

COCHIN PORT AUTHORITY
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**E-QUOTATION DOCUMENT FOR "REWIRING BRISTOW HOUSE &
MARINE HOUSE IN WILLINGDON ISLAND"**

Website:www.tenderwizard.com/CPT; www.cochinport.gov.in; www.eprocure.gov.in

DY. CHIEF MECHANICAL ENGINEER(ELE)'S OFFICE
FIRST FLOOR, NEW ADMINISTRATIVE BUILDING,
COCHIN PORT TRUST
COCHIN-682009

Due Date & Time for submission : **14.30 hrs. on 08.04.2026**

Date & Time of Opening : **15.00 hrs. on 08.04.2026**

E-quotation No. Ele/RW-BRISTOW& MARINE HOUSE/2026

Dated: 01.04.2026

COCHIN PORT AUTHORITY

Willingdon Island

**Deputy Chief Mechanical Engineer(Ele)'s Office,
Cochin 682 009.**

**Phone : 91 0484 2582351
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E-quotation No. Ele/RW-BRISTOW & MARINE HOUSE/2026

Dated: 01.04.2026

e-QUOTATION NOTICE

1. Electronic Quotations (e-Quotations) on percentage basis are invited from "B" Class Electrical Contractors with experience in having carried out wiring works, for carrying out the work of "REWIRING BRISTOW HOUSE & MARINE HOUSE IN WILLINGDON ISLAND". Quotations shall be submitted before **2.30 pm on 08.04.2026** and shall be opened at **3.00 pm on the same day.** Bill of Quantities of Work, General Conditions, Scope of Work & Technical Specifications for carrying out the work are enclosed.
2. **The e-Quotations are invited on percentage basis.** The estimated amount is excluding GST. The Bidders shall quote percentage above or below the Departmental estimate as given in the Bill Of Quantities(BoQ) and submit it ONLINE in e-tender portal www.tenderwizard.com/CPT
3. The bidders are to obtain the one time User ID & password for log-in to the e-tendering Portal www.tenderwizard.com/CoPT from the service provider M/s.KEONICS by paying registration amount of Rs.1124/- through online Payment using Credit/Debit Card/Net banking or DD in favour of "KSEDCL, Bangalore".
4. The intending bidder must have valid Class-II or III digital signature certificate to submit the bid. For further details, please contact e-Tender Help Desk No. 080-40482000/ 080-49352000/ 9746118529/ 9605557738.
5. The Quotation document will be available as two separate files in the e-quotation Portal; containing the following:
 - i. E-Quotation Notice with General Conditions, Scope of Work and Technical Specifications.
 - ii. Schedule of Work.
7. Both 6(i) & filled in 6(ii) above shall be submitted "Online" only. The name and address of the Bidder shall be necessarily entered in the space provided in the Bill of Quantities of Work.
8. **The Bidder shall inspect the site before submitting the quotation in order to make them fully aware of the Scope of Work, Site and its conditions.**

Sd/-

DY.CHIEF MECHANICAL ENGINEER(ELE)

GENERAL CONDITIONS

1. **Validity of Quotation** : The Quotations shall be valid for a period of 90 days from the due date of submission of quotation.
2. **Completion Period**: The whole work shall be completed within 30 days from the date of receipt of work order. In case the Bidder is not permitted to carry out the work due to some problem from Employer's side, he should maintain a record of such time lost, duly counter signed by the Engineer-in-Charge and this period will not be included while determining the delay in completion period. In case the works are not completed within the specified completion periods due to any fault of the Bidder, it will be considered as a breach of contract and the Bidder will not be considered for any other work in future.
3. **Payment Term** : Payments will be made online after completing the work to the entire satisfaction of the Engineer-in-Charge and also after deducting the taxes prevailing in force at the time of payment of bills. The quantities specified in the schedule of quantities of work are only approximate and shall be increased or decreased at the discretion of the Engineer-in-Charge according to actual requirements. Payment will be made as per actual measurements, according to the percentage quoted.
4. **Liquidated Damages**: In case of delay in completion of the contract, liquidated damages (L.D) may be levied at the rate of half percent ($\frac{1}{2}\%$) of the Contract Price per week of delay, subject to a maximum of 10% of the Contract Price. The amount of Liquidated Damages can be adjusted or set-off against any sum payable to the Bidder.
5. **Defects Liability Period**: The defects liability period for the work shall be 12 months from the date of completion of the work. In the event of any defect/ deficiency being noticed during the period, which is attributable to the defective materials/design/ workmanship, the Bidder shall make good the same at his cost.
6. **Security Deposit**: Security deposit @ 10% of Contract Price shall be recovered from the Bidder's bill. The amount towards Security Deposit so deducted will be released only after successful completion of the defect liability period, subject to certification from the Engineer-in-Charge.
7. **Execution of Agreement**: The successful Bidder will be required to execute within 14 days from the date of receipt of work order, an agreement at his expense on proper value Kerala State Stamp Paper in the prescribed departmental form, consisting of the work order issued to the Bidder, together with the Quotation submitted by him including General Conditions, for the due and proper fulfillment of the contract. Till signing of agreement, the Quotation together with the acceptance letter shall constitute a binding contract between the Bidder and Cochin Port.
8. **Engineer-in-Charge**: The Engineer-in-Charge of the work is the Superintending Engineer (Ele), CoPT. Clarifications if any required can be obtained by contacting the Superintending Engineer (Ele) of the Electrical Division of CoPT (0484-2582320).
9. **Water & Electricity**:
Water: Water, if required for the work, shall be arranged by the Bidder at his own cost.
Electricity: The Bidder shall make his own arrangements for the temporary connection for electricity required, if any, and make necessary payment for it direct to the Department concerned.

10. The Bidder shall have valid GST Registration number. GST as applicable for the work will be paid extra by the Port. The GST applicable as per law can be billed on Cochin Port, which will be paid to the Bidder by the Board along with the bills, for which the Bidder shall hold valid GST Registration number.
11. The Contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, Public Liability Policy, Provident Fund Regulations, Employees Provident Fund and ESI Act etc. amended from time to time and rules framed there under and other laws affecting the Contract labour that may be brought in to force from time to time.
12. The Contractor shall be registered under EPF and ESI act and the employees employed under them shall be covered in the EPF and ESI Scheme, if required as per applicable rules. The Contractors shall regularly remit, the Employer & Employee contribution to the authorities in such cases. If not, the Dept. would be required to remit the same and the amount so remitted shall be deducted from the part/ final bill of Contractors.
13. All materials, tools, plants and equipments required for completing the work shall be provided by the Contractor at his own cost. All materials required for the work shall be got approved by the Engineer-in-Charge before using in the work. Any fittings or accessories which may not be specifically mentioned in the specification but are usual or necessary as per good industry practice, shall be provided by the Bidder without extra cost to the Port. All works shall be carried out as per relevant ISS.
14. All labour, skilled or unskilled for the work shall be provided by the Contractor at his own cost and settling any disputes with the labour shall be the Contractor's responsibility.
15. All care and precautionary measures for avoiding any kind of damage/ accidents in the work site shall be taken by the Contractor. All safety precautions shall be taken while carrying out the work. The Contractor shall supply the necessary safety equipments to the workers employed by him and also ensure that they use it, while carrying out the work. The Contractor shall be solely liable and responsible for accidents if any, occurring during the period of Contract.
16. The work shall be completed without causing any damage to the existing structures/cables etc. In case any damage is caused, the same has to be rectified at Bidder's risk and cost.
17. The Port will in no way be responsible for any loss/damages caused in connection with the work.

SIGNATURE OF THE BIDDER

SCOPE OF WORK & TECHNICAL SPECIFICATION

SCOPE OF WORK

- 1) Installation, testing and commissioning of 4-way, 6-way, 8 way & 12-way MCB DB/VDB as per schedule at various locations
- 2) Supply of materials and wiring of circuit/sub main/ point wirings for light/fan/telephone/TV/ plug & sockets/bell push/exhaust fans/wall mounted fans and various other electrical points as per schedule.
- 3) Installation, testing and commissioning of LED light fittings
- 4) Laying of PVC sheathed armored aluminium LT cables of sizes 4 x 16, 3.5 x 25, 3.5 x 35 etc.
- 5) Providing end terminations for the above LT cables.
- 6) Supply and fixing of led lamps and fittings for tube light/bulbs/wall lights/ ceiling mounted lights/surface mounted lights etc.
- 7) Dismantling of the existing electrical fittings, krone box, old wiring materials, switch boards, fans, tube light etc. keep record and shifting to store/ dumping yard etc. and refixing the items like fans, tube light, distribution boards, switch boards etc .) as required.
- 8) Providing earthing for the entire installation.
- 9) The Items removed from the NAB Buildings etc. shall be reused at the proposed office building.
- 10) All the materials shall have IS standards.

Technical specification for supply and installation of items

Standards

Erection, testing and commissioning of the equipments covered shall be done as per standard codes of practice and shall comply with requirements of following Indian Standards and other relevant standards, Indian Electricity Rules and acts and also to the regulations that are in force at the place of installation.

- IS: 1255 : Code of practice for installation and maintenance of power cables Up to and including 33 kV rating.
- IS: 5216 : Guide for safety procedures and practices in Electrical work
- IS: 100118 : Code of practice for selection, installation and maintenance for Switchgear and control gear-Part-III Installation.
- IS: 13408 : Code of practice for the selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining application of explosives processing and manufacture).
- IS: 3043/87 : Code of practice for installation & maintenance of earthing of installation

Reference

Following documents shall be read in conjunction with this specification:

- (i) Scope of work and special requirements
- (ii) Schedule of items of work
- (iii) Engineering Specification & Data sheet of General requirements of Electrical system

GENERAL TECHNICAL SPECIFICATION -SUPPLY OF MATERIALS

All materials required to complete the work as per given specifications & drawings etc, must be manufactured and supplied using fresh raw materials. Re-molded, re-circulated materials are not acceptable. The procurement of materials must be made directly from manufacturer or through authorized dealer/distributors. Documentary evidences to this effect are to be made available to the

engineer-in-charge for necessary checks / verification of source of supply of materials. Second hand materials/ partial used materials/ used materials would not be acceptable. The offer should be as per Technical Specification without any deviation. But any deviation felt necessary to improve performance, efficiency and utility of equipment must be mentioned in the Deviation Schedule with reasons duly supported by documentary evidences during pre bid meeting. Such deviations suggested may or may not be accepted by the employer. Any deviations projected after the pre bid meeting shall not be entertained at any cost.

GENERAL CONDITIONS FOR INSTALLATION OF EQUIPMENTS

- a) The erection/installation, testing and commissioning shall be carried out in accordance with specification, data sheets, drawings, manufacturer's recommendations, and relevant standards or as directed by Owner/Engineer-In-Charge. Requirements regarding erection/installation, testing and commissioning of switchboards, cables, etc. are generally explained here in. It is the responsibility of the contractor to supply all equipment, items, accessories, materials, tools, tackles, transporting, and lifting vehicles, consumables etc. required for unpacking, checking, transportation, storage, safe custody, installation, erection, testing, commissioning, return of unused equipment/items which are supplied from owner's stores and handing over of the installation to the entire satisfaction of owner.
- b) The erection scope shall include supply of all hardware and accessories such as bolts, nuts, washers, gaskets, cable termination accessories, lugs, paint, primer, sand, etc. required for completeness of the work. All consumable materials such as insulation, tape, cleaning and paint brushes, welding electrodes, rust preventive materials, jute, cotton waste, hack saw blades, bolts, nuts, inhibitive grease, fuel, lubricants, etc. and any other material required in carrying out the work, but not for incorporation in to the permanent work, shall also be included in the scope of contractor.
- c) The equipment/items to be erected shall be handled with care by experienced workers under the guidance of the competent supervisor. Proper handling and transporting equipments are to be used and dragging is to be avoided.
- d) The equipment/items supplied by the owner, shall normally be kept at their stores. The contractor shall inspect these items at the stores by unpacking the containers, if necessary. Responsibility of safe custody of materials after delivery and till handing over shall rest with the contractor. Unused materials and containers shall be returned to the stores. The items supplied by the owner shall be transported from the point of storage to the point of erection/ installation using proper capacity transporting vehicles. The scope shall include unpacking the containers, assembling parts, fixing loose items, components, etc. Materials supplied by the contractor or issued by the owner shall be given suitable protection against weather, dust and vermin. In storage places, equipments shall be placed over wooden sleepers to keep them above ground. Before carrying out erection/installation works of any item, proper care regarding leveling, alignment, access to working parts, facilities for removing the items for repair, statutory clearance, etc. shall be taken.
- e) Foundation bolts, nuts, lock nuts, washers, etc. will normally be supplied by the equipment supplier. Any further requirement of these items shall be under the scope of contractor. The equipment shall be installed on the foundation bolts firmly such that there will not be any vibration during operations. For mounting of equipment/items on the walls/ columns / supports, suitable MS/ GI brackets shall be fixed/ grouted.
- f) Electrical connections shall be done with great care using spring washers, bimetallic strips, conducting grease, etc. wherever required, to ensure good contact without creating undue stresses. Copper bus bar joints shall be made after tinning the contact area. Supply of all required accessories or electrical connections shall be included in the contractor's scope. Discrepancies if any found between drawings/ statutory requirements and actual conditions at the site, shall be immediately brought to the attention of owner's representative. If any modification is found required in the writing or to suit site condition the same shall be carried out as per the instruction of the Engineer-In-Charge without any extra cost.

- g) All equipments under erection shall be kept properly cleaned and free of dust, vermin, moisture, etc. After erection, it shall be ensure that non-foreign materials, tools or tackles are left in the equipment. All unused cable entries, cutouts, etc. shall be sealed properly. For hazardous area, blanking plugs suitable for the area classification applicable shall be used.
- h) All tests shall be carried out in the presence of owner's representative and test shall be recorded on an approved proforma duly certified. The records of all tests shall be submitted to the purchaser's representatives. All interconnected wiring shall be checked thoroughly for correct connection with the wiring and schematic drawings of the manufacturer and the drawings supplied by owner before energizing.
- i) All power shall also be thoroughly inspected and checked for connections, foreign materials, tightness, etc. before energizing the equipment All components within the main equipment shall be tested for proper performance and correct operation before commissioning the equipment.
- j) All labeling shall be checked for correctness. All nuts, bolts, clamps, joints, connections, etc. shall be checked for tightness and tightened wherever required. All moving parts shall be checked for its correct movement and proper lubrication. Apply lubrication wherever required. All equipment containing liquid shall be checked for correct quantity filling and all gaskets, walls, etc, shall be checked for leak proof. Oil filling, if found required, shall be done with dry and clean oil. Gaskets shall be replaced if found required. It shall be ensured that all CT leads are loaded or shorted prior to testing and commissioning. Insulation tests shall be carried on all electrical devices, whether specifically mentioned or not, as per this work after properly cleaning these devices.

CIVIL AND STRUCTURAL WORKS

- a) Miscellaneous civil works associated with the erection/installation such as excavation, dewatering and refilling of earth work for earth pits and cable trench, chipping, grouting, small cutting, etc, on floors/walls/columns/structures and bringing back the same to original finish, grouting of supports, providing suitable fixing arrangements for cables, push button stations, DBs etc. shall be included in the rates quoted for erection of the respective items, unless specifically excluded in the "Schedule of Items of Work". All structural works associated with cabling, earthing, equipment erection and supporting arrangements shall be included in the scope of the contractor. All the welding and cutting works shall be carried out by certified welders. Painting shall be done on all MS materials provided, by the contractor such as base channels, frames, supports, pedestals, cable trays/ racks/risers, enclosures, boxes, conduits, chequered plates etc. Before painting, the surface should be thoroughly scraped and cleaned to remove dust, grease, plaster or any other foreign materials. It is the responsibility of the contractor to supply and install all the required materials for painting including paint. Cement concrete footing shall be provided for cable trays/racks/risers, pedestals, supports, etc. Footing shall be provided using 1:2:4 PCC. It is responsibility of the contractor to supply and install all materials such as river sand, reinforcement rods, 20mm broken stone, etc. without any extra cost to owner. All concrete works and grouting shall be cured for a minimum period of 48 hours.
- b) Chipping, grouting, etc as recommended shall be done for completion and installation work on the finished floor, wall, roof, etc. and the surfaces has to made good after the work. It is the responsibility of the contractor to supply all necessary materials and to bring the disturbed surface to the original finish. Touch painting of scratches found on equipment, other painted metallic surfaces, galvanized, etc. associated with this work is also included in the scope of contractor without any extra cost. Base steel structures shall be painted with 2 coats of epoxy primer and 2 coats of epoxy paint.

CONDUITS, PIPES AND ACCESSORIES.

All non-metallic conduit pipes and accessories shall be of suitable material complying with IS:2509-1973 and IS:3419-1989 for rigid conduits and IS:9537 (part 5) 2000 for flexible conduits. The interior of the conduits shall be free from obstructions. The rigid conduit pipes shall be ISI marked. The conduits shall be circular in cross-section. The conduits shall be designated by their nominal outside diameter. No non-metallic conduit less than 20 mm in diameter shall be used. Voltage rating for copper wire shall be 650/1100V FRLS PVC insulated. The conduit wiring system shall be complete in all respect including accessories. Rigid conduit accessories shall be normally of grip type. Flexible conduit accessories shall be of threaded type. Bends, couplers etc shall be solid type in recessed type of works, and may be solid or inspection type as required, in surface type of works. Saddles for fixing conduits shall be heavy gauge non-metallic type with base.

GENERAL SPECIFICATIONS FOR WIRING AND ELECTRICAL INSTALLATIONS

All the switches, plugs etc. shall be of piano type with cover etc. complete. All wiring cables shall be Fire Retardant FRLSH PVC insulated copper conductor multi stranded cable. Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm Fire Retardant PVC insulated copper conductor multi stranded cable in surface / concealed medium class PVC conduit, with piano type switch, cover, suitable size PVC box and earthing the point with 1.5 sq.mm. FRLSH PVC insulated multi stranded core cable etc as required All inter connections shall be provided as follows:

- A. The outgoing of 6A & 10A MCBs shall be connected to the light/ fan/ plug points with 1.5 Sq mm copper cable.
- B. The outgoing of 16/20 A & 20A MCB's shall be connected to power plug points with 4/2.5 Sq mm copper cable. The other interconnections with TPN isolator shall also be carried out with suitable size of copper cables.
- C. Point wiring shall include all works necessary for complete wiring of a switch circuit of any length from the tapping point on the distribution circuit to the following through the switch.
 - a. Ceiling rose or connector (in the case of ceiling/exhaust fan point).
 - b. Ceiling rose (in the case of pendant except stiff pendant point).
 - c. Back plate (in the case of stiff pendants and fittings with down rods)
 - d. Socket and Outlets (in the case of socket outlets points)
 - e. Lamp Holder (in the case of wall brackets, batten points, bulk head and similar fittings).
- D. The following shall be deemed to be included in the point wiring.
 - a. Switch, cover, Ceiling rose or connector etc as required.
 - b. Any special and suitable box for neatly housing the connector and covering the fan hook in case of fan point.
 - c. Earth wire from the distribution boards to all current carrying apparatus through switch boards, Boxes etc.
 - d. All metal blocks, boards, covers and M. S. Boxes/PVC Boxes, recessed or surface mounted including those required for mounting fan regulators but excluding those for fixing the distribution switch boards.
 - e. All fixing accessories such as clips, nails, screws, Fiber plug, rawl plug etc. as required.
 - f. Connection to ceiling rose, connector socket outlets, Lamp holders, switch, fan regulator etc.

- g. Looping in the same switch board and inter connections between points on the same circuit.
- E. All points in the distribution system shall be measured under point wiring irrespective of length of circuit from the respective switches to the ceiling rose/connector etc.
- F. In the case of plug points the point length shall be measured from the DB to individual plug socket.
- G. In case of point with more than one light point controlled by the same switch, the complete items shall be considered as a group point and the rate shall be quoted accordingly.
- H. A light point controlled by 2 Nos. of control switches shall be measured as one point from the switch to either side of the appliance viz. All the light points shall be done accordingly where ever possible.
- I. Power wiring shall be kept separate and distinct from lighting and fan wiring. All conductors shall run as far as possible along the walls and ceiling so as to be easily accessible and capable of being thoroughly inspected except for concealed system. In all types of wiring due consideration shall be given for neatness, good appearance and safety. The balancing of circuits in 3 wires on poly phase installation shall be arranged to the satisfaction of Engineer-in-charge. In large/important rooms light fans and socket outlet points shall be distributed over more than one circuit as directed by the Engineer-in-charge.
- J. The Conductor of flexible cable for interconnecting the fan/lights to the respective points shall be of copper. The minimum permissible size of conductor for flexible cable shall be 16/0.2 mm. Only three core flexible cables shall be used for connecting single phase appliances.
- L. The Control switches are to be connected to phase conductor. The complete wiring shall be done as per IE rules & regulations. In the case where the wiring is done as per phenolic laminated sheet/ hylum, the switchboards for mounting switches, plug sockets, etc shall be made of boxes, with hylum top cover and piano switches of 6 A capacity and suitable colour. Switch boxes shall be mounted flush with the wall. All outlets such as switches, sockets etc shall be flush mounting type.
- M. All Civil works connected with this contract like plastering, grouting, making holes for providing fans, making good any damages caused etc shall be done by the contractor. The wall/ ceiling etc shall be re plastered by providing original surface coating using putty, paints etc as required. No additional cost shall be given for repairing/resurfacing the wall, ceilings etc.
- N. The plug sockets shall be earthed continuously using separate multi stranded Cu wire (green). The light fittings and ceiling roses shall be fixed on junction boxes/ fixed on the false ceiling. All light fittings and fans shall be connected to the ceiling roses using twin core PVC insulated and overall sheathed flexible copper conductor cable
- O. All internal wiring shall be securely supported, neatly arranged readily accessible and connected to equipment terminals and terminal blocks. Wire terminations shall be made with solder less crimping type of tinned copper lugs which firmly grip the conductor and insulation. Insulated sleeves shall be provided at all the wire terminations. Engraved core identification plastic ferrules marked to correspond with the wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wires and shall not fall off when the wire is disconnected from terminal blocks. All wires directly connected to trip circuit breaker shall be distinguished by the addition of a red colored unlettered ferrule.

TELEPHONE WIRING

This work involves supply and laying of 2 pair/20 pair telephone cable inside the building, fixing, termination and commissioning of poly carbonate telephone box & telephone socket outlets and krone box, suitable krone with its terminations.

LT CABLES

Codes & standards

All standards, specifications and codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions as on date of opening of bid. In case of conflict between this specification and those (IS: codes, standards, etc.) referred to herein, the former shall prevail. All the cables shall conform to the requirements of the following standards and codes for 1.1KV grades if any applicable.

Technical particulars of LT- FR cables.

The cable shall be manufactures as per latest IS as applicable

Size of Cable	-	As Per Schedule of Works
Voltage Rating	-	1100 V
Conductor Material	-	Copper as required.
Insulation	-	Type A PVC / XLPE Compound
Tolerance	-	0.1 mm + 0.1 nominal thickness of insulation
Inner sheath thickness	-	As per latest IS
Outer sheath	-	Process of application Extrusion - Thickness as per IS. - Armour as per IS.

Laying of cable

The cable shall be laid through the ground /wall. If underground, cable shall be laid at a depth of approximately 60 cm from the ground level and filled with loose excavated good soil/earth without brick protection after cable laying. In case laying of cables through ground is not possible, the cable shall be clamped along the wall. The cable shall be laid nearer to the cable trenches for LT power cables wherever possible. The payment tiles etc. removed for laying the cables shall be replaced properly to the original condition .

Wiring cables

Wiring cables shall be FRLSH with latest IS.

Providing End Terminations

Supply and making of end terminations with brass/ PVC glands, lugs etc. complete suitable for cables as per schedule of work. The item shall be single compression type tinned/nickel plated (coating thickness not less than 20 microns in case of tin and 10 to 15 microns in case of nickel) brass cable/PVC glands shall be provided by the contractor for all power and control cables to provide dust and weatherproof terminations. They shall comprise of heavy-duty brass casting, machine finished and tinned to avoid corrosion and oxidation. Rubber components used in cable gland shall be neoprene and of tested quality. Required number of packing glands to close unused openings in gland plates shall also be provided. For copper cable the termination materials shall be copper materials.

Single compression type tinned/Nickel plated (coating thickness not less than 20 microns in case of Tin and 10 to 15 Microns in case of Nickel) brass cable glands shall be provided by the Contractor for all power and control cables to provide dust and weather proof terminations. They shall comprise of heavy duty brass casting, machine finished and tinned to avoid corrosion and

oxidation. Rubber components used in cable gland shall be neoprene and of tested quality. Required number of packing glands to close unused openings in gland plates shall also be provided.

General requirements of joints and terminations

The installed joints and terminations must provide the following:

- a) Complete external leakage insulation between the high voltage conductor and earth potential using anti-track heat shrink material.
- b) Electrical stress control using semi-conducting heat shrinkable tubing over the cores and by the insertion of high di-electric strength insulating material into the crutch of the termination such that electrical discharge activity does not occur in the termination after it has been energized at its rated voltage.
- c) Hermetic sealing of the interfaces between heat shrinkable materials and cable surfaces, bushings or cable lugs by use of track resistant hot melt adhesive which can accommodate the creep and relaxations that may occur with recovered heat shrink materials. This sealant shall be pre-coated inside the heat shrinkable components and activated by the heat applied to shrink the components which shall be in excess of 125 Deg.C.
- d) Uniform adhesive flow from the adhered heat shrink component into the adjoining surfaces will be used as an indicator that shrinking is complete, and therefore, the adhesive must be suitable for this purpose.
- e) Outdoor terminations shall incorporate a design feature to prevent flexing of the terminated cores under short circuit conditions.
- f) Joints and terminations must be insensitive to cable manufacturers tolerances allowed under BSS 6480-1969.
- g) The length of core insulation required is 450 mm per phase.
- h) Copper braid should be provided to connect the metal shield of XLPE cable and to make electrical contact with the outer screen of the joint for transition joints.

PIPE EARTHING

GI pipe 40 mm dia, B class, shall be used for pipe Earthing the equipment's poles including supply of CU wire for connection to equipments which includes in the scope of erection / installation of equipments including supply of materials. All earthing shall be done as per schedule / BOQ.

- a) The length of the GI pipe shall be min.1.5 mtr length.
- b) The diameter of the pipe shall be min. 40 mm.
- c) The GI pipe shall be of class B type.
- d) The earth pipes shall be connected to equipments with min. 10SWG bare copper wire.

DISMANTLING

Dismantling the existing Electrical fittings, Kron box, old wiring materials, Switch boards, fans, Tube light etc. Keep record and shifting to store/ dumping yard etc. and refixing the items. The dismantled/ removed items shall be handed over to the scrap yard or as directed by the Engineer-in-charge. It any item can be reused shall be fitted in the proposed office.

SPECIAL CONDITIONS FOR ELECTRICAL WORKS

- a) All current carrying components in all installation shall be of appropriate rating of voltage and frequency as required at respective areas.
- b) All equipments to be supplied and works to be executed shall conform to the CEA standards including protection and metering accessories. No extra amount will be paid in this regard.
- c) All testing and calibration etc are to be carried out as per requirement of statutory authority concerned.
- d) On completion of work the contractor has to obtain necessary safety/energization certificate from statutory agency concerned, by submitting necessary completion statement/ drawing, equipment details etc. before energization.

All costs incurred in obtaining such approval/certificate are to be borne by the contractor. Statutory fees paid shall be reimbursed on presentation of document.

APPROVED MAKES

1	1.1 KV XLPE CABLE	CCI / INCAB/ UNIVERSAL/ RPG/ NICCO/ TORRENT / POLYCAB / PARAMOUNT/ KEI /HAVELLS / GLOSTER / L&T / FINOLEX / V-GUARD/ PRIMECAB / RRKABEL
2	CABLE TERMINATION KIT	RAYCHEM /MAHINDRA / DENSON/3M/CCI / CABSEAL
3	TELEPHONE SOCKETS	LEGRAND /ANCHOR/SCHNEIDER/ L&T/ HAVELLS/ INDOASIAN
4	ENERGY METER / AMMETER / VOLTMETER	SIMCO / MECO/ L&T/ HPL/ AE / RISHAB / SCHNEIDER / SECURE /SOCOMEK / CONZERVE / SIEMENS/ABB/C&S
5	RELAYS	ABB/ L&T/ SIEMENS / RISHAB / GE / C&S SCHNEIDER / ALSTOM / EASUN REYROLLE
6	CURRENT / POTENTIAL TRANSFORMER	INTRANS/ KAPPA/ INDUS/ CG/ CYRO/ABB/ BHEL/CG/ MEGAWIN/ TRANSDelta / KEL
7	MCCB / MCB /CONTACTOR / TIMER	LEGRAND / MERLIN GERIN / MK / ABB/ INDOASIAN / L &T / SIEMENS /SCHNEIDER / HPL
8	INDUSTRIAL PLUG WITH MCB	ABB / HAGER / HAVELLS / INDOASIAN / CROMPTON / LEGRAND / SCHNEIDER / L& T / HPL
9	LED LIGHT FITTINGS	OSRAM / BAJAJ/ CG/ PHILIPS / WIPRO/ GE / LIGHTING TECHNOLOGIES
10	PVC CONDUIT PIPES / CASING & CAPPING	BALCO/ ATUL/ GEO/ CLIPSAL/ PRECISION/ KONSEAL / AVONPLAST
11	HDPE PIPE/ FLEXIBLE HOSE	KONDOOR or any other make with BIS
12	WIRING CABLE	FINOLEX/ QFLEX/ RR KABEL/ RPG CABLES/ LAPP KABEL/ V-GUARD/ HAVELLS/ L&T/ RALLISON
13	INSTRUMENTATION / TELEPHONE CABLES	TRACO / HINDUSTAN CABLES / DELTON / FINOLEX / USHA BELTRON / PRIMECAB / VIDYA
14	SWITCHES/ PLUG SOCKETS/ CEILING ROSE	ANCHOR/ MK/ LEGRAND/L&T/HAVELLS

*** For items where approved makes are not specified, the samples shall be got approved from the Engineer-in-charge before procurement.