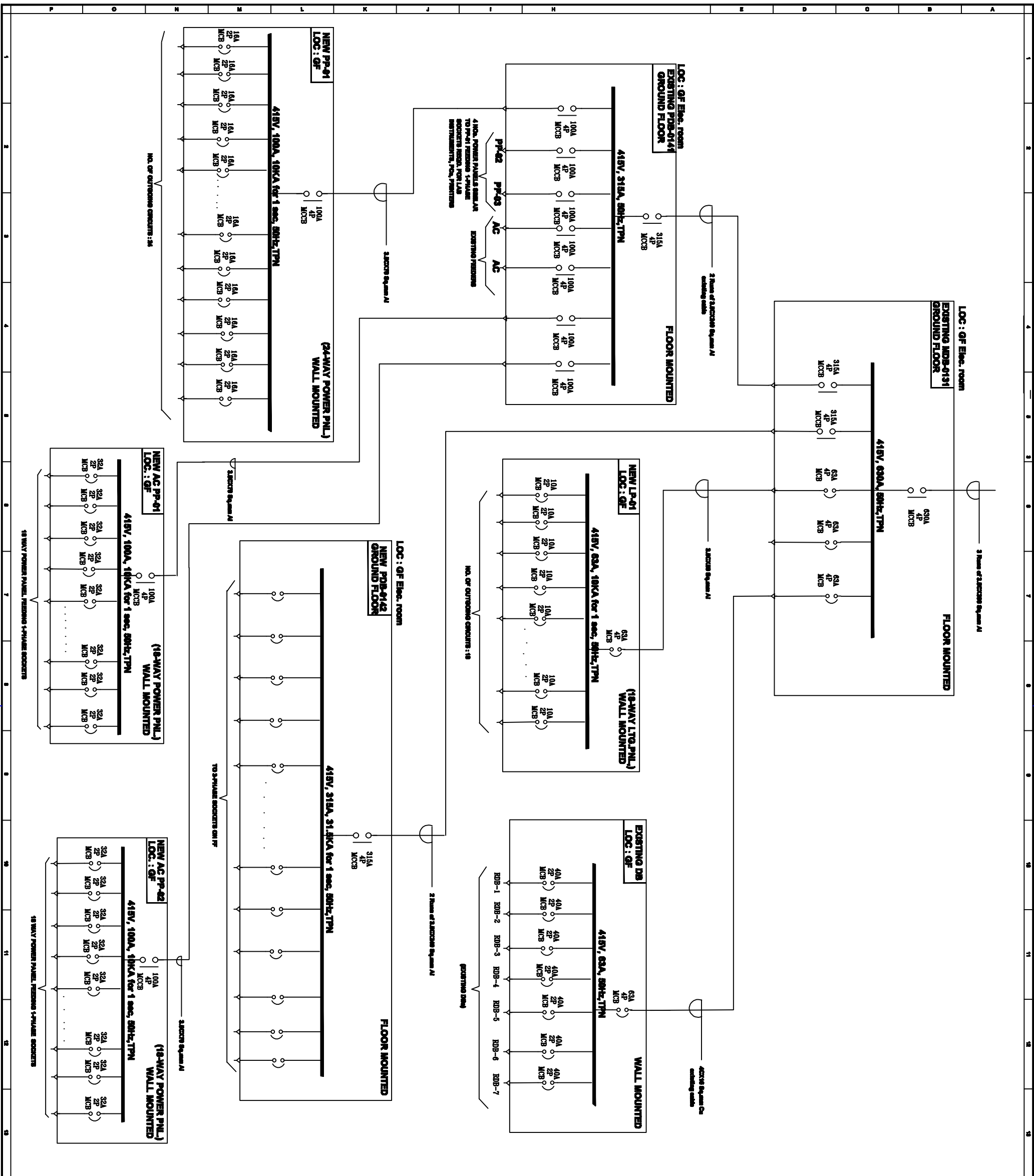
11.4 List of Standards

S. No.	Title	Drawing No.	Rev. No.
1.	Typical Electrode for Earthing System	7-51-0101	4
2.	Typical Earth Electrode in Test Pit	7-51-0102	5
3.	Typical Earth Plate Fixing Details	7-51-0103	5
4.	Equipment Earthing Schedule	7-51-0116	5
5.	Typical Installation of Fluorescent Fixture mounting in Exposed wiring system	7-51-0212	3

6.	Typical Installation of Recessed Mounted Fluorescent Fixture	7-51-0213	6
7.	Typical Installation of Recessed Mounted or Below False Ceiling Mounted Fluorescent Fixture	7-51-0214	3
8.	Typical Details of Wall Mounting Lighting/Power Panel	7-51-0226	3
9.	Typical Installation of Fixture Mounting in Concealed Conduit System	7-51-0229	3
10.	Typical Installation of lighting/ power panel flush mounted.	7-51-0230	3
11.	Installation details for conduit or cable support on wall/ slab/ beam.	7-51-0305	3
12.	Safety Measures for Electrical Installations during Construction	7-51-0332	2
13.	Details for Hot Dipped Galvanized Ladder Type Cable Trays	7-51-0333	2
14.	Typ. installation details of electrical panels on cable trench	7-51-0336	2

11.5 List of Inspection Test Plan (Electrical)

S. No.	Title	Drawing No.	Rev. No.
1.	Inspection & test plan for MV switchboards fixed type for package equipment	6-81-1012	1
2.	Inspection & test plan for flameproof plugs, sockets and hand lamps	6-81-1021	1
3.	Inspection & test plan for MV & HV cables & accessories	6-51-1051	2
4.	Inspection & test plan for hazardous area lighting fixture & junction boxes	6-81-1061	2
5.	Inspection & test plan for junction boxes and cable glands	6-81-2048	2



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14	15	16
REF. DWG. NO.	REFERENCE DRAWING TITLE	
		A

NOTES:-

1. MCCBs shall be Current limiting type

LEGENDS

9

— **Summary**

MINIATURE CIRCUIT BREAKER

EARTH LEAKAGE CIRCUIT BREAKER

➤ **CABLE GROUND TERMINATION**

[illegible]

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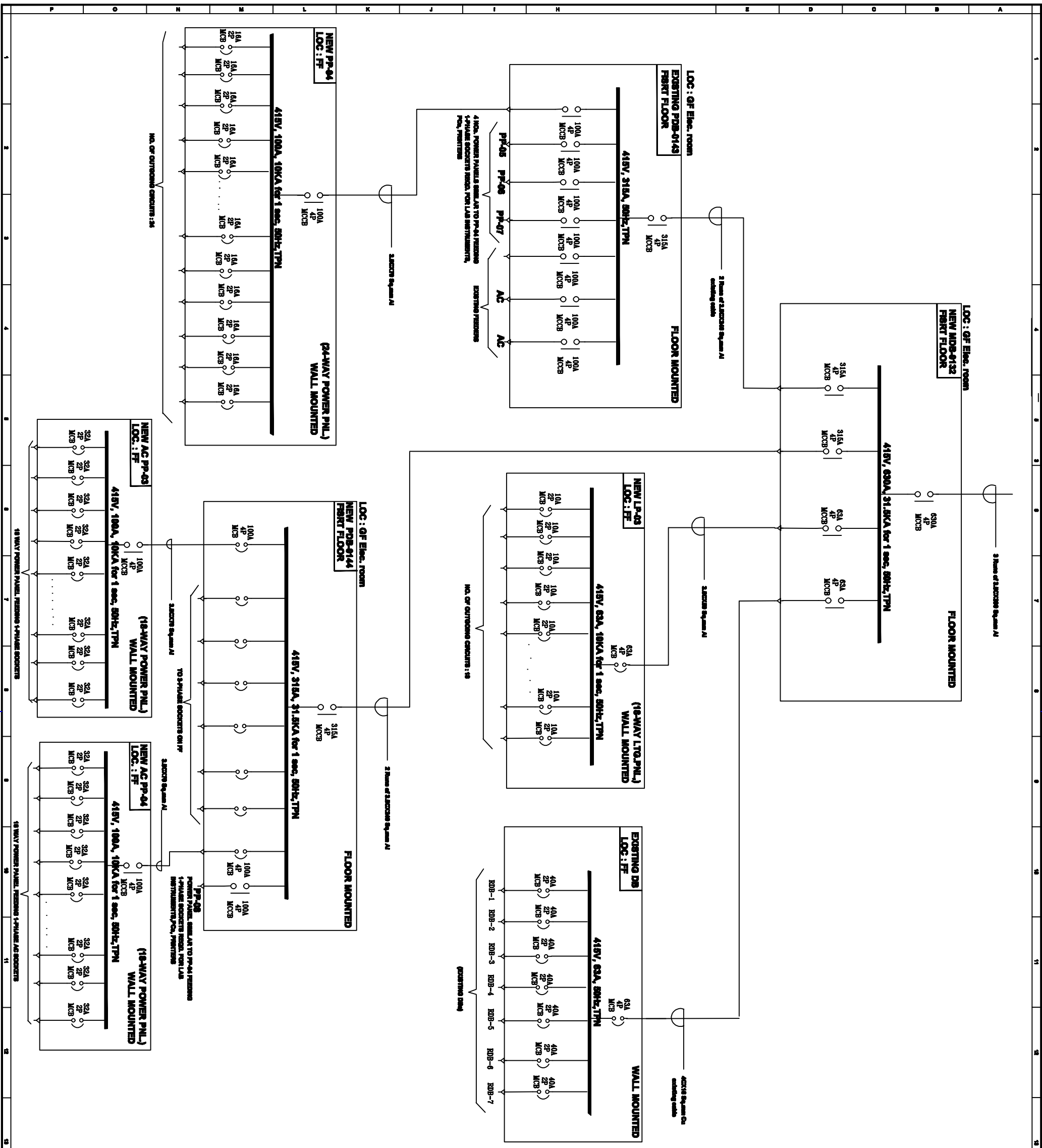
**ENGINEERS
INDIA LIMITED**

(A Govt. of India Undertaking)

**ESTABLISHMENT OF LABORATORY AT
BCPL LEPETKATA, ASSAM**

**KEY SINGLE LINE DIAGRAM
LABORATORY GROUND FLOOR**

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DIV.	NO.	REV.
NIL	A 4 1 6 0 0 0	1 6 5 0	1 0 0 1	0			

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		DATA SHEET FOR LIGHTING FIXTURE SCHEDULE		Document No. A416-000-16-50-DS-0011 Rev : 0	
Project Establishment of Laboratory		Location Dibrugarh, Assam			
Client M/S BCPL		Unit			
A Site Conditions					
1 Maximum ambient temperature: 39.8 °C		3 Design ambient temperature: 40 °C			
2 Minimum ambient temperature: 1 °C		4 Relative humidity: 93 %			
Type of Fixture	Description	Watt	Remarks		
IND1	Mounting rail type fixture suitable for 1x36 W fluorescent lamp made of stove enamel finish MS sheet steel housing.	1x36 W	Philips-TMC 501/136 Crompton-IGP13 14HSB Bajaj-BJIR-136, 140		
IND1T	Same as IND1 but suitable for 1x28W T5 lamp	1x28 W	Philips-TMS 122/128HF		
INDLED1	Same as IND1 but suitable for 1x18/22 W LED lamp	1 x 18/22 W	Philips-Master-LED-tube Surya-SLE TL		
IND2	Similar to IND1 but suitable for 2x36W fluorescent lamps.	2x36 W	Philips-TMC 501/236 Crompton-IGP13-24HSB Bajaj-BJIR-236		
IND2T	Similar to IND1T but suitable for 2x28W T5 lamp.	2x28 W	Philips-TMS 122/228HF		
INDLED2	Same as INDLED1 but suitable for 2'x18/22 W LED lamp	2 x 18/22 W	Philips-Master-LED-tube Surya-SLE TL		
IND3	Industrial type fixture suitable for 1x36W fluorescent lamp made of stove enamel finish MS sheet steel housing and vitreous enamelled white reflector.	1x36 W	Philips-TKC 203/136 Crompton-IGE-1314/ RSE14 Bajaj-BJIV-136		
IND3T	Same as IND3 but suitable for 1x28W T5 lamp	1x28 W	Philips-TMS-122/128R Bajaj-BTIR228		
INDLED3	Same as IND3 but suitable for 1x18/22 W LED lamp	1 x 18/22 W	Philips-Master-LED-tube Surya-SLE TL		
IND4	Similar to IND3 but suitable for 2x36W fluorescent lamps.	2x36 W	Philips-TKC-203/236, Crompton-IGE1324/ RSE24 Bajaj BJIV-236		
IND4T	Similar to IND3T but suitable for 2x28W T5 lamp.	2x28 W	Philips-TMS-122/228R Bajaj-BTIR228		
INDLED4	Same as INDLED3 but suitable for 2x18/22 W LED lamp	2 x 18/22 W	Philips-Master-LED-tube Surya-SLE TL		
IND5	Similar to IND3 but with white epoxy powder coated from inside and outside with reflector.	1x36 W	Philips-TKC-203/136 Crompton-IGP-1314 /RPC14 Bajaj BJIE-136		
IND6	Similar to IND5 but suitable for 2x36W fluorescent lamps.	2x36 W	Philips-TKC-203/236 Crompton-IGP 1324 /RPC24 Bajaj BJIE-236		
LED1	Decorative circular (200 mm dia approx.) downlighter, recess mounted type with LED light source having high glossy mirror, matt reflector including suitable integrated independent driver box	28/30W	Philips- BBS498 Crompton-LCDLH-30CDL		
LED2	Recess type square (600 mm x 600 mm approx) fixture 50 W with LED light source having high efficiency low glare optics with integrated independent driver box	50/55 W	Philips-QUADRA II Crompton-LCTLR-50-FO-CDL		
LED3	Recess type square (300 mm x 300 mm approx) fixture 18 W with LED light source having high efficiency low glare optics with integrated independent driver box	18 W	Crompton-LCDRP81		
LED4	Under water lighting fixture 7 W with LED light source with all controllers, drivers as required.	7 W	Crompton-AQUA(LUWH2-07-T)		
LED5	Decorative RGB flexible strip type lighting fixture 4 W per m with LED light source having high efficiency low glare with all controllers, drivers as required.	4 W per m	Crompton-LCRO/RGB-50 Bajaj-BGF1-150-36-RGB		
LED6	Step stair case bollard type lighting fixture 10 W with LED light source having high efficiency low glare optics with all required controllers, drivers .	10 W	Crompton-LIARA(LBLS1-10-CDL)		
LED7	Recessed floor embedded walk over type lighting fixture 3 W with LED light source having high efficiency low glare optics with all required controllers, drivers .	3 W	Crompton--GEM(LED E 22W) Bajaj -BGWCI 03 01		
SFD3	Pendent mounting decorative fixture suitable for 1x36W fluorescent lamp with opal acrylic cover	1x36 W	Philips TCS-19/136 Crompton-CPA 1114 HSB		
SFD4	Ceiling/pendant mounting fixture suitable for 2x36 W fluorescent lamps with opal acrylic translucent diffuser and high import black polystyrene end plates.	2x36 W	Philips-TCS-19/236 Crompton-CPA 1124 HSB Bajaj BJP-236		
0	03.07.13	ISSUED WITH TENDER	CS	RS	PG
Rev. No.	Date	Purpose	Prepared By	Checked By	Approved By

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				A416-000-16-50-DS-0011
				Rev : 0
SFD5	Ceiling/pendent mounting decorative fixture suitable for 2x36W fluorescent lamps with serrated Al. cross louvres.	2x36 W	Philips TCX-398 / 236 Bajaj BJSM-02/236 Crompton CMLM 24H/TW	
SFD6	Wide spread decorative ceiling/pendent mounting fixture made of white stove enamelled sheet steel housing and aluminum mirror optic system to achieve wide light distribution and having a serrated Al. cross louvres suitable for 2x36 W fluorescent lamps.	2x36 W	Philips TCS-306/236 Bajaj-BJPMS-236, Crompton CSBW 1124 HSB	
SFD6T	Same as SFD6 but suitable for 2x28 W T5 lamps.	2x28 W	Philips TPS-814/228HF Bajaj-BTSM 02 228 V2	
SFD9	Ceiling mounting decorative fixture suitable for 4x18 W fluorescent lamps with dished opal acrylic cover.	4x18 W	Crompton CSP 42H/TW Bajaj BJMP-420	
SFD10	Similar to SFD9 but with prismatic louver.	4x18 W	Crompton CRL 42H/TW/P Bajaj BJML-420	
SFD12	Ceiling/wall mounting fixture with prismatic glass cover.	1x60 W/ 1x100 W	Crompton IBH-1110BC PHILIPS FXC101 Bajaj BJDB-100	
SFD13	Wide spread mirror optics with decorative finish on ends. Ceiling/ pendant luminaries fitted with aluminum reflector and having serrated cross louvers suitable for 2x36 W fluorescent lamps.	2x36 W	Philips TCS 31/236 White Bajaj BJSM 236 Crompton CSBW 11 24HSB	
SFD14	Widespread mirror optics decorative recess/surface mounting luminaries fitted with aluminum reflector and having serrated Al. cross louvers suitable for 2x36 W fluorescent lamps.	2x36 W	Philips TCS 306/236 Bajaj BJCM 236 Crompton CRFG 24HSB	
SFD15	Widespread mirror optics ceiling mounted luminaries with high purity aluminum reflector and serrated Al. cross louvers suitable for 2x36 W compact fluorescent lamps.	2x36 W	Bajaj BLSM 236 CFLP2 Crompton CRDI 236	
SFD16	Widespread mirror optics decorative ceiling/pendent luminaries suitable for 1x36 W fluorescent lamps.	1x36 W	Philips TCS 498/136 Bajaj BJPMS 136	
RSD1	Wide spread, mirror optics decorative recess mounting fixture for use in areas with strip false ceiling having a reflector made of high purity aluminum sheet and fitted with serrated Al. cross louvres, suitable for 1x36 W fluorescent lamp.	1x36 W	Philips TBS-185/136 Bajaj BJMM-136 Crompton CRFA-14HSB	
RSD2	Wide spread mirror optics decorative recess mounting fixture having a reflector made of high purity aluminum sheet and fitted with serrated Al. cross louvres across the mirror system for minimizing glare, suitable for 2x36 W fluorescent lamp.	2x36 W	Philips TBS-90 Bajaj BJLM-236 Crompton CRFD-24HSB	
RSD6	Recess mounting luminaries with mirror system housing and dispersive anodised aluminum reflector for use in areas with strip false ceiling type suitable for 2x36W fluorescent lamp.	2x36 W	Philips TBS 285/236(DL) Darklite Crompton CRFD 24HSB Bajaj BJDL 236	
RSD6T	Same as RSD6 but suitable for 2x28W T5 lamps	2x28 W	Philips TBS 869/228HF Bajaj BTLM228	
RSD7	Same as above but with 4x18 W fluorescent lamp.	4X18W	Philips TBS 300/418M1 Crompton CRFL 42HSB Bajaj BJDL 418	
RSD7T	Same as above but with 4x14 W T5 fluorescent lamp.	4X14W	Philips TBS869/414HF	
RSD9	Recess mounting decorative fixture suitable for 4x18 W fluorescent lamp with dished opal acrylic cover.	4x18 W	Philips TBC-305/418(0) Crompton CRP 42H/TW Bajaj BJMP 420	
RSD10	Recess mounting down-lighter fixture with 60/100W incandescent lamp.	1x60 W/ 1x100 W	Philips DN 622 Crompton DDLV 10BC Bajaj BJDR 100	
RSD12	Same as RSD6 but for single 36 W fluorescent lamp.	1x36 W	Bajaj BJDL 136 Philips TBS 185/136 (DL) Crompton CRFD 14 HSB	
RSD13	Similar to RSD1 but suitable for 4x18W fluorescent lamps.	4x18 W	Philips TBS-305/418 Crompton CRFD 42HSB Bajaj BJMM 420	
LB1	Low bay sheet steel fixture, with wide distribution mirror system, bracket mounting suitable for 70 W sodium vapour lamp.	1x70W	Philips SGK-27 Bajaj BJRLB-70SV Crompton LSA 7IH	
LB2	Same as LB1 but with wire guard.	1x70W	Philips SGK-27 Crompton LSA 7IH Bajaj BJRLB 70SV/WG	

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इंजीनियर्स इंडिया लिमिटेड इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)		DATA SHEET FOR LIGHTING FIXTURE SCHEDULE		Document No.
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CFL13	Recess mounted luminaries, fitted with anodised aluminum reflector suitable for 2x36W CFL.	2X36 W	Crompton CRFQN236EB Havells LHCC22236311 Philips FBS300/236	
CFL14	Recess mounted luminaries, fitted with anodised aluminum reflector suitable for 2x36W CFL.	2X36 W	Crompton CFTT11236EB Havells LHCC56236111 Philips FBS430/236	
CFL15	Recess mounted luminaries, fitted with anodised aluminum reflector suitable for 1x18W CFL.	1X18 W	Crompton DDLH118/N6 Havells LHOC10118320 Philips FBH145/118L	
CFL16	Recess mounted luminaries, fitted with anodised aluminum reflector suitable for 2x13W CFL.	2X13 W	Crompton DDLH213/N6 Havells LHOC14218399 Philips FBH145/213L	
CFL17	Wall mounted fixture with 1x9/11W CFL lamp	1x9/11W	PHILIPS –FMS 200/111	
CFL18	Wall mounted fixture with 2x9W CFL lamp	2x11 W		
OUTDOOR TYPE FIXTURES				
ST1	Street lighting fixture suitable for 2x36W fluorescent lamps made of stove enamelled grey aluminum canopy and acrylic transparent cover.	2x36 W	Philips TRC-33/236 Crompton SFE Bajaj BJSJA-236/240	
ST2	Similar to ST1 but suitable for 2x18W fluorescent lamp.	2x18 W	Philips TRC-33/218	
ST3	Street lighting fixture suitable for 125W HPMV lamp with cast aluminum housing stove enamelled grey outside and white inside, a pair of anodised aluminum reflectors and highly transparent clear acrylic sheet cover with hinge and toggle fastening, neoprene gaskets and integrated prewired ballasts etc.	1x125 W	Crompton MSC-1125 IH Bajaj BJMSD-125MV Philips HRP-48	
ST4	Similar to ST3 but suitable for 250W HPMV lamp.	1x250 W	Crompton MSS-1525IH Bajaj BJMIP-250MV	
ST7	Similar to ST3 but suitable for 35 W SOX low pressure sodium vapour lamp.	1x35 W	Philips SRP-48 Crompton SSC-1107 IH/WI Bajaj BJLS-35	
ST8	Similar to ST3 but suitable for 70W HPSV lamp.	1x70 W	Philips SRP-48 Crompton SSC-1207 IH/WI Bajaj BJMSC-70SV	
ST9	Similar to ST10 but suitable for 70W HPSV tubular lamp.	1x70 W	Crompton SSC-1207 IH/WI Bajaj BJMSC-70SV Philips SRY 066/70	
ST10	Single piece die-cast aluminum body street light fixture with bowl type Al. reflector and with clear acrylic cover suitable for 150 W SON tubular lamp.	1x150 W	Philips SRP 501 Bajaj BGEST 150 Crompton SSG 1315 IH	
ST11	Single piece die-cast aluminum body street light fixture with Al. reflector and with toughened heat resistant clear glass cover suitable for 150 W SON tubular lamp.	1x150 W	Philips SRX 51 Bajaj BGETT 150 Crompton MHSG 2315 IH Havells LHRS21115A36	
STIND1	Same as ST3 but suitable for 80 w induction lamp	1x80 W	Bajaj-BJEST Surya-SUL80	
STIND2	Same as STIND1 with 120 w induction lamp	1x120 W	Surya SUL20	
PT1	Post top lantern suitable for 80W HPMV lamp with necessary control gear and housing attachment. (Integral type).	1x80 W	Crompton MPT-118IL Bajaj BJPTI-80MV Philips HPC-201/80	
PT2	Similar to PT1 but suitable for 125W HPMV lamp. (Integral type).	1x125 W	Crompton MPT-112IL Bajaj BJPTI-125 Philips HPC 102/125	
PT3	Similar to PT1 but suitable for 70W HPSV lamp. (Integral type).	1x70 W	Crompton SPT-1107IL Bajaj BJPTI-70 Philips SPC-101/70	
PT4	Decorative luminaire made of coloured FRP with clear acrylic cover suitable for aesthetic and decorative lighting of lawns and parks etc. with 1xGLS60W lamp.	1x60 W	Philips NGC100 Bajaj BJB 100	
PT5	Similar to PT4 but suitable for 9W CFL.	1x9 W	Philips FGC-100 Crompton CFBL-9 Bajaj BRBOL 111	
PT6	Similar to PT1 but suitable for 70W HPSV lamp	1x70 W	Crompton SPT 11071L/BF	
PT7	Similar to PT1 but suitable for 2x9 W CFL	1x9 W	Crompton CFBL 1229	
BK1	Bulk head fitting with cast aluminum alloy body having stove enamelled finish (silver grey outside, white inside) and complete with prismatic front glass, wire guard, tropicalised gasket and BC lamp holder suitable for 100W GLS lamp.	1x100 W	Crompton IBH-1110BC Bajaj BJDB-100 Philips FXC 101	

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BK2	Similar to BK1 but with pressed aluminum body, finished stove enamelled grey outside white inside with frosted front glass fitted with tropicalised gasket and without wire guard.	1x100 W	Philips-FXC-101 Crompton IBH-1110BC	
BK3	Industrial well glass fixture with cast aluminum alloy mounting piece and a sheet aluminum canopy stove enamelled white inside and grey outside with heat resistant glass and wire guard suitable for upto 200W GLS/160 W MLL.	1x100 W	Philips NDC-203 Crompton IWV-1120BC/ES Bajaj BJVV 200	
BK4	Similar to BK3 but suitable for 125 W HPMV lamp with necessary control gear and housing attachment.	1x125 W	Philips NDC-203 Crompton IWV-1210BC/ES/VE Bajaj VWI 125 MV	
BK5	Similar to BK3 but with additional vitreous enamelled reflector.	1x100 W	Philips NDC-203 Crompton IWV 20BL/Y Bajaj VWI 125/VE	
BKIND1	same as BK1 suitable for 23W induction lamp.	1 x 23W	Bajaj-BJDW	
FD1	Flood lighting fixture suitable for 250W HPMV lamp comprising of anodised aluminum housing and reflector with adjustable lamp holder, heat resistant front glass cover fixed to reflector by aluminum ring and rubber gasket. (IP-54 enclosure).	1x250 W	Bajaj BJEF-18(S) Philips MNF 14/250 Crompton FMD 1525	
FD2	Similar to FD1 but suitable for 400W HPMV lamp.	1x400 W	Philips MNF 14/400 Bajaj BJEF-18 (S) Crompton FMD 1525	
FD4	Flood lighting fixture suitable for 2x400W HPMV lamps made of cast aluminum with cooling fins, anodised reflector gasketed heat resisting glass front cover, easy relamping facility (without disturbing the beam direction) protector scale for quick day light adjustment.	2x400 W	Philips MNT-001 Crompton FHD-1224 Bajaj BJEF-22CA/ BGENF 22	
FD6	Flood light fixture of cast aluminum housing and spun aluminum reflector heat resistant glass cover and adjusting facility suitable for 1x250W HPSV lamp. (IP-54 enclosure).	1x250 W	Philips MNF-14/25 Crompton-FMD 1525 Bajaj BJEF 18 (S)	
FD7	Similar to FD6 but with 2x250W HPSV lamp.	2x250 W	Philips SNT-001/250 Bajaj BJEF-22 CA/ BGENF 22 Crompton FHD-1524	
FD8	Similar to FD6 but with 1x400W HPSV lamp.	1x400 W	Philips MNF-14/400 Crompton FBD-14 Bajaj BJEF 215	
FD9	Similar to FD6 but with 2x400W SON tubular lamp.	2x400 W	Philips SNT-001 / 400 Bajaj BJEF-22CA/BGENF 22 Crompton FHD-1524	
FD10	Similar to FD6 but suitable for 1x250W SON tubular lamp.	1x250 W	Philips SNF-14/250 Bajaj BJEF-14CAT Crompton FAD-1314	
FD11	Similar to FD6 but suitable for 2x250W SON tubular lamp.	2x250 W	Philips SNT-001 / 250 Bajaj BJEF-22CA/BGENF 22 Crompton FHD-1524	
FD12	Similar to FD6 but suitable for 1x400W SON tubular lamp.	1x400 W	Philips SNF-14/400 Bajaj BJEF-14CAT Crompton FAD-1314	
FD13	Similar to FD6 but suitable for 2x250W HPMV lamp.	2x250 W	Philips SNT-001 / 250 Bajaj BJEF-22CA/BGENF 22 Crompton FHD-1524	
FD14	Integrated flood lighting fixture of die-cast aluminum housing with ALGLAS reflector, heat resistant toughened clear glass cover suitable for 150 W HPSV lamp.	1x150 W	Bajaj BGEMF 1505 V Crompton FAMH 1215 IH	
FDIND1	Same as FD1 but with 200W Induction lamp	1 x 200W	Bajaj BJENF Surya SFL200	
AV1	Neon aviation obstruction lighting fixture complete with neon lamp, designed to give omni directional steady 'ON' red colour light.	1x100 W	Bajaj BJAOL-1	
FLAMEPROOF/Non-sparking Restricted breathing type LIGHTING FIXTURE (ZONE-1 AND 2)				
FLP-1	Flameproof and weatherproof well glass lighting fixture for use in zone-1 classified areas with 100/200W incandescent lamp.	1x100 W / 1x200W		
FLP-4	Same as FLP-1 but with 125W HPMV lamp and separate control gear.	1x125 W		
FLP-4a	Same as FLP-4 but with integral control gear.	1x125 W		
FLP-5	Same as FLP-1 with 250W HPMV lamp and separate control gear	1x250 W		

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FLP-5a	Same as FLP5 but with integral control gear.	1x250 W		
FLP-5b	Flameproof & WP Well glass lighting fixture with 400 W HPMV lamp.	1x400 W		
FLP-6	Flameproof and weatherproof flood lighting fixture with 500W incandescent lamp.	1x500 W		
FLP-7	Same as FLP-6 but with 250W HPMV lamp.	1x250 W		
FLP-8	Flameproof bulk head lighting fixture with 100W incandescent lamp.	1x100 W		
FLP-9	Same as FLP6 but with 400 W HPMV lamp.	1x400 W		
FLP-10	Flameproof and weatherproof fluorescent lamp fixture suitable 2x36/40W fluorescent lamps with integrated choke box housing mounting clamps etc.	2x36/40 W		
FLP-11	Same as FLP-10 but for 2x20W fluorescent lamps.	2x20 W		
FLP-12	Flameproof and weatherproof LED cluster based aviation obstruction light complete with LEDs (Twin type)	Medium Intensity		
FLP-13	Flameproof and weatherproof fixture suitable for 3 Nos. 18W CFL Lamp	3x18W		
FLP-14	Flameproof and weatherproof fixture suitable for 3 Nos. 26W CFL Lamp	3x26 W		
FLP-15	Flameproof and weatherproof fixture suitable for 3 Nos. 32W CFL Lamp	3x32 W		
FLP IIC-1	Flameproof & WP Well glass lighting fixture with 100W/200W incandescent lamp for use in IIC classified areas.	1x100/200 W		
FLP IIC-3	Flameproof & WP Well glass lighting fixture with 125 W HPMV lamp for use in IIC classified areas.	1x125W		
FLP IIC-4	Flameproof & WP Well glass lighting fixture with 250 W HPMV lamp for use in IIC classified areas.	1x250 W		
FLP-5b	Flameproof & WP Well glass lighting fixture with 400 W HPMV lamp for use in IIC classified areas.	1x400 W		
FLP-7	Flameproof and weatherproof flood lighting fixture with 250W HPMV lamp for use in IIC classified areas.	1x250 W		
FLP-IIC-12	Flameproof and weatherproof aviation marker light complete with cluster LED, medium intensity, flashing	Medium Intensity		
FLP-IIC-13	Flameproof and weatherproof fixture suitable for 3 Nos. 18W CFL Lamp suitable for IIC area	3x18 W		
FLP-IIC-14	Flameproof and weatherproof fixture suitable for 3 Nos. 26W CFL Lamp suitable for IIC area	3x26 W		
FLP-IIC-15	Flameproof and weatherproof fixture suitable for 3 Nos. 32W CFL Lamp suitable for IIC area	3x32 W		
Ex 'nR'-1	Weatherproof well glass increased safety lighting fixture for use in zone-2 classified areas with 100/200W incandescent lamp.	1x100 W		
Ex 'nR'-2	Same as Ex 'nR'-1 but with 160W blended lamp.	1x160 W		
Ex 'nR'-3	Same as Ex 'nR'-1 but with 80W HPMV lamp and separate control gear.	1x80 W		
Ex 'nR'-3a	Same as Ex 'nR'-3 but with integral control gear.	1x80 W		
Ex 'nR'-4	Same as Ex 'nR'-1 but with 125 W HPMV lamp and separate control gear.	1x125 W		
Ex 'nR'-4a	Same as Ex 'nR'-4 but with integral control gear.	1x125 W		
Ex 'nR'-5	Same as Ex 'nR'-1 but with 250 W HPMV lamp and separate control gear.	1x250 W		
Ex 'nR'-5a	Same as Ex 'nR'-5 but with integral control gear.	1x150 W		
Ex 'nR'-6	Increased safety & WP Well glass lighting fixture for use in zone-2 classified areas with 400 W HPMV lamp.	1x400 W		
Ex 'nR'-13	Increased safety & WP lighting fixture suitable for use in zone-2 classified areas with 3x26W CFL lamp.	3X26W		
NOTES: 1. All fixtures shall be complete with lamps. 2. All fluorescent/Mercury vapour/ Sodium Vapour /metal halide / LED fixtures shall be high power factor (Min. 0.9) type. 3. All fluorescent fixtures shall be fitted with low loss type electronic ballast and shall be cool white. 4. All 36 W fluorescent lamp can be replaced by 40W with the consultation of site Engineer-in-Charge. 5. All mirror optics luminaries should be epoxy powder coated. 6. Make of fixtures shall be embossed on the body. 7. All hazardous well glass fixtures shall be supplied with stainless steel external reflectors 8. Manufacturers type designation for fixtures indicated are for guidance purpose based on present catalogue nos, However contractor shall select equivalent fixture from approved vendor list.				

PURCHASER'S DATA									
Project		Establishment of Laboratory			Location		Dibrugarh, Assam		
Client		M/S BCPL			Unit				
A Site conditions									
1	Maximum ambient temperature:		39.8 °C		4	Relative humidity:		93 %	
2	Minimum ambient temperature:		1 °C		5	Altitude		< 1000 m	
3	Design ambient temperature:		40 °C		6	Environment:		Humid & corrosive	
B Technical particulars									
1	System voltage				3	Conductor material			
	Nominal	Highest	Voltage grade						
	415 V	500 V	650/1100V			MV Power cable			
	3.3kV(E)	3.6 kV	1.9/3.3kV			MV control cable			
	3.3kV(UE)	3.6 kV	3.3/3.3kV						
	6.6kV(E)	7.2 kV	3.8/6.6kV			4 Installation under DGMS jurisdiction			
	6.6kV(UE)	7.2 kV	6.6/6.6kV			(See note-3)			
	11kV(E)	12 kV	6.35/11kV			5 Applicable spec.			
	11kV(UE)	12 kV	11/11kV			6-51-0051 Rev 5			
	22kV(E)	24 kV	12.7/22kV						
	33kV(E)	36 kV	19/33kV						
2	Frequency		50 Hz ± 3%						
MANUFACTURER'S DATA									
1	Name of manufacturer				9	Inner sheath			
2	MR/PR item no.					Type of compound			
3	Cable type/ code					Thickness			
4	Conductor material				10	Nominal dia under armour			
5	Conductor semiconducting screen (HV cables)				11	Calculated dia under armour			
	Material				12	Armour			
	Thickness					Material			
6	Insulation					Type			
	Type of compound					Size			
	Thickness				13	Nominal dia under outersheath			
7	Insulation semiconducting screen (HV cables)				14	Calculated dia under outersheath			
	Material				15	Outersheath			
	Thickness					Type of compound			
8	Copper tape					Thickness			
	Thickness				16	Nominal outer dia of cable			
					17	Tolerance on outer dia			
					18	Weight of cable per km			
					19	Maximum drum length			

Notes

- 1 E- Earthed system
UE-Un Earthed system

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PURCHASER'S DATA					
	Project	Establishment of Laboratory		Location	Dibrugarh, Assam
	Client	BCPL		Unit	
A	Site conditions				
1	Maximum ambient temperature:	39.8 °C	4	Relative humidity:	93 %
2	Minimum ambient temperature:	1 °C	5	Altitude above MSL:	< 1000 m
3	Design ambient temperature:	40 °C	6	Environment:	Humid & corrosive
B	Operating Conditions				
1	Voltage	415 V ± 6 % TPN	6	Auxiliary supply	
2	Frequency	50 Hz		AC	240 V ± 6% SPN
3	No of phases	Three		DC	
4	System fault level	*	7	Power supply for spring charging motor	V AC/ DC
5	System earthing	Solidly earthed			
C	Electrical Data				
1	Short circuit withstand capacity for 1 sec.	31.5 kA	7	Incoming power entry	Bottom
2	Busbar current rating inside panel	630A, 315A	8	Cable entry (I/C & O/G)	Required
	panel at specified ambient		9	Bus duct entry	Not required
3	Busbars	Heat shrunk PVC sleeve	10	Cable gland/lugs	Included
4	System breaking capacity	kA	11	Colour shade Exterior	631 as per IS:5
5	System making capacity	kA (peak)	12	Feeder arrangement	Single front
6	Circuit breaker	Not Applicable	13	Minimum motor starter module size	
	Type		14	Minimum switchfuse module size	200mm/Vendor standard
	Duty cycle				
	Rating		15	Floor fixing	Integral base frame & tack welding to the floor channel

Note

* marked particulars may be referred in respective switchboard feeder detail data sheet

MANUFACTURER'S DATA					
A	Switchboards		12	Largest shipping section:	
1	Tag no.			Max. overall weight	kg
2	Make			Length*Depth*Height	mm
3	Type designation		13	Recommended clearances for SWBD	
4	Degree of protection			Front*Rear*Above	mm
5	CB panel		15	Max. size/no. of cables that	
	Overall weight			can be terminated	
	Incomer	kg		with rear extension	
	Outgoing	kg		without rear extension	
	Overall dimensions		16	Size of rear extension panel	
	Length*Depth*Height	mm	17	Clearance in air	
6	Overall dimensions of MCC/ contactor controlled feeder panel:			Phase to Phase	mm
				Phase to Earth	mm
	Length*Depth*Height	mm	18	Main horizontal bus bar	
7	Overall dimensions of each PCC			Bus bar current rating at	A
	Length*Depth*Height	mm		design ambient temp.	
8	Overall dimensions of each PMCC			Main bus bar size	
	Length*Depth*Height	mm		Main bus bar material	Al / Cu
9	Overall dimensions of each MCC			Main bus bar location	Top/ Bottom
	Length*Depth*Height	mm	19	Vertical bus bars	
10	Overall dimensions of each ASB			Bus bar current rating at	
	Length*Depth*Height	mm		design ambient temp.	A
11	Overall dimensions of each LDB			Bus bar size	
	Length*Depth*Height	mm		Bus bar material	
14	Shock loading on foundation			Bus bar location	

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20	Insulating material		23	Short circuit	
21	Earth bus bar size	mm ²		1 second	kA
	Material	Al / Cu		Peak dynamic	
22	1min power freq voltage	kV	24	Whether adaptor panel required	Yes/No
				between PCC/MCC panel	
				If Yes, furnish dimensions	
B Circuit breaker					
1	Type designation		15	Power requirement	
2	Make			Opening	W/VA
3	Mounting			Closing	W/VA
4	No. of poles/phases			Spring charge motor	W/VA
5	Current rating (in air)	A at °C	16	Time for spring charging	
6	Current rating (inside panel at design temperature)	A	17	Breaker is trip free	Yes
7	Short time rating (1 sec)		18	Closing mechanism	
8	Sym breaking capacity	kA	19	Provision of manual spring charging	Yes
	% DC component		20	Tripping mechanism	
9	Peak making capacity	kA (peak)	21	Mechanical trip PB provided	Yes
10	Power frequency withstand		22	Mechanical ON/OFF indicator	Yes
11	Impulse withstand voltage			provided	
12	Duty cycle		23	Operation counter provided	Yes/ No
13	Total opening time	m sec	24	Time taken for spring charging	sec
14	Total closing time	m sec	25	No. of auxiliary contacts	NO+ NC
			26	Derating required for capacitor switching	%
C CONTACTOR					
1	Type designation		9	Life	
2	Make			Electrical	
3	Rated Voltage			Mechanical	
4	Rated current		10	Coil consumption - Pick up	
	AC-3 Duty		11	Coil consumption - Pick up	
	AC-4 Duty		12	Coil consumption - Hold on	
5	Thermal rating		13	Closing time	
6	Making capacity		14	Opening time	
7	Breaking capacity		15	No of aux. contacts	NO+ NC
8	Switching frequency		16	Maximum permitted back up fuse rating	
D SWITCH					
1	Rated voltage		6	Rated short circuit withstand current with max. permissible rated fuses	
2	Rated current		7	Mechanical life	
3	AC 23 rating		8	Maximum permitted back up fuse rating	
4	Rated making capacity				
5	Rated breaking capacity				
E THERMAL OVERLOAD RELAY					
1	Make		5	Type of operation	Direct / CT operated
2	Type		6	Maximum permitted back up fuse rating	
3	Setting range				
4	Single phasing preventor	Integral / Separate			
F FUSES					
1	Make		3	Current rating	
2	Type				

Note

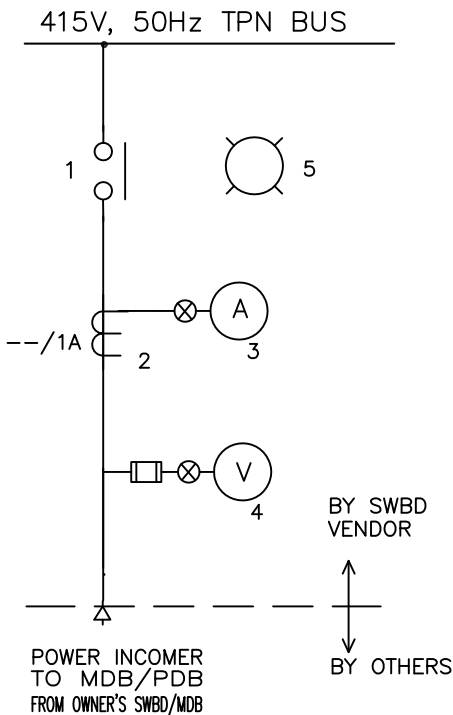
- Vendor shall furnish dimensions of various switchboards, CB panels separately.
- Vendor shall furnish technical particulars of various switchboards separately.
- Switchboard offered shall be of proven design and shall have been successfully type tested. Type test certificates for an exactly identical design of offered switchboard shall be furnished by bidders. These test reports shall be not more than 5 years old, as on the final bid opening date. In case these type tests have not been conducted during the last 5 years, bidder shall conduct these type tests on the offered design of switchboard before despatch without any extra cost and delivery impact.

PURCHASER'S DATA									
Project		Establishment of Lab		Location		Dibrugarh, Assam			
Client		BCPL		Unit					
A Site conditions									
1	Maximum ambient temperature:	39.8	°C	4	Relative humidity:	93	%		
2	Minimum ambient temperature:	1	°C	5	Altitude above MSL:	< 1000 m			
3	Design ambient temperature:	40	°C	6	Environment:	Humid & corrosive			
B Technical particulars									
1	Area classification	Safe area		9	Earthing Terminals	10mmφ stud (External-2nos,Internal-1no.)			
2	Type of panel enclosure			10	Incoming supply	415 V. 50 Hz. TPN			
3	Gas group			11	Outgoing supply	240 V. 50 Hz. SPN			
4	Surface temperature			12	Incomer feeder rating	4 pole, 63A MCB			
						4 pole, 100A MCCB			
5	Degree of ingress protection	IP-42 (Min)							
6	Cable entry	Bottom		13	Outgoing feeder rating	2 pole, 10A MCB			
7	Panel mounting	Wall				2 pole, 16A MCB			
8	Exterior painting	Shade 632 of IS-5				2 pole, 32A MCB			
9	Interior painting	Shade 632 of IS-5		14	Short cut capacity-MCB/ELCB	9 kA (M9 Category)			
				15	Applicable standard	EIL std. 6-51-083			
				16	Type test	Not Applicable			
MANUFACTURER'S DATA									
	Equipment	LP ---ways	LP ---ways	LP ---ways	PP ---ways	PP ---ways	PP ---ways	PP ---ways	PP ---ways
1	MR item no.								
2	Explosion protection class								
3	Tag no.								
4	Type reference no.								
5	Ref. No. & date of CMRI/ other test certificates of recognised test authority								
6	Ref. No. & date of CCE approval certificates								
7	Ref. No. & date of DGFASLI approval certificates								
8	Ref. No. & date of DGMS approval certificates								
9	BIS license no. date								
10	Dimension L x D x H (mm)								
11	Weight (kg)								

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PROJECT: ESTABLISHMENT OF LAB CLIENT: M/S BCPL	REV	DATE	PURPOSE	BY	CHKD	APPRV
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EQUIPMENT DATA			
ITEM NO.	NEMA NO.	QTY.	DESCRIPTION
1	-	1	MCCB
2	-	3	METERING CT, CL-1, 10VA
3	-	1	AMMETER WITH 4WAY SELECTOR SWITCH.
4	-	1	VOLTMETER WITH 4WAY SELECTOR SWITCH & FUSE
5	-	3	R Y B INDICATING LAMPS
6	-	1	PANEL SPACE HEATER WITH MCB AND THERMOSTAT

NOTES:

1. THE ONE LINE DIAGRAM SHOWN ABOVE IS ONLY INDICATIVE . ALL THE ITEMS SPECIFIED UNDER "EQUIPMENT DATA" AND IN SPECIFICATION 6-51-12 SHALL BE IN VENDOR'S SCOPE.
2. MCCBs SHALL BE CURRENT LIMITING TYPE



ENGINEERS INDIA LIMITED
NEW DELHI

M.V. SW. BD. DATA SHEET
MDB/PDB INCOMER

DATA SHEET	REV
A416-000-16-50-DS-0015	0

PROJECT: PMC SERVICES FOR ESTABLISHMENT OF LABORATORY

CLIENT : M/s BCPL

Sr. No	Description	With Bids	Post Order		Final Documents
			For Review	For Records	
1.	Vendor documents' schedule		*		
2.	Data sheets (duly filled-in)			*	
3.	Dimensional Drawings				
	a. Cross sectional views of cables			*	
4.	Technical particulars of cables eg., impedance, inductance, resistance, current carrying capacity etc.,			*	
5.	QA plan of vendor (For review by Inspection)		*		
6.	Inspection plan and testing procedure (For review by Inspection)		*		
7.	Test records			*	
8.	Type test certificate				
	a. For similar cables			*	
	b. For cable accessories			*	
9.	Data book/ manual				
	a. Installation manual				*
	b. Operating/ maintenance manual				*
	c. Catalogues/ Brochures				*
10.	Equipment storage procedure at site				*

* **DATA REQUIRED.**

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Notes:

1. Unless otherwise agreed, the number of copies of various drawings and documents shall be as follows:
 - a. Post order submission : For Review/Records - Four copies
 - b. Final document : Six prints and two sets of CDs

Contractor shall furnish soft copy of all drawings in AutoCad version and all documents in MS Office, as part of final documentation
2. For further details, Contractor shall refer EIL Standard 6-78-0001 "Specification for Quality Management System Requirements from Contractor " & 6-78-0003 "Specification for Documentation Requirements from Suppliers".
3. Contractor shall furnish Schedule of Vendor Drawings and Documents (Format EIL 1641-1923) within 15 days after placement of FOI/TOI.

PROJECT: PMC SERVICES FOR ESTABLISHMENT OF LABORATORY

CLIENT : M/s BCPL

Sr.No	Description	With Bids	Post Order		Final Documents With Equipment	
			For Review	For Records	Electronic file	Prints
1.	Vendor Documents/ drawing submission schedule		*			
2.	MV Switchboard data sheets (Duly filled in)		*		*	*
3.	Dimensional/Assembly Drawings					
a.	GA Drawings (elevation and plan) of switchboards including clearance requirement		*		*	*
b.	Installation Plan including foundation, cut-out and mounting Details			*	*	*
c.	Cross Sectional View			*	*	*
d.	Cubicle Arrangement Drawing			*	*	*
e.	Name Plate Drawing			*		*
4.	Electrical Wiring Drawings					
a.	Single Line Diagram		*		*	*
b.	Control Schematic			*	*	
c.	Wiring Diagram And Terminal Details			*	*	*
d.	Inter panel Wiring Diagram			*	*	*
5.	Panel Schedule & Bill Of Material			*		*
6.	Auxiliary power requirement (AC & DC)			*	*	*
7.	QA Plan Of Vendor (for review by EIL- Inspection)		*			*
8.	Inspection Plan And Testing Procedure (for review by EIL-Inspection)		*			*
9.	Test Records			*		*
10.	Type Test Certificate (For Panel, Breakers & Components)			*		*
11.	Unit rates for addition/deletion of modules & components	*				
12.	List of commissioning Spares	*				*

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13.	List of Maintenance Spares	*				*
14.	List of Mandatory Spares	*				*
15.	List Of Special Tools & Tackles	*				*
16.	Data Book/Manual					
a.	Installation Manual			*		*
b.	Operating/Maintenance Manual					*
c.	Catalogues/Brochures			*		*

* DATA REQUIRED.

Notes:

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 - With bids - Same as the number of copies of bids.
 - Post order submission - For Review/Records - Four copies
 - Final documents - Six prints and One electronic file in CD
- For further details, Contractor shall refer EIL Standard 6-78-0001 "Specification for Quality Management System Requirements from Contractor " & 6-78-0003 "Specification for Documentation Requirements from Suppliers".
- Vendor shall furnish schedule of drawings and documents within 15 days after placement of order.
- Vendor to provide contact details (Mobile, email) of person dealing with bids so that queries can be resolved quickly.**

PROJECT: PMC SERVICES FOR ESTABLISHMENT OF LABORATORY

CLIENT : M/s BCPL

Sr.No	Description	With Bids	Post Order		Final Documents With Equipment
			For Review	For Records	Prints
1.	Schedule of Vendor Documents		*		*
2.	Dimensional/Assembly Drawings				
a.	GA Drawings			*	*
b.	Installation and mounting details			*	*
3.	Wiring Diagram And Terminal Details			*	*
4.	Type Test Certificate from Independent Test Lab			*	*
5.	Statutory Approval Certificate			*	*
6.	BIS Licence			*	*
7.	List of Spares			*	*
8.	List Of Recommended Special Tools & Tackles			*	*
9.	Inspection & Test Plan (ITP) - For review by Inspection Dept.		*		
10.	Test Records				*
11.	Data Book/Manual				
a.	Installation Manual				*
b.	Operating/Maintenance Manual				*
c.	Catalogues/Brochures				*
12.	Equipment storage procedure at site				*

* DATA REQUIRED.

Notes:

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3. Vendor shall furnish schedule of drawings and documents within 15 days after placement of order.
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PROJECT: PMC SERVICES FOR ESTABLISHMENT OF LABORATORY

CLIENT : M/s BCPL

Sr.No	Description	With Bids	Post Order		Final Documents With Equipment
			For Review	For Records	Prints
1.	Schedule of Vendor Documents		*		*
2.	Data sheets (Duly-filled in)		*		*
3.	Dimensional/Assembly Drawings				
a.	GA Drawings		*		*
b.	Crosssectional view			*	*
c.	Cable gland, sealing plug drawings			*	*
d.	Terminal details, wiring diagram			*	*
4.	List of Spares			*	*
5.	List Of Recommended Special Tools & Tackles			*	*
6.	Data Book/Manual				
a.	Installation Manual				*
b.	Operating/Maintenance Manual				*
c.	Catalogues/Brochures				*
7.	Equipment storage procedure at site				*

* DATA REQUIRED.

Notes:

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PROJECT: PMC SERVICES FOR ESTABLISHMENT OF LABORATORY

CLIENT : M/s BCPL

Sr.No	Description	With Bids	Post Order		Final Documents With Equipment
			For Review	For Records	Prints
1.	Schedule of Vendor Documents		*		*
2.	Dimensional/Assembly Drawings				
a.	GA Drawings			*	*
b.	Installation/Mounting Details			*	*
c.	Terminal Box Arrangement			*	*
3.	Performance Curves				
	- Polar Curves For Each Type Of Fixture			*	*
	- Photometric Data For Each Type Of Fixture			*	*
4.	Inspection & Test Plan (ITP) - For review by Inspection Dept.		*		*
5.	Test Records				*
6.	Statutory Approval certificate			*	*
7.	Type Test Certificate from Independent Test Lab.			*	*
8.	List Of Commissioning Spares			*	
9.	List Of Maintenance Spares			*	
10.	List Of Special Tools & Tackles			*	
11.	Data Book/Manual				
a.	Installation Manual				*
b.	Operating/Maintenance Manual				*
c.	Catalogues/Brochures				*
12.	Equipment storage procedure at site				*

* DATA REQUIRED.

Notes:

- Unless otherwise agreed, the number of copies of various drawings and documents shall be as below:
 - With bids - Same as the number of copies of bids.
 - Post order submission - For Review/Records - Four copies
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2. For further details, Contractor shall refer EIL Standard 6-78-0001 "Specification for Quality Management System Requirements from Contractor " & 6-78-0003 "Specification for Documentation Requirements from Suppliers".
3. Vendor shall furnish schedule of drawings and documents within 15 days after placement of order.
4. **Vendor to provide contact details (Mobile, email) of person dealing with bids so that queries can be resolved quickly.**