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सत्यमेव जयते

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MUMBAI - 400 085

भारत सरकार
GOVERNMENT OF INDIA
भाभा परमाणु अनुसंधान केंद्र.
BHABHA ATOMIC RESEARCH CENTRE
रिएक्टर इंजीनियरिंग प्रभाग
REACTOR ENGINEERING DIVISION

Ref.: - RED/PP&ESS/RRSI/32/3FS/MF/J|15466

22 Feb'2022.

Sub: Minor Fabrication - invitation to quote

Dear Sirs.

1. Sealed quotations (**in two Parts**) are invited by undersigned for and on behalf of the President of India from the experienced contractors for the minor fabrication work as per the requirements given in the technical Specification (*Annexure-I*).
2. Tender should be in a sealed cover (containing **two envelopes, one for technical and another for Price bid**) and super-scribed as "Minor-Fabrication" and should indicate this office Ref. No. and due date clearly. The quotation shall be complete in all respects with regard to price, specifications, completion period, validity of the offer, etc. and must reach on or before **10/03/2022 by 16.00 Hrs.** The quotation shall be on printed letter head mentioning complete address, Phone numbers, fax number, PAN number/ GST registration/TIN etc., without these details, quotation will be liable for rejection. The envelope should indicate this office Ref. No. and due date clearly. The sealed quotation should be addressed to undersigned and should be sent through Speed Post Only so as to reach his office before due date

I. SCOPE OF THE WORK: Please refers to the enclosed *Annexure-I*, which describes the detail specifications & scope of the work.

II. FREE ISSUE MATERIALS: *As per technical specifications Annexure-I.*

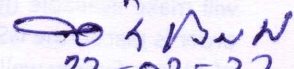
III. GENERAL INSTRUCTIONS

- 1). The earliest period by which the job can be executed in totality should be clearly stated in the quotation and such period should be strictly adhered to in the event of a work-order. However, the entire work is to be completed within **3 (Three) months** reckoned from the 5th day after the date of issue of the work order, depending on the site availability.
- 2). Taxes, duties, if any, applicable shall be indicated separately.
- 3). Please note that the goods proposed to be fabricated based on this NIT (Notice Inviting Tender) is meant for the Research Institution under the Dept. of Atomic Energy. The purchaser will make available (**if required and applicable**) to the successful bidder with whom a work order is placed the GST exemption certificate duly signed by the authorised officer in the Dept. of Atomic Energy well before the dispatch of the goods by the supplier.
- 4). **Place of work:** Engineering. Hall No.-7, Trombay, Mumbai-400085.
- 5). Inspection as per specification shall be carried out departmentally after the completion of the work to the satisfaction of the Engineer in-charge. Inspection regarding the work according to specification, checking of the site etc. will be carried out continuously by the Engineer in-charge or his authorised representative.
- 6). The contractor shall have to maintain the area assigned to him for the work very clean and shall follow the instructions of Engineer in-charge in this regard. All equipment/tools etc. are to be removed and cleaned the area after the end of the day's work.
- 7). The bidders can contact (*if required*, for any clarifications) our engineer *Shri R. R. Singh through email only* – rrsingh@barc.gov.in.
- 8). Payment will be made by cheque/ECS after satisfactory completion of the work as per Government rules. Income Tax @ 2% will be deducted from the bill.
- 9). Bidder shall note that BARC is final consumer of the goods/services procured and does not

intends to make any outward supply. BARC will not avail the benefits of input tax credit and hence, the good can be supplied without quoting the GSTIN of BARC, Mumbai on invoice. The invoices taxed under GST, as per rates applicable under the GST schedule of rates, will be admitted for payment.

- 10). **GSTN Invoice.** The invoice raised by the registered supplier of taxable goods/services along with other details specifically indicating: GSTN, PAN, Location of supply, tax component to be separately indicated.
- 11). An undertaking shall be furnished by the registered supplier that the GST has been promptly deposited with the authorities.
- 12). Recovery of TDS on GST in case of payment of invoices for supply under contract exceeding Rs.2.50Lakhs.
- 13). With your offer please furnish the detailed information regarding whether an ex-employee of BARC is working in your organisation or whether any of your relatives is working in DAE/BARC or you are an ex-employee of DAE/BARC. In absence of such information or wrong information, the quotation or contract is likely to be rejected/cancelled.
- 14). **Confidentiality:** No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as proprietary in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub contractors, consultants, advisers or the employees engaged by the party with equal force.
- 15). **Restricted information categories under section 18 of the Atomic Energy Act, 1962 and "Official Secrets" under section 5 of the official secret act, 1923 :** Any contravention of the above mentioned provisions by any contractor, sub contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.
- 16). **Prohibition against use of BARC's name without permission for publicity purposes:** The contractor or sub contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like press, radio, T.V. or Internet without prior approval of BARC.
- 17). **Safety Precautions:** The contractor will follow all the good industrial safety rules required during the execution of work. He will have to compulsorily follow other safety instructions issued by engineer-in-charge from time to time. The contractor shall provide all safety gears to their workmen at site and all safety rules shall be strictly followed. Any injury/ accident caused to their persons while working inside BARC shall be the full responsibility of the contractor.
- 18). **Police Clearance:** The bidder shall note that entry inside BARC is restricted and it is compulsory for contractor to get police clearance (*as prescribed by security section of BARC*) for all his staff who will be entering BARC for work.
- 19). The work can be carried out on all working days between 9.30 hrs to 17.30 hrs.
- 20). The offer shall be kept valid for a period of 60 days from the date of opening of the tender.
- 21). Purchasing authority reserves the right to alter the quantity while placing the order.
- 22). *Department* reserves the right to accept or reject any or all the quotations received without assigning any reasons whatsoever.




22-02-22
(D. S. Bisht)

Scientific Officer - G

For and on behalf of President of India

Encl. : (Annexure - I),

Technical Specifications

Scope of work:

The job involves internal wiring for power points, circuit wiring, main line three phase wiring, lighting rearrangement, communication and network cabling for drawing office of Reactor Engineering Division, Engineering Hall No.-7

Description of work:

1.0 Introduction: Drawing office where new wiring for power point and networking is to be carried out is located at 1st floor of the building. Existing wiring is carried through *Legrand make* DLP trunking, PVC casing and surface mounting modular switches and sockets. On the same floor one 3-Phase, 12-way, MCB based Power distribution board (LDB) have been provided; which is catering to the all power points of drawing office. Similarly, communication cable (2-pair telephone and UTP) are run through DLP and PVC casing-caping from the nearby JB and Ethernet switches.

The above mentioned power points and communication system is to be removed completely (*providing temporary power during the course of work, to prevent total power loss in the working area*), including casing-caping, conduits, cables, etc. The new power points and communication outlets are to be installed as per the layout and cubicles created at site, with Stainless Steel brackets/clamps and SS hardwares.

2.0 Electrical Work Requirements:

This specification covers supply of materials, fabrication, erection/installation, testing and commissioning of Electrical system as per Schedule of Work/ Bill of Quantity (BOQ). The power supply system in the building shall be made available at 415/240 Volts, 50 Hz, A.C. 3-Phase 4-wire, earthed neutral near to the work place.

All supply & installation work shall be carried out as per specification and in accordance with the site requirements and shall conform to requirements called for in relevant codes and practices issued by the BIS. The **Contractor for electrical work must possess valid Electrical contractor's License endorsed by the Licensing Board, Directorate of Electricity of concerned State Government for the type of work he shall execute.** The work to be provided for by the Contractor, unless otherwise specified, shall include but not limited to the following:

- (i) Furnish all labour, supervision, services, materials, supports, scaffolds, construction equipment, tools and transportation *etc.* required for the proper execution of the job as per site, specification and schedule of items and get all necessary tests on materials and work conducted at their own cost.
- (ii) Notwithstanding the existing electrical layout available, the contractor shall obtain further approval of the layout at site from the *Engineer-in-Charge* before commencement of the work.
- (iii) Furnish general arrangement drawings of the switchboard and other MCB DBs, which the *Engineer-in-Charge* may direct for their approval.
- (iv) To provide all incidental items not shown or specified in particular but necessary for proper execution of works in accordance with the drawing, specification and schedule of items.
- (v) To maintain the work and keep them maintained till handed over to the Department in proper working condition.

2.1 Materials

Materials shall be of the approved make & quality. The decision as to which brand/make shall be used in the work shall be taken by the Engineer-in-charge and the contractor shall provide the brand/make so selected without any extra cost. Contractor shall obtain approval from the Engineer-in-charge of sample of all materials before placing order and the approved sample shall be carefully preserved in an appropriate manner.

2.2 Safety

All equipment shall be complete with approved safety devices wherever a potential hazard to personnel exists and with provision for safe access of personnel to and around equipment for operation and maintenance functions. Special care shall be taken to ensure against entry of rats, lizards and other creeping reptiles which may create electrical short circuit inside live equipment.

2.3 Drawings

On completion of all work, the contractor shall furnish three copies of the following "**As built**" drawings without any extra cost.

- (i) Wiring diagram for final power distribution system showing the rating/ size of switchgear, cables, conduits, lighting fixtures and all accessories for individual installation.
- (ii) Detailed general arrangement drawings of the switchboard.
- (iii) Drawings showing the route of conduits and cables with sizes, lengths, sources and destination of all cables with the circuit designation number, etc.
- (iv) Drawings showing the balancing of phases with connected load in each circuit, etc.

2.4 Legends:

The switchboards, MCB DBs etc. shall be stenciled with paint as per the site requirement and instructions of *engineer in-charge*. The exact information about legend will be furnished while finalizing the work order and work completion at site.

2.5 Testing and Commissioning

Before each field test, the contractor shall obtain the permission from the *Engineer in-charge* and all tests shall be conducted in the presence of duly authorized representative. Records of each test shall be prepared immediately after the test and this record shall be signed by contractor's representative conducting the test and the *Engineer in-charge* attending the test. Copies of their record shall be handed over to the *Engineer-in-Charge*.

2.6 Completion of Work

Each item of the electrical work shall be considered as complete in all respects only after obtaining permanent connection from the existing source, energizing, testing and final commissioning of the complete installation as directed by the *Engineer-in-Charge*.

3.0 MCB Distribution Boards

A minimum margin of 25 mm shall be maintained on all sides of the MCB DB, while fixing of DLP/conduit/trunking etc., the DLP/conduit/trunking shall have sufficient mechanical strength support while fixing to wall/column etc.

The cable / wires shall be connected to the terminal only by soldered wires or crimped lugs, unless the terminal is of such a form that it is possible to securely clamp them without cutting away of cable strands.

All bare conductors shall be rigidly fixed in such a manner that a clearance of at least 25mm is maintained between conductors and material other than insulating material.

4.0 Wiring, Cabling and Conduits Works.

4.1 PVC Conduits/DLP Trunking: Surface

Providing specified PVC Conduits/DLP trunking and erecting as per approved Method of Construction; on surface of wall / ceiling, etc. including entries through walls / slabs / flooring as per requirement, and with all necessary hardware, accessories such as Spacers, Saddles, Bends, Tees, Junction boxes, Check-nuts, etc.; making conduits erection work rigid and duly finishing, removing debris from site.

Material: PVC Conduit/DLP Trunking:-

DLP Trunking/PVC pipe minimum 25mm dia and above depending on No. of wires to be drawn, ISI mark, medium duty (uPVC), accessories for PVC pipes of the same make that of pipe; such as couplers, bends, inspection or non inspection type Elbows, Tees, Junction boxes of required ways and resin / adhesive to make all joints rigid. **Black pipe shall not be used for surface type wiring.**

Hardware: Stainless Steel spacer, saddles, screws of sizes specified in Method of Construction, washers, rawl / PVC / fill type plugs, wooden gutties, etc.

Method of Construction: Erection shall be done as per the final approved layout, in perfect level and plumb. Conduits/DLP trunking shall be firmly fixed on spacers with saddles and support. Fixing of spacers shall be equidistant and at ends, bends, elbows, junction boxes, couplings, boards. CSK screws of minimum 35x8 mm and suitable plugs shall be used for fixing spacers and 12x5 mm, round headed screws for fixing saddles on spacers. In case of stonewalls wooden gutties shall be grouted in wall for fixing of spacers. Distance between 2 spacers shall not be more than 600mm. Size of conduit shall be correct depending on number of wires to be drawn. Separate pipe/Partition in DLP shall be used for each phase in 1-ph distribution. Entries in wall shall be at level of surface and with colour coding conduit (For visual identification). Flexible conduits/compatible accessories shall be used at expansion joints.

Especially for PVC Conduits/DLP trunking of surface type wiring:

In addition to general instructions above, all joints shall be made rigid with resin / adhesive/compatible accessories. Wherever offsets are necessary, it shall be done with bending spring/ accessories. Size of conduit/DLP partition shall be as per number of wires to be drawn through the conduit.

4.2 Wiring Scheme:

All final branch circuits for power points shall be single conductor/ stranded/flexible wires run inside conduits/DLP. The conduit/DLP shall be properly connected or jointed into sockets, bends, and junction boxes. Branch circuit conductor sizes shall be as shown in the schedule of quantities and or drawings. All circuits shall preferably be kept in a separate conduit/partition up to the Distribution Board. No other wiring shall be bunched in the same conduit except those belonging to the same phase. Each power branch circuit shall not have more than one outlet or 1000watts whichever is lower. Each conduit shall not hold more than three branch circuits. Looping system of wiring shall be used for secondary circuit. Wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors. No such joints shall be made unless the length of the sub-circuit, sub-main or main is more than the length of the standard coil. Control switches shall be connected in the phase conductors only. Every conductor shall be provided with identification ferrules at both ends matching the drawings.

Specific Requirements: The switches should be modular with moulded cover plates, blank plates for outlet boxes. The accessories, connectors should be fixed with brass chrome / cadmium plated machine screw. The wiring shall be as per IS: 732 and IS: 4648. The wiring shall be done in a looping manner so as to avoid junction boxes at any place. All the looping shall be done only in the switchboard and outlet points. The size of the wire shall be as per the specification. Colour code shall be strictly followed. The size of wires shall as follow:

Socket from switch	:	Phase / Neutral 2.5mm ² Earth 2.5mm ²
From D.B. to switch board – Power switch – i.e. circuit mains part of point Wiring.	:	Phase / Neutral 2.5mm ² Earth 2.5mm ²

Scope of wiring: Following shall be deemed to be included in wiring.

- (a) Supply, fixing conduit/DLP and conduit/DLP accessories for the same and wiring cables (including supplying and drawing wires) between the MCB-DB and the point outlet.
- (b) All fixing accessories such as clips, nails, screws, phil plug, rawl plug *etc.* as required.
- (c) Modular Plastic surface boxes for control switches modular base plates and modular cover plates over the same.
- (d) Outlet boxes, junction boxes, pull through boxes *etc.* but including modular metal boxes if any, provided the switchboards for loose wires/conduit termination.
- (e) 4"X4" box with flexible conduit with connector block (for prewired light fittings).
- (f) Connections to connector, switch *etc.*
- (g) Interconnecting wiring between points on the same circuit, in the same switch box or from another. Interconnecting wiring from first switchboard to subsequent switchboards.
- (h) Protective (loop earthing) conductor (as specified in the BOQ) from one switch box to another in the distribution circuits, and from switchboard to each power point.
- (i) Bushed conduit where wiring cables pass through wall *etc.*

4.3 Wires

Unless otherwise mentioned in the schedule of quantities, only single core 1100V grade, FR-PVC insulated (EBXL) cable consisting of multi-strand / flexible bright annealed stranded bare copper conductors and of approved manufacturers as per IS: 694 and shall be used for wiring in conduit system. Special parameters of FR-PVC insulation like critical oxygen index, temperature index, smoke density and flammability test shall conform to relevant IEC and ASTM Standards. Coil packing shall be ISI marked as stipulated in IS 694. All wires shall be colour coded as follows

Phase		Colour of wire
R	:	Red
Y	:	Yellow
B	:	Blue
N	:	Black
Earth	:	Green (insulated)
Control (If any)	:	Grey
All off wires Same as Phase wire		

5.0 Accessories.

5.1 Switches:

Switches shall be modular type with silver-coated contacts. Combination of multiple switch units should be used to minimize the switch boxes..

5.2 Switch plate and box

Plastic (of same brand as switch and plates) switch boxes/ connection boxes surface mounted on the wall with SS hardware. Plates of the same make, as that of switches shall be used with the modular range.

5.3 PVC conduct and accessories:

The medium duty PVC conduit shall be installed with GI spacer and saddles and bend, junction boxes, coupling etc. shall be used as per the site requirements. The termination of the conduit in the switchboards shall be with PVC bushes etc. The 20A rated switchboards shall be wired and connected through 4mm² copper conductors, using colour codes for phase, neutral and earth.

5.4 DLP Trunking

U-PVC DLP trunking shall be supplied as per the requirement of BOM. The trunking shall be installed on the wall/column/ceiling etc. as per the site layout, provided by the engineer in-charge. The installation of the DPL trunking system shall be carried out through the suitable screw and wall grippers. The wiring through the trunking shall be properly bunched and segregated as per the circuits and phases.

5.5 Light fixtures

Light fixtures as per site conditions are to be rearranged and installed according to the layout. The fixture shall be installed on wall / ceiling as directed and as per manufacturer's instruction, with necessary accessories for surface mounting. The job also includes connection of fixture with respective outlet point. Proper earthing shall be provided to the fixtures

- All fixing accessories, mounting bracket, ballast, condensers and control gear wherever applicable shall be supplied and installed by the contractor
- Earthing of fittings shall be carried out.
- Electrical connections to fittings from the junction box/ceiling rose.

5.6 Loop-in junction box

The junction boxes shall be drip proof type, dust and vermin-proof construction, preferably of *Hensel Make*. The boxes shall have moulded base connector block with anti-vibration nickel plated brass terminals of suitable size and rating.

6.0 Miscellaneous work:

The work related with installation/connection with distribution boards, conduit, switch boards etc. may require unforeseen site constraints, which are to be considered by the contractor for completion of work at site as per the instructions and guidelines issued by the engineer in-charge. The miscellaneous work includes uncoiling of power cables, breaking of walls, installation of scaffolding etc.

7.0 Earthing

All non current carrying metallic part of various electrical equipments as well as cable armouring, metallic conduit, brackets, supporting structures, etc. shall be effectively earthed by not less than two separate and distinct earth connection in accordance with Indian Electricity Rules, and the relevant Indian Code of Practice for earthing 3043-1987.

Connection of earthing leads of flat conductor to equipment shall be made by means of bolting. Connection of stranded earth wire to earth bus as well as to equipment shall be made through crimping type lugs and bolting. Jointing and tapping of flat earth conductor shall be done by means of brazing. The earth resistance from any point of the earthing system shall not be more than 1Ω.

8.0 Workmanship and Installation Work

The workmanship shall be of good commercial quality and all supply material and installation work shall be completed to the full satisfaction of the *Engineer In-Charge*.

The size of conduit/DLP shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be 25-mm diameter unless otherwise indicated or approved.

Nominal Dia of wires (mm)	Nominal Cross sec. Area (mm ²)	20 mm		25 mm		32 mm		38 mm	
		S	B	S	B	S	B	S	B
1/2.40	1.50	4	3	8	6	15	9	-	-
1/1.80	2.50	4	2	6	4	10	8	-	-
1/2.24	4.00	2	2	4	3	8	6	-	-
1/2.80	6.00	1	-	4	3	6	6	-	-
1/3.55	10.00	1	-	3	2	5	4	6	5

S - Runs of conduits which have distance not exceeding 4.25 meter between draw boxes & which do not deflect from the straight by an angle more than 15°.

B- Runs of conduits, which deflect from the straight by more than 15°.

Conduits/DLP shall be kept at a minimum distance of 100 mm. from the pipes of other non-electrical services and maintain minimum 300 mm distance between telephones, TV & Computer piping. Separate conduits/raceways shall be used for:

- Normal lights on lighting circuit.
- Separate conduit shall be laid from D.B. to switch board.
- For all other voltages higher or lower than 230 V.

Wiring for short extensions to outlets in hung ceiling or to vibrating equipments etc., shall be installed through flexible conduits. Otherwise rigid conduits shall be used. No flexible extension shall exceed 1.25 m.

Conduits/DLP run on surfaces shall be supported on SS saddles which in turn are properly screwed to the wall or ceiling. Fixing screws shall be with round or cheese head and of rust-proof/SS materials. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using pull through boxes for better appearances. No cross-over of conduits/DLP shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance. Where conduit passes through expansion joints in the building, adequate expansion fittings shall be used to take care of any relative movement.

Inspection boxes/removable covers shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Inspection boxes shall be spaced at not more than 12 meters apart or two 90° solid bends or equal.

9.0 Testing of Installation

This section describes the details of tests to be conducted in the completed internal electrical installations, before commissioning.

Tests: On completion of installation, the following tests shall be carried out

- Insulation resistance test.
- Polarity test of switch.
- Earth continuity test.

Witnessing of tests: Testing shall be carried out for the completed installations, in the presence of and to the satisfaction of the *Engineer-in-charge* by the contractor. All test results shall be recorded and submitted to the Department.

Test instruments: All necessary test instruments for the tests shall be arranged by the contractor if so required by the *Engineer-in-charge*.

(i) **Insulation resistance:**

The insulation resistance shall be measured by applying between earth and the whole system of conductors, or any section thereof with all MCBs **On**, and all switches closed, and except in earthed concentric wiring, all lamps in position, or both poles of the installation otherwise electrically connected together, a direct current pressure of not less than twice the working pressure, provided it need not exceed 500 volts for medium voltage circuits.

The insulation resistance shall also be measured between all the conductors connected to one pole, or phase conductor of the supply, and all the conductors connected to the neutral, or to the other pole, or phase conductors of the supply with all the lamps in position and switches in "**off**" position, and its value shall be not less than that specified. The insulation resistance in mega ohms measured as above shall not be less than 12.5 MΩ for the wiring with FR-PVC insulated cables, subject to a minimum of 1MΩ. A preliminary and similar test may be made before the lamps etc. are installed, and in this event the insulation resistance to earth should not be less than 25 MΩ for the wiring with PVC insulated cables, subject to a minimum of 2 MΩ.

(ii) **Polarity test of switch**

In a two wire installation, a test shall be made to verify that all the switches in every circuit have been fitted in the same conductor throughout, and such conductor shall be labeled or marked for connection to the phase conductor.

In a three wire or a four wire installation, a test shall be made to verify that every non-linked single pole switch is fitted in a conductor which is labeled, or marked for connection to one of the phase conductors of the supply.

The installation shall be connected to the supply for testing. The terminals of all switches shall be tested by a test lamp, one lead of which is connected to the earth. Glowing of test lamp to its full brilliance, when the switch is in "**on**" position irrespective of appliance in position or not, shall indicate that the switch is connected to the right polarity.

(iii) **Testing of earth continuity path**

The earth continuity conductor, including metallic envelopes of cables in all cases, shall be tested for electric continuity. The electrical resistance of the same along with the earthing lead, but excluding any added resistance, or earth leakage circuit breaker, measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed 1Ω.

10.0 General requirements:

- 10.1** The responsibility for the safety of technician and labours lies with contractor. However, contractor shall follow the instruction issued by the engineer in-charge with respect to the safety of personnel. The personnel working at height (more than 4') shall use the personnel protective equipments (PPE) such as helmet, safety belt etc. which will be provided by the department and shall be returned in good condition after the completion of work. The tools and equipment brought by the contractors shall be taken care by the bidders themselves.
- 10.2** The contractor is liable to compensate for any damage caused to the office equipment and furniture, while carrying out the work in office rooms where costly equipments are accommodated.
- 10.3** A supervisor from contractor's side should always accompany their labors and the permission may be sought from the concerned persons before entering into a particular room or area.
- 10.4** The supplied items will be checked and tested at supplier's premises before delivery to the site, for their construction and functions as per the tender and manufacturer's technical specifications.
- 10.5** The electricity will be provided free of cost, but contractor has to arrange his own extension boards/panel which shall have adequate protection device for short circuit and earth leakage. The power connection will be provided from single point after verifying the condition and status of electrical boards and equipments brought by the contractor.
- 10.6** Material to be supplied by the Department (Free Issue Material): **NIL**

BILL OF QUANTITIES (BOQ)

Preamble to the Schedule of Work: The tenderer shall carefully go through the specification and shall include in his rates any sum he may consider necessary to cover the fulfillment of the various clauses contained therein. Prices stated in the schedule of work against the work shall be inclusive of all installation, accessories and consumables necessary to complete the said work within the contemplation of the contract. Beyond the stated prices no extra amount will be paid for incidental contingent work and materials. The bidders are advised in their own interest to visit the proposed site of work to get acquainted themselves with the site and the working conditions as also the nature and minimum standard of work expected of them

Contractor's rate to include: Apart from other factors mentioned elsewhere in these specifications, the rates for the above shall include for the following:

- (i) All labour, materials, tools and construction equipment required for fabricating and fixing of items stated in BOQ.
- (ii) Scaffolding including erection and removal.
- (iii) Repairing and finished to original, all damaged civil work, *if any*.
- (iv) Necessary modification of pre-laid conduit including supply & fixing of Metal/ PVC conduits and accessories, chase cutting, etc. as required to complete the work.

No.	Item	Qty.	Unit
A.	MCB Distribution Boards components		
1.	Supply & Installation of <i>Legrand make</i> 40A, 30mA, 2P, RCCB (Cat. No. 4118 72).	03	Nos.
B.	Wiring, cabling and conduit works		
2.	Supply and Installation Supply, installation and termination of 1CX2.5 Sq.mm, Cu. Conductor, EBXL insulated 1100V grade flexible cable.	900	Mtr.
3.	Installation and termination of 1CX2.5 Sq.mm, Cu. Conductor, EBXL insulated 1100V grade flexible cable	2180	Mtr.
4.	Supply and installation of <i>Polycab make</i> UTP CAT 6 cable	1800	Mtr.
5.	Installation and termination of 2-pair telephone cable	300	Mtr.
C.	Supply and installation of <i>Legrand make</i> Components		
6.	80 x 50 mm PVC DLP - <i>Cat. No. - 0104 12</i>	200	Mtr.
7.	65mm Cover - <i>Cat. No. 0105 21</i>	200	Mtr.
8.	Joints - <i>Cat. No. -0106 91</i>	100	Mtr.
9.	65mm Cover Joint - <i>Cat. No. -0108 01</i>	100	Nos.
10.	Internal Angle - <i>Cat. No. -010602</i>	6	Nos.
11.	External Angle - <i>Cat. No. - 010622</i>	100	Nos.
12.	End Cap - <i>Cat. No. -0107 07</i>	90	Nos.
13.	65 mm, 3 M Plate Arteur - <i>Cat. No. - 0109 31</i>	48	Nos.
14.	65 mm, 6 M Plate Arteur- <i>Cat. No.-0109 56</i>	48	Nos.
15.	2 modules-for 65 mm cover - <i>Cat. No. -0109 52</i>	48	Nos.
16.	20A One Way Switch 1M - <i>Cat. No.-5734 10</i>	96	Nos.
17.	6A, 2/3 Universal Socket 2M- <i>Cat. No. -573470</i>	96	Nos.
18.	6/16A Socket 2M - <i>Cat. No. -573471</i>	48	Nos.
19.	Telephone socket RJ11 with shutter, 1 module- <i>Cat. No. -5734 26</i>	10	Nos.
20.	Socket RJ45- <i>Cat. No.-573428</i>	80	Nos.
D.	Raceway Trunkings and related accessories		
21.	GI Raceway 150 mm x 25 mm - <i>Cat. No. 6895 13</i>	2	Unit
22.	2 compartments columns - <i>Cat. No. - 6530 33</i>	1	Unit
23.	Finishing kit for telescopic - <i>Cat. No. 6530 66</i>	1	Unit
24.	Fixing clip - <i>Cat. No. 6038 57</i>	1	Set
E.	Miscellaneous work like removal of old power boards, casing capping, wires, other unwanted obstructions for laying of DLP etc	Lump sum	----

Note to Bidders: Offer will be considered on the basis of overall total cost including taxes, duties etc. for all the items mentioned above. If any one of the item is not quoted/considered, the offer will be considered incomplete and hence rejected.

FREE ISSUE MATERIAL: NIL

TERMS & CONDITIONS

1. The site **visit is compulsory** for assessment and evaluation of work involved, without that offer will be rejected. The design and scheme drawings will be provided to firm during site visit.
2. Bidder shall provide following documents/details of employees, whenever asked by authorities.
 - (i) Provident fund.
 - (ii) Insurance.
 - (iii) Wage/emolument statement.
 - (iv) Qualification details
 - (v) Police Verification Certificate.
 - (vi) Past experience.If the above stated documents are not available, then liability will be of bidder.
3. The completion time period from the date of acceptance of purchase order/work order is to be stated in the offer. The offer with lowest completion period will be given preference.
4. Bidders shall go through the technical specifications and provide in the offer **point by point compliance**. The technical deviations, (*if any*) shall be indicated clearly in the offer. Kindly note that no further communication will be made to get the technical clarifications. The offers without this information will be rejected without any consideration.
5. The cost evaluation of the offers will be carried out on the lot basis. Hence vendor shall consider all the expenses towards all items, taxes, loading, unloading, transportation, manpower boarding/lodging, guarantee etc. while quoting. The individual/breakup cost is not required.
6. The contractor shall bring his own tools, tackles, ladders etc. required at site for installation work. Department will not provide any tool/tackles at site.
7. The technician required to carry out the electrical work should be skilled and have requisite qualification/certificates. The documents are to be provided (in original) to engineer in-charge, before commencement of work at site. Unqualified/unskilled technician/**workers will not be allowed to work at site**.
8. All the safety precautions as per applicable code and practices shall be followed at site. The PPE shall strictly be used by workers while working at site. The safety instructions issued by engineer in-charge shall be followed in all respect. The contractor will be responsible for any injury/accident occurring at site, due to any reason, department will not pay or liable for any compensation.
9. The site is restricted area and permission to the personnel coming inside the premises for installation work, require security clearances. Hence firm has to obtain Police Verification Certificates (PVC) from Police Commissioner Officer (not local police)/District Magistrate office, for all the persons coming inside the premises for work. The copy of PVCs shall be submitted along with offer. Otherwise offer will not be considered for evaluation
10. Firms who have not worked inside the DAE units (BARC/NPCIL) in past have to go through vetting procedure as prescribed by the Security Section of BARC.
11. The entry passes for personnel coming inside premises are made by *Security Section* and require **local residence proof (Mumbai/Thane)** & identification proof along with PVC.