



INDIAN INSTITUTE OF TECHNOLOGY DELHI

HAUZ KHAS, NEW DELHI – 110016**NOTICE INVITING E-TENDER****IITD/WORKS (SP-1010)/2017**

Assistant Engineer [Electrical], Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 100016 [Phone No. 011-26591742] on behalf of Board of Governors invites online Item Rate Tender from Firms / Contractors Registered in appropriate class And category with CPWD, MES, BSNL and Railways dealing with Electrical installation work for the following work:

1	Name of Work	:	Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.
2	NIT No.	:	9041/13/EW/IITD/2017-18
3	Estimated cost	:	Rs. 2,52,306.00
4	Earnest Money	:	Rs. 5,046.00
5	Period of completion	:	30 Days
6	Last date & time of bid submission	:	29-05-2017 upto 03:00 PM
7	Performance Bank Guarantee	:	5% of the tendered amount

The bid forms and other details may be downloaded from Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <http://eprocure.gov.in/eprocure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission'.

Bidders can access Quotation / tender documents on the website (For searching in the NIC site, kindly go to Quotation Search option and type 'IIT'. Thereafter, Click on "GO" button to view all IIT Delhi Quotations). Select the appropriate Quotation / tender and fill them with all relevant information and submit the completed Quotation / tender document online on the website <http://eprocure.gov.in/eprocure/app> as per the schedule given in the next page.

No manual bids will be accepted. All bids (both Technical and Financial should be submitted in the E-procurement portal).

**Assistant Engineer [E],
For & on Behalf of BOG, IIT Delhi**

**CH. Head PLN-05
Work code (W02939)**

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Copy to: -

1. Institute Engineer
2. D.A. (Works Accounts) - for opening of tenders in the office of D.R. [SPS]
3. A.E.E. (E) Plg.
4. A.E (E) Renovation.
5. D.R. (A/Cs)
6. D.R. [SPS]
7. Notice Boards.
8. Office Copy
9. Web site Administrator, IITD



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C.....Nil I..... Nil O..... Nil

D'Man /J.E.

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SCHEDULE

1	Name of Organisation	:	Indian Institute of Technology Delhi
2	Tender / Quotation Type [open / limited / EOI / auction / single]	:	Open
3	Tender / Quotation Category [services / goods / works]	:	Goods & Works
4	Type / Form of Contract [work / supply / auction / service / buy / empanelment / sell]	:	Work & Supply
5	Product Category [civil works / electrical works / fleet management / computer systems]	:	Electrical Works
6	Is Multi Currency Allowed?	:	No
7	Date of issue / publishing /start	:	18-05-2017 at 3:00 PM
8	Document download start date	:	18-05-2017 at 3:00 PM
9	Document download end date	:	29-05-2017 at 3:00 PM
8	Last date & time of uploading of bids	:	29-05-2017 upto 03:00 PM
9	Date & time of opening of Technical Bids	:	30-05-2017 at 15:00 PM
10	Tender fee	:	Nil.
11	EMD	:	Rs. 5,046.00 [For EMD] (To be paid through RTGS/NEFT. IIT Delhi Bank details are as under: Name of the Bank A/C : IITD Revenue Account SBI A/C No. : 10773572622 Name of the Bank : State Bank of India, IIT Delhi, Hauz Khas, New Delhi-110016 IFSC Code : SBIN0001077 MICR Code : 110002156 Swift No. : SBININBB547 (This is mandatory that UTR Number is provided in the on-line quotation/bid. (Kindly refer to the UTR Column of the Declaration Sheet at Annexure-I)
12	No. of covers [1/2/3/4]	:	02
13	Address for communication	:	Executive Engineer [Electrical], Works Organization, Hauz Khas, IIT Delhi, New Delhi – 110016
14	Contact No.	:	011- 2659 1742, 1461
15	E-mail address	:	a26263@admin.iitd.ac.in ; a26335@admin.iitd.ac.in

C.....Nil I..... Nil O..... Nil

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INSTRUCTIONS FOR ONLINE BID SUBMISSION

As per the directives of Department of Expenditure, this Quotation / tender document has been published on the Central Public Procurement Portal (URL:<http://eprocure.gov.in/eprocure/app>). The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:

<http://eprocure.gov.in/eprocure/app>

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:<http://eprocure.gov.in/eprocure/app>) by clicking on the link “Click here to Enroll”. Enrolment on the CPP Portal is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR QUOTATION /TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active Quotations / Tender by several parameters. These parameters could include Quotation ID, organization name, location, date, value, etc. There is also an option of advanced search for Quotations, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a Quotation published on the CPP Portal.
- 2) Once the bidders have selected the Quotations they are interested in, they may download the required documents / Quotation schedules. These Quotations can be moved to the respective ‘My Quotations’ folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the Quotation document.



- 3) The bidder should make a note of the unique Quotation ID assigned to each Quotation / Tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the Quotation document before submitting their bids.
- 2) Please go through the Quotation / Tender advertisement and the Quotation / Tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the Quotation document / schedule and generally, they can be in PDF / XLS / RAR / DWF formats. Bid documents may be scanned with 100 dpi with black and white option.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the Quotation document.
- 3) Bidder has to select the payment option as “offline” to pay the Quotation fee / EMD as applicable and enter details of the instrument.
- 4) A standard BoQ format has been provided with the Quotation document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.
- 5) The server time (which is displayed on the bidders’ dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.



- 6) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.
- 7) The uploaded Quotation documents become readable only after the Quotation opening by the authorized bid openers.
- 8) Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 9) Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the Quotation document and the terms and conditions contained therein should be addressed to the Quotation Inviting Authority for a Quotation or the relevant contact person indicated in the Quotation.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 233 7315.

GENERAL INSTRUCTIONS TO THE BIDDERS

- 1) The Quotations will be received online through portal <http://eprocure.gov.in/eprocure/app> . In the Technical Bids, the bidders are required to upload all the documents in .pdf format.
- 2) Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <https://eprocure.gov.in/eprocure/app>. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link "Information about DSC".

Bidders are advised to follow the instructions provided in the 'Instructions to the Bidder' for the e-submission of the bids online through the Central Public Procurement Portal for e Procurement at <https://eprocure.gov.in/eprocure/app>

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



INFORMATION AND INSTRUCTIONS TO BIDDERS FOR E-TENDERING

Assistant Engineer [Electrical], Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 100016 [Phone No. 011-26591742] on behalf of Board of Governors invites online Item Rate Tender from Firms / Contractors Registered in appropriate class And category with CPWD, MES, BSNL and Railways dealing with Electrical installation work for the following work:

Sl. No.	N.I.T. No.	Name of work & Location	Estimated cost put to bid	Earnest Money	Period of completion	Last date & time of submission of bid (online mode)	Time & date of opening of Technical Bid	Time & date of opening of Financial Bid
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
1	9041/13/EW/IITD/2017-18	Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.	Rs. 2,52,306.00	Rs. 5,046.00	30 Days	29-05-2017 upto 03:00 PM	30-05-2017 at 15:00 PM	To be intimated after assessing technical bid.

1. The successful bidders shall be required to submit a performance guarantee of 5% of the tendered amount in the form of Bank Guarantee or F.D.R. from a Nationalized / Scheduled Bank within 15 days of issue of letter of intent before award of work. In case of failure by the Contractor to submit the performance guarantee within the specified period, full earnest money will be forfeited and the tender shall be treated as null and void. **The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 (Sixty) days beyond that.**

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2. Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted.
 - i) Firms/Contractors should have satisfactorily completed one similar work of value not less than **Rs. 2,01,900.00** or two similar works each of value not less than **Rs. 1,51,400.00** or three similar works each of value not less than **Rs. 1,01,000.00** during last 7 years ending previous day of last date of submission of bids.
 - ii) **Earnest Money of Rs. 5,046.00** to be deposited on-line as indicated in Schedule
3. **Similar work means providing and fixing electrical installation works.**
4. **The intending bidder must read the terms and conditions [both commercial & Additional] & IITD - 6 carefully** which will be the part of the Contract. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
5. Information and Instructions for bidders posted on website shall form part of bid document.
6. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website e-procure.gov.in.
7. But the bid can only be submitted after depositing requisite tender fee and EMD as specified in the schedule.
8. Copy of enlistment order and certificate of work experience and other documents as specified in the Press Notice / web notice shall be scanned and up-loaded to the e-Tendering website within the period of bid submission. However, certified / original copy of all the scanned and up-loaded documents as specified in press notice web / notice shall have to be submitted by the lowest bidder only within a week physically in the office of e-tendering authority.
9. Online bid documents submitted by intending bidders shall be opened only of those bidders, who has deposited requisite tender fee and EMD and other documents scanned and uploaded are found in order.
10. Completion certificates are required to be got issued by an officer not below the rank of Executive Engineer of similar works completed by the Firm. The work experience certificates submitted by the bidders shall clearly indicate that:
 - a. The similar work executed shall be **as '3' above**
 - b. The completed cost of the work
 - c. Actual date of completion of the work
11. Attested copy of registration certificates to be submitted. Registration of firms/ Contractors must be valid on the day of submission of Tenders or extended date of submission of Tenders whichever is later.
12. Work means only work under Government/ Public Sector Undertaking / Central Autonomous bodies.
13. The value of executed work shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of submission of financial bid.
14. IITD is committed to follow the principle of transparency, equity and competitiveness in public procurement. Before submission of bid, **each bidder should sign integrity pact at respective places**

C.....Nil I..... Nil O..... Nil



and submit the bid. If duly signed integrity pact is not submitted by bidder, such bid shall not be considered.

15. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
16. When bids are invited in two / three stages systems and if it is desired to submit revised financial bid it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
17. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
18. **The bid submitted shall become invalid if:**
 - a. The bidder is found ineligible.
 - b. The bidder does not upload all the documents (including service tax registration / VAT registration / Sales Tax registration) as stipulated in the bid document including the undertaking / declaration.
 - c. EMD not deposited as specified
19. The firm shall be registered with EPFO & ESIC

List of Documents to be scanned and uploaded within the period of bid submission:

1. Annexure – I duly filled in and got signed
2. Enlistment order of contractor.
3. Attested certificate of work experience as desired
4. Certificate of Registration for Sales Tax / VAT and acknowledgement of up to date filed return
5. Affidavit as per Notice Inviting Tender Condition [IITD-6] 1.2.2 [To be submitted on stamp paper]
6. Acceptance to execute INTEGRITY PACT [see integrity pact]
7. IITD 7 / 8 duly signed (At page 22– 23)
8. EPF & ESI Registration proof with up to date challan.
9. Any other document as specified in the NIT
10. Valid Electrical License.

**Assistant Engineer [Electrical]
For & on Behalf of BOG, IIT Delhi**

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

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**IITD – 6****INDIAN INSTITUTE OF TECHNOLOGY DELHI
NOTICE INVITING E-TENDER**

1.0 Assistant Engineer [Electrical], Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 100016 [Phone No. 011-26591742] on behalf of Board of Governors invites online Item Rate Tender from Firms / Contractors Registered in appropriate class And category with CPWD, MES, BSNL and Railways dealing with Electrical installation work for the following work: of **Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.**

1.1 The work is estimated to cost **Rs. 2,52,306.00**. This estimate, however, is given merely as a rough guide

1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids.

For composite bid, besides indicating the combined estimated cost put to tender, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

1.2 Intending bidder is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below:

Criteria of eligibility for submission of bid documents.**1.2.1 Criteria of eligibility for CPWD as well as non-CPWD contractors.**

Three similar works each of value not less than **Rs. 2,01,900.00** or two similar works each of value not less than **Rs. 1,51,400.00** or three similar works each of value not less than **Rs. 1,01,000.00** during last 7 years ending previous day of last date of submission of bids.

1.2.2 To become eligible for issue of bid, the bidders shall have to furnish an affidavit as under :-

“I / We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I / we shall be debarred for bidding in IIT Delhi in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy to be uploaded at the time of submission of bid)”

2. Agreement shall be drawn with the successful bidders on prescribed Form No. IITD 7/8 which is available as IIT Delhi Publication. Bidders shall quote their rates as per various terms and conditions of the said form which will form part of the agreement.

3. The time allowed for carrying out the work will be 30 Days from the date of start as defined in schedule ‘F’ or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

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4. The site for the work is available.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen from the web Site **e-procure.gov.in**.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of tender as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. If it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the tender submitted earlier shall become invalid.
9. Earnest Money as specified to be paid through RTGS / NEFT.

IIT Delhi Bank details are as under:

Name of the Bank A/C : IITD Revenue Account
SBI A/C No : 10773572622
Name of the Bank : State Bank of India, IIT Delhi,
: Hauz Khas, New Delhi-110016
IFSC Code : SBIN0001077
MICR Code : 110002156
Swift No : SBININBB547

(This is mandatory that UTR Number is provided in the on-line quotation/bid. Kindly refer to the UTR Column of the Declaration Sheet at Annexure-II)

Interested contractors who wish to participate in the bid has also to make following payments within the period of bid submission:

- (i) Copy of Enlistment Order and certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission.
10. The bid submitted shall become invalid, if:
 - a) The bidder is found ineligible.
 - b) The bidder does not upload all the documents (including VAT registration/ Sales Tax registration/Technical bid) as stipulated in the bid document.
 - c) EMD not deposited as specified
11. The contractor whose bid is accepted will be required to furnish **performance guarantee of 5% (Five Percent)** of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of Deposit at Call receipt of any scheduled bank / Banker' cheque of any scheduled bank/ Demand Draft of any scheduled bank/Pay order of any Scheduled Bank (in case guarantee amount is less than Rs.1,00,000/-) or Government Securities or Fixed Deposit Receipts or irrevocable Bank Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F' including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

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12. Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and subsoil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the Board of Governors does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of the Board of Governors reserves to himself the right of accepting the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the IITD responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted officer in the IIT Delhi. Any breach of this condition by the contractor would render him liable to be debarred from bidding process in future in IIT Delhi.
17. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract liable to be cancelled, if, either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bid for the works shall remain open for acceptance for a period of **ninety [90] days from the date of opening of financial bids**, if any bidder withdraws his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the IIT Delhi shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in the re-bidding process of the work.

C.....Nil I..... Nil O..... Nil

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19. This notice inviting bid shall form a part of the contract document. The successful bidder / contractor, on acceptance of his bid by the Accepting Authority shall **within 15 days** from the stipulated date of start of the work, sign the contract consisting of:-
- a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b) Standard IITD Form –7/8 or other Standard IITD Form as applicable.
20. In case any discrepancy is noticed between the documents as uploaded at the time of submission of the bid online and hard copies as to be submitted physically in IIT Delhi, if so desired by the accepting authority, then the bid submitted shall become invalid and the IIT Delhi shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in the bidding process of the work.

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

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INTEGRITY PACT

To

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Sub: NIT No. 9041/13/EW/IITD/2017-18 for the work of **Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.**

Dear Sir,

It is here by declared that IITD is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the Integrity Agreement, which is an integral part of the tender/bid documents, failing which the tender/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the IITD.

Yours faithfully,

Assistant Engineer

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



[TO BE SUBMITTED DULY SIGNED BY THE BIDDER ALONGWITH BID DOCUMENTS]

To

Assistant Engineer (Elect.),
IIT Delhi, Hauz Khas,
New Delhi – 110016

Subject: Submission of Bid for the work of **Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.**

Dear Sir,

I / We acknowledge that IITD. is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I / We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I / We will sign the enclosed integrity Agreement, which is an integral part of tender / bid documents, failing which I / We will stand disqualified from the tendering process. I / We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I / We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by IITD. I / We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I / We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, IITD shall have unqualified, absolute and unfettered right to disqualify the tenderer /bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully,

(Duly authorized signatory of the Bidder)

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Article 1: Commitment of the Principal / Owner

- 1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

No employee of the Principal / Owner, personally or through any of his / her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

- (a) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
 - (b) The Principal/Owner shall Endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PoC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.
- 3) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PoC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s) / Contractor(s)

- 1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or coercion or collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
 - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
 - b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

C.....Nil I..... Nil O..... Nil

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- c) The Bidder(s) / Contractor(s) will not commit any offence under the relevant IPC/PoC Act. Further the Bidder(s) / Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal / Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d) The Bidder(s) / Contractor(s) of foreign origin shall disclose the names and addresses of agents / representatives in India, if any. Similarly Bidder(s) / Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
 - 4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practices **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**
 - 5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal /Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

- 1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**



- 2) **Forfeiture of EMD/Performance Guarantee/Security Deposit:** If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.
- 3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal / Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

4) **Article 4: Previous Transgression**

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub-vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6: Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 6 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority of IITD.

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Article 7: Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Head Quarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by Board Resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8: LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal / Owner)

.....
(For and on behalf of Bidder / Contractor)

WITNESSES:

1.
(Signature, name and address)

2.
(Signature, name and address)

Place:

Dated:

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**IITD - 7/8****INDIAN INSTITUTE OF TECHNOLOGY DELHI
HAUZ KHAS, NEW DELHI - 110016****Percentage Rate Tender / Item Rate Tender & Contract for Works**

Tender for the work of **“Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.”**

(A) (I) To be submitted online by **29-05-2017 upto 03:00 PM**

(II) To be opened on **30-05-2017 at 15:00 PM** online

e-TENDER

I / We have read and examined the Notice Inviting Tender, schedule, A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of Contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I / We hereby tender for the execution of the work specified for the Board of Governors, IIT Delhi within the time specified in Schedule ‘F’ viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for ninety (90) days from the due date of its opening / ninety days from the date of opening of financial bid in case tenders are invited on 2/3 envelop system (**strike out as the case may be**) and not to make any modification in its terms and conditions.

A sum of **Rs. 5,046.00** is hereby deposited in IIT Delhi Revenue Account No. 10773572622 as earnest money. If I / We fail to furnish the prescribed performance guarantee within prescribed period I / We agree that the said The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 16 or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I / We fail to commence the work as specified, I / We agree that The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 16 or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise they said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I / We agree that in case of forfeiture of Earnest Money & Performance Guarantee as aforesaid I / We shall be debarred for participation in the re-tendering process of the work.

I / We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I / We shall be debarred for tendering in IIT Delhi in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

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be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I / We hereby declare that I / We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I / We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated:

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for an on behalf of The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 110016 for a sum of (Rupees.....).

The letters referred to below shall form part of this contract agreement:-

- (a)
- (b)
- (c)

For & on behalf of Board of Governors, IIT Delhi

Signature

Dated:

Designation

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



PROFORMA OF SCHEDULES

[Operative Schedules to be supplied separately to each intending tenderer]

SCHEDULE 'A'

Schedule of quantities (enclosed)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor

S.No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
← Nil →				

SCHEDULE 'C'

Tools and plants to be hired to the contractor

S.No.	Description	Hire charges per day	Place of Issue
← Nil →			

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any.

Nil

**SCHEDULE 'E'**

Reference to General Conditions of contract [GCC]

1	Name of work	:	Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.
2	Estimated cost of work	:	Rs. 2,52,306.00
3	Earnest Money	:	Rs. 5,046.00
4	Performance Guarantee	:	5 percent of tendered value
5	Security Deposit	:	5 percent of tendered value

SCHEDULE 'F'**GENERAL RULES & DIRECTIONS**

: Officer inviting tender

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2&12.3	:	See below
Definitions:		
2[v] Engineer – in - charge	:	Executive Engineer [Elect]
2[vi] Accepting Authority	:	Assistant Engineer [Elect]
2[x] Percentage on cost of materials and labour to Cover all overheads and profits	:	15 percent
2[xi] Standard schedule of rates	:	DSR 2016 + Market Rate
2[xii] Department	:	E & W, IIT Delhi
9[ii] Standard IITD Contract Form	:	General Conditions of Contract 2010, IITD Form 7/8-2010 modified & Corrected up to date of submission of tender

Clause 1:

[i] Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance	:	15 days
[ii] Maximum allowable extension with late fees @ 0.1% per day of performance guarantee amount beyond the period provided in (i) above	:	1 to 15 days

Clause 2:

Authority for fixing compensation under clause 2	:	Institute Engineer
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Clause 2 A:

Whether Clause 2A shall be applicable	:	No
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Clause 5:

Number of days from the date of issue of letter of award for reckoning date of start	:	10 [ten] days
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C.....Nil I..... Nil O..... Nil

D'Man /J.E.

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Milestone(s) as per table given below:-

Sl. No.	Description of Milestone (Financial)	Time allowed in days (from date of start)	Amount to be with-held in case of non-achievement of mile stone
N O T A P P L I C A B L E			

Time allowed for execution of work	:	30 Days
Authority to decide:		
Extension of time	:	Assistant Engineer [Engineer-in-charge]
Rescheduling of mile stones	:	Executive Engineer
Clause Applicable 6 or 6A:	:	Not Applicable
Clause 7:		
Gross work to be done together with net payment / adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	:	Not Applicable
Clause 10 A:		
List of testing equipment to be provided by the contractor at site lab	:	As desired by the Engineer-in-charge relating to the work
Clause 10B(ii):		
Whether Clause 10 B (ii) shall be applicable	:	No
Clause 10C:		
Component of labour expressed as percent of value of work	:	10 percent

Clause 10CA:

S.N.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA*
1			
2			
3	Nil		
4			

* Base price of all the materials covered under clause 10 CA is to be mentioned at the time of approval of NIT.

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Clause 10CC

Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column	:	18 months
Schedule of component of other Materials, Labour, POL etc. for price escalation		
Component of civil (except materials covered under clause 10CA)/ Electrical construction Materials expressed as percent of total value of work	:	Nil.
Component of Labour expressed as percent of total value of work	:	Y : 10 percent
Component of P.O.L. expressed as percent of total value of work	:	Not Applicable

Clause 11

Specifications to be followed for execution of work	:	CPWD General specifications for Electrical work Part-I (Internal) Part-II (External), Part-IV (Substation), with upto date modifications
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Clause 12

Type of work	:	Maintenance works including works of upgradation, aesthetic, special repair, addition/ alteration
Clause 12.2. & 12.3		
Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	:	30 percent
Clause 12.5		
Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work	:	100 percent

Clause 16

Competent Authority for deciding reduced rates	:	Institute Engineer
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Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:

1.....	2.....	3.....
4.....	5.....	6.....
7.....	8.....	9.....

Clause 36 (i)

Requirement of Technical Representative(s) and recovery Rate

S. No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical/ Technical Representative)	Minimum Experience (Years)	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figures	Words

Assistant Engineers retired from Government services that are holding diploma will be treated at par with Graduate Engineers

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

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**<< Organization Letter Head >>
DECLARATION**

I / We, _____ hereby declare that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I / we have gone through the specification, conditions and stipulations in details and agree to comply with the requirements and intent of specification.

1	Name & Address of the bidder	:	
2	Phone	:	
3	E-mail	:	
4	Contact person name	:	
5	Mobile number	:	
6	TIN number	:	
7	PAN number	:	
8	UTR no. With date [for payment of EMD]	:	
	BANK DETAILS		
9	Bank name	:	
10	Branch address	:	
11	Branch telephone no.	:	
12	MICR Code of the bank	:	
13	IFSC code	:	
14	Bank Account no.	:	
15	Type of account	:	

We further declare that our organization has not been blacklisted / delisted or put to any holiday by any Institutional agency / Govt. Department / Public Sector Undertaking in the last three years.

[Signature of the bidder]

Name:

Seal of the bidder

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

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**APPENDIX – II****SUBMITTALS TO BE MADE BY THE CONTRACTOR DURING
THE EXECUTION OF WORK**

1. Daily Progress report stating number of men employed under each trading, Equipment at site etc.
2. Weekly/ fortnightly progressing report showing progress against programme.
3. Programme of work for the forthcoming week.
4. Labour and Equipment Deployed at site Requirement vs. actual deployed - Programmed
- fortnightly
5. Updated approved monthly PERT CHART along with monthly progress chart - Weekly.
6. Construction materials by Contractor Status and mobilization programme : - Fortnightly.
7. Progress Photographs - Fortnightly.
8. Value of work anticipated to be done in the forth-coming including value of any materials and equipment of large value - monthly

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

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COMMERCIAL AND ADDITIONAL CONDITIONS

1 General

- 1.1** This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, final testing, commissioning, as per the CPWD General Specification for Electrical work **Part-I, II & IV** for the following works.

Name of work & location: Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.

- 1.2** The work shall be executed as per CPWD General Specifications for Electrical works as amended up to date and as per directions of Engineer-in-charge. These additional specifications and conditions are to be read in the Additional specifications and conditions shall apply. However, nothing extra shall be paid on account of these as the same are to be read along with schedule of quantities for the work.

2 COMMERCIAL CONDITIONS

2.1 Type of contract

The work to be awarded by this tender shall be treated as indivisible works contract.

2.2 Submission of Tender:-

Bidder shall submit the cost of tender documents, if any, e-tendering processing fee and earnest money, other documents, price bid in prescribed manner as indicated in "INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FOR e-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE"

- 2.3** The tenderers are advised not to deviate from the technical specifications / items, commercial terms and conditions of NIT like terms of payment, guarantee, arbitration clause, escalation etc.

- 2.4** **The department reserves the right to reject any or all the price bids and call for fresh price tenders as the case may be without assigning any reason.**

2.0 Validity

Tenders shall be valid for acceptance for a **period of 90 days from the date of opening of price bid.**

4.0 Completion period

The completion period indicated in the tender documents is for the entire work of planning, designing, supplying, installation, testing, commissioning and handing over of the entire job to the satisfaction of the Engineer-in-charge.

5.0 SAFETY CODES AND LABOUR REGULATIONS

- (i) In respect of all labour employed directly or indirectly on the work for the performance of the contractor's part of work, the contractor at his own expense, will arrange for the safety provisions as per the statutory provisions, B.I.S. recommendations, factory act, workman's compensation act, CPWD code and instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for **penalty as specified in applicable clause**. In addition the Engineer-In-Charge shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor.

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D'Man /J.E.

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- (ii) The contractor shall provide necessary barriers, warning signals and other safety measures while laying pipelines, cables etc. or wherever necessary so as to avoid accident. He shall also indemnify IITD against claims for compensation arising out of negligence in this respect. Contractor shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause. The department shall not be responsible for any accident occurred or damage incurred or claims arising there from during the execution of work. The contractor shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the contractor due to the above provisions thereof.

6.0 Payment Terms

- 6.1 Unless otherwise specified, in the additional conditions of the contract, the payment shall be made as per the relevant clauses of form PWD 7/8 forming a part of the tender documents.

7.0 Security Deposit

Security deposit shall be deducted from each running bill and the final bill to be the extent of 10 percent of the gross amount payable. However the maximum amount of security deposit will be 5 percent of the tendered value. The earnest money deposited shall be adjusted against this security deposit. The security deposit shall be released on the expiry of guarantee period stipulated in the contract. **Bank guarantee will not be accepted as security deposit.**

8 Performance Guarantee

The successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount in addition to other deposits mentioned elsewhere in the contract in the contract for his proper performance of the contract agreement within 30 Days. Of issued of letter of acceptance of tender. This guarantee shall be in the form of Demand draft/ Pay order or irrevocable bank guarantee bond of any scheduled bank or the State Bank of India in the specified format or in the form of Government security, fixed deposit pledged in favour of Executive Engineer or as specified in the letter of acceptance of tender. **The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 Days beyond.** This bank guarantee shall be kept valid till the recoding of completion certificate for the work by the competent authority.

9. Rates

- 9.1 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (i/c works contract taxes), duties & levies, octroi etc. and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc. at site i/c temporary construction of storage, risk, overhead charges, general liabilities / obligations and clearance from concerned authority.
- 9.2 Octroi duty shall not be paid separately but octroi exemption certificate can be furnished by the department on demand. However the department is not liable to re-imburse the octroi duty in case exemption certificates are not honored by the concerned authorities.

10. COMPLETION PERIOD

The completion period of **30 Days** indicated in the tender documents is for the entire work of planning, designing, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer – in – charge.

10. COMPLETENESS OF TENDER

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All sundry equipment, fittings, unit, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections, cable glands, junction boxes and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

12. STORAGE AND CUSTODY OF MATERIALS

The existing Sub Station LT Panel room may be used for storage of materials and equipments. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over the installation by the department.

13. CARE OF THE BUILDING

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste material arising out of the installation from the site of work.

14. WORKS TO BE DONE BY THE TENDERER

Following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost-whether specifically indicated in the schedule of work or not:-

- i) Sealing of all floor slab/wall openings with PCC if, provided by the Department or contractor for pipes and cables, from fire safety point of view, after laying of the same.
- ii) Sealing of all wall openings left for duct crossing with brick machinery with plaster.
- iii) Painting of all exposed metal surface of equipments and components with appropriate colour.
- iv) Making opening in the walls/floors/slabs or modification in the existing openings wherever provided for carrying pipe line, ducts etc.
- v) Providing wooden/metallic frames for fixing grills/ diffusers.
- vi) Making good all damages caused to the structure during installation and restoring the same to their original finish.

Any other minor building work required for the successful execution of the system and its operation.

16. Power supply, water supply and Draining

It is clarified that electricity will be provided from the existing connection near building and necessary arrangement for tapping and termination of supply will be done by the contractor. The charges for electricity may be recovered from the running account bill of the contractor as per the bill raised by IIT Delhi authorities.

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**17. Data manual and Drawings to be furnished by the tenderers:**

17.1 With Tender: The tenderer shall furnish along with the tender, detailed technical literature, pamphlets and performance data for appraisal and evaluation of the offer.

17.2 After Award of work

The successful tenderer would be required to submit the drawings as per para 1.18.2 within 3 days of award of work for approval before commencement of installation.

18.0 Data Manual and Drawings to be furnished by the Tenderers:

18.1 After Award of work the contractor shall prepare & submit three sets of following drawings and get them approved from the Engineer-in-charge before the start of the work. The approval of drawings however does not absolve the contractor not to supply the equipments/ materials as per agreement, if there is any contradiction between the approved drawings and agreement.

Any other drawings relevant to the work

18.2 Completion Drawings

18.2.1 Three sets of the following laminated drawings shall be submitted by the contractor while handing over the complete site to the Department. In addition one set will be given on compact disc.

19. Extent of Work

19.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department. The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender document in connection with this contract.

19.2 Minor building works necessary for installation of making of opening in floors or in walls and restoring to their original condition, finish and necessary grouting etc. as reqd.

19.4 Any item required for completion of the project but left inadvertently shall be executed with-in the quoted rate.

19.5 Contractor has to create PCC platform outside the building for fabrication and assembling of duct etc. as no fabrication will be allowed inside the building to avoid the damages and hindrance to other works

19.7 Contractor has to construct his own temporary store outside the building till the plant room is not ready and make watch and ward arrangement of the store. The location of the store shall be get approved from Engineer-in-charge.

19.8 Contractor has to provide technical assistance as and when required for approval of drawings etc.

20 Inspection and testing: Initial inspection at works and final inspection and testing at site shall be carried out as per chapter 17 of CPWD General Specification for HVAC works 2004 as amended to date may be read along with 17(22) of technical specifications.

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**21 Validity**

Tenders shall be valid for acceptance for a period of 90 days from the date of opening of price bid.

22 Compliance with Regulations and Indian Standards, Indemnity & Insurance.

22.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards as detailed in Para 1.21 & 1.22 of CPWD General Specifications for Electrical Work 2005 amended upto date.

23 Mobilization Advance:

23.1 No mobilization advance will be given.

24. Insurance and Storage:

All consignments are to be duly insured up to the destination from warehouse to warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.

25. Verification of correctness of Equipment at Destination:

The contractor shall have to produce all the relevant records to certify that the genuine equipment from the manufacturers has been supplied and erected.

26. CLEAN UP WORKS AT SITE

During erection the contractor shall at all times keep the working and storage areas free from waste or rubbish. On completion of erection he shall remove all temporary structures, debris and leave the premises clean to the full satisfaction of the department.

27. RATES

Rates for each of the items of Schedule of Quantity shall be firm and consolidated for the equipment delivered, installed, commissioned and tested at site including all taxes and levies. Prices shall remain firm and free from variation due to rise and fall in the cost of material equipments. Labour or any other reason whatsoever due to changes in statutory rules and regulations so far as admissible under the conditions of the contract.

28. TERMS OF PAYMENT

The terms of payments shall be as indicated in General Conditions of Contract.

29. PAINTING WORK

The painting should be carried out as required and as per the instruction of the department. The procedure and the standard colour codes are as follows:

- 1) Cleaning the surface
- 2) Apply a primer coat of red oxide
- 3) Applying two coats of enamel paint of APPROVED colour code after applying cement primer for plastered surface.

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SPECIAL TERMS & CONDITIONS

1. The Work has to be completed within the stipulated time.
2. In case of delay beyond the control of the contractor due to unforeseen circumstances or force majeure reasons, EOT shall be considered.
3. In case it is noticed that the firm is intentionally delaying the work for one reason or the other, the firm could be debarred for future works i/c forfeiture of the EMD.
4. In case of any extra item, the contractor shall seek prior permission in writing from the Engineer-in-charge and submit analysis of rates.
5. The quantities are tentative and could be increased or decreased.
6. The material shall be got approved from the Engineer-in-charge before utilization. Inferior/substandard material shall have to be removed from the site immediately. In case the contractor fails to remove the inferior / substandard material the Board reserves the right to dispose it off.
7. In case of slow progress/intentional delay by the contractor the work can be withdrawn/rescinded in whole or part thereof and executed at the risk & cost of the defaulting contractor.
8. In case of any dispute, the arbitrator shall be appointed by the Director, IIT Delhi and his decision shall be Final as well as binding on both the parties.
9. Hindrance register shall be maintained by JE (E) at site.
10. Instructions given in Site Order Book would be followed immediately by the contractor.

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SPECIAL CONDITIONS

1. Non Judicial stamp paper worth Rs. 10/- (Ten Rupees only) will be submitted by the contractor which will have to be signed as token of acceptance.
2. No T & P would be supplied by the Institute and contractor will have to make his own arrangement.
3. The contractors are advised to get acquainted with the proposed work including specifications & its site and additional conditions carefully before quoting. No claim of any sort shall be entertained or account of any site conditions and ignorance of specifications & additional conditions. The work shall be carried out as per the availability of site.
4. The work shall be carried out as per CPWD specifications 2005 volume I & II with up – to date correction slips unless otherwise specified in the nomenclature of individual item or in the specification, additional conditions where specifications are silent, the decision of Engineer-in-Charge shall be final and binding on contractor.
5. The rates quoted by the contractor shall be taken as net and nothing extra shall be paid on any account i.e Royalty, Cartage, Sales Tax & stacking of material required at places etc.
6. The rates for different items of work shall apply for Heights & Depths, Leads & Lifts unless otherwise specified in the agreement or specifications applicable in the agreement.
7. Any damage done by the contractor to any existing item / any part of the building during the course of execution of work shall be made good by at his own cost.
8. Articles manufactured by the reputed firms and approved by Engineer-in-Charge shall only be used. Only articles classified as “**First quality**” by the manufacturer shall be used unless otherwise specified.
9. The sample of material required in the work brought at site shall be got approved from Engineer –in-Charge before use in execution of work.
10. The sample of material required for Testing shall be provided at free of cost by the contractor. Testing charges if any shall be borne by the Contractor and shall be reimbursed in case the test results are satisfactory. All other expenditure to be incurred for taking sample, conveyance, packing etc. shall be borne by the contractor.
11. The contractor shall submit a detailed programme of work within 7 days of the date of award of work. The Engineer – in- Charge can modify the programme and the contractors have to work accordingly.
12. The contractor shall make his own arrangement for getting the permission with respect to trucks from the Traffic Police.
13. No payment shall be made to contractor for any damage caused by the rain, snowfall or any other natural causes what so ever during the execution of work.

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14. Some restrictions may be imposed by the security staff of IIT Delhi etc. on the working and or movement of labour & material. **No labour camp/ huts shall be allowed in IIT Campus.**

The contractor shall make his own arrangement for labour huts outside the campus. However constructions of cement

15. Godown and Chowkidar's hut in the Campus shall be permitted. The contractor shall be bound to follow all such restrictions/ instructions and nothing shall be payable on this account.
16. The contractor shall be fully responsible for the safe custody of the material issued or brought at site by him for doing the work.
17. The Malba / Garbage generated at site due to construction activities shall be removed from the site immediately & shall be disposed off by the contractor to the approved dumping site of MCD.
18. The contractor shall clean the site thoroughly of scaffolding materials, rubbish, equipments left out of his work & dress the site around the building to the complete satisfaction of the Engineer-in-Charge before the work is treated as completed.
19. Work Contract Tax @ 4% and income tax and other taxes as applicable shall be deducted from the bills of contractor.
20. 1% labour cess will be deducted from the bills of contractor.
21. For item of water proofing Guarantee Bond shall be submitted by contractor as per format provided by IIT Delhi.

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a) **TECHNICAL SPECIFICATIONS FOR INTERNAL & EXTERNAL ELECTRICAL**

b) **INSTALLATION & ALLIED WORKS**

c)

1.0 **GENERAL**

The electrical Installation work shall be carried out in accordance with Indian Standard Code of Practice. It shall also be in conformity with the current Indian Electricity rules and regulations and requirements of the Local Electricity Supply Authority and Fire Insurance regulations, so far as these become applicable to the installation. Electrical work in general shall be carried out as per following CPWD Specifications amended upto date.

General Specifications for Electrical Works.

- Part -I - Internal Work - 2016.
- Part -II - External Work - 2013.
- Part -IV - Substation Work - 2013.

Wherever this specifications calls for a higher standard of material and or workmanship than those required by any of the above mentions regulations and specification then the specification here under shall take precedence over the said regulations and standards.

The details of scope of work subhead wise are given in the subsequent paras. The quantities worked out in schedule of quantities are based on particular equipment considered at design stage. The contractor is required to recheck the quantities based on equipment offered by him to achieve required parameters.



TECHNICAL SPECIFICATION OF L.T. PANELS

1. Scope

This section covers the detailed requirements of medium voltage switch panel for 433V, 3 phase 50 Hz 4 wire system. These shall be branded and/ or assembled/fabricated from a factory of repute. All switchgears shall be fully rated at an ambient of 40° C.

2. Type of Panel

The medium voltage switch board panel shall comprises of any one of the following types of switchgears or combination thereof as specified.

- (a) Air Circuit breakers draw out of fixed type.
- (b) Switch Disconnecter Fuse Units fixed type, MCCB's of suitable Ics ratings. MCCB's shall invariably be Current Limiting type. Features like Double Break, Positive Isolation functions shall be preferred.

The panel shall be indoor type having incoming sectionalization and outgoing switchgears as specified. The design shall be cubical type. The degree of enclosure protection shall be IP 42 as per IS:13947 (Part-I).

3. M.V. Panel

3.1 General Construction

The switchboard shall be floor mounted free standing totally enclosed and extensible type. The switch board shall be dust & vermin proof and shall be suitable for the for site conditions as specified. The design shall include all provision for safety of operation and maintenance personnel. The general construction shall conform to IS:8623/1993 for factory assemble switch board.

3.2 Cubical Type Panels

- 3.2.1** Cubical type panels shall be fabricated out of sheet steel not less than 2.0mm thick and partition shall be made of 1.6 mm thick sheet steel. Wherever necessary, such sheet steel members shall be stiffened by angle iron frame work. General construction shall employ the principle of compartmentalization and segregation for each circuit. Unless otherwise approved, incomer and bus section panels or sections shall be separate and independent and shall not be mixed with sections required for feeders. Each section of the rear accessible type panel shall have hinged access doors at the

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rear. Overall height of the panel shall not exceed 2.4 meters. Operating levers, handle etc. of highest unit shall not be higher than 1.7 meters. Multi-tier mounting of feeder is permissible. The general arrangement for multi tier construction shall be such that the horizontal tiers formed present a pleasing and aesthetic look. The general arrangement shall be approved before fabrication. Cable entries for various feeders shall be either from top or bottom. Through cable alleys located in between two circuit sections, either in the rear or in the front of the panel. All cable terminations shall be through 3 mm thick gland plates. There shall be separate gland plate for each cable entry so that there will not be dislocation of already wire circuits when new feeders are added. Cable entry plates shall therefore be sectionalized. The construction shall include necessary cable supports for clamping the cable in the cable alley or rear cable chamber.

3.2.2 Bus bar and connections

The bus bars shall be of high conductivity electrolytic quality and of adequate section. Current density shall not exceed 160 amps for Copper/sq. cm & 100 Amps/ Sqcm for aluminium. The bus bar system may comprise of system of main horizontal bus bars and ancillary vertical bus bars run in bus bar alleys on either side of which the circuit could be arranged with front access cable entries. In the case of rear access, horizontal bus system shall run suitably either at the top or bottom. All connections to individual circuits from the bus bar shall preferably be solid connections; however flexible connections shall also be permitted as per recommendations of the Panel Manufacturer. All bus bars and connections shall be suitably sleeved/ insulated in approved manner.

3.2.3 Incomer/ Termination

Incomer termination shall be suitable for receiving bus trunking/ underground cables as per BOQ. Cable terminations shall invariably be through terminal blocks (Polyamide or superior) or brought out solid terminals.

3.2.4 Instruments

All voltmeters and ammeters shall be flush mounted of size minimum 96 mm conforming to class 1.5 of IS:1248 for accuracy. All voltmeters shall be protected with MCB.



3.2.5 Indicating Lamps

On all the incomers of M.V. panels, ON/OFF indicating LED lamps shall be provided and shall be suitable for operation on AC supply. Phase indicating LED lamps shall be associated with necessary ON/OFF toggle switch.

3.2.6 Small wiring

All small wiring for controls, indication etc. shall be of with suitable FRLS/HFFR (halogen free fire retardant) copper conductor cables. Wiring shall be suitably protected within switch board. Runs of wires shall be neatly bunched, suitably supported and clamped. Means shall be provided for easy identifications of the wires. Where wire are drawn through steel conduits, the works shall conform to CPWD General Specifications for Electrical works (Part I- Internal)-2005 and IS:732 as the case may be. Identification ferrules shall be used at both ends of the wires. All control wiring meant for external connections are to be brought out of terminal board.

OPERATIONAL REQUIREMENTS.

The indoor type MV panel shall conform to the following:-

- (a) The entire switch panel shall be cubical type generally conforming to IS:8623/1993 for factory assembled switch board.
- (b) The entire panel shall have a common earth bar of size as specified with two terminals for earth connections.

4.5 Rating and Requirements

4.5.1 Air Circuit Breaker

All Air circuit Breakers shall be 3/4 pole conforming to IS:13947 (Part-II). Rated current shall be as per capacities specified. The equipment shall be complete with the following:-

- (a) Necessary circuit breaker carriage with 3 position (isolate, test, service) draw-out mechanism.
- (b) Necessary isolating plugs and sockets.
- (c) Necessary mechanism interlock and automatic safe shutters gear with arrangement for pad locking.
- (d) Necessary independent manual spring mechanism with mechanical On/Off indication as well as electrical On/Off indication.



- (e) ACB shall be provided with microprocessor based releases having built in over load, short circuit & earth fault protection. Microprocessor release shall be EMI (electro magnetic induction)/ EMC (electro magnetic compatible) certified.
- (f) Minimum of 4 NO & 4 MC auxiliary contacts.
- (g) Necessary set of CTs as per requirement.
- (h) Necessary identification, metering requirements as specified i/c. ON/OFF indication lamps, selector switches, fuses, ammeter, voltmeter etc.
- (i) In case of 4 pole breaker neutral shall be fully rated with adjustable settings from 50% to 100% of In.
- (j) ACB terminals shall be suitable/ suitably brought out for direct aluminum termination as per IS 13947 Part-II.

4.5.2 MCCB:

4.5.2.1 MCCB: All MCCBs shall be current limiting type with features of load line reversibility and suitable for Horizontal/ Vertical mounting without any derating. Beyond 300amps capacity MCCB's shall have positive isolation and preferably double break/ contract repulsion & double insulation features. The MCCB's shall invariably be used with terminal spreaders. MCCB's shall be installed with rotary operating mechanism.

4.5.2.2 TEST AT MANUFACTURERS WORK

All routine tests shall be carried out and test certificates produced to the department as per IS.

4.6 INSTALLATION

The installation work shall cover assembly of various sections of the panels lining up, grouting the units etc. In the case of multiple panel switch boards after connection up the bus bars etc., all joints shall be insulated with necessary insulation tape or approved insulation compound. A common earth bar of adequate size shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, metes etc. shall be mounted and connected with appropriate wiring.

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TESTING AND COMMISSIONING

Commissioning checks and test shall include all wiring checks and checking up of connections. Relay adjustment/setting shall be done before commissioning in addition to routine Megger tests. Checks and tests shall include the following:-

- (a) Operation checks and lubrication of all moving parts.
- (b) Interlock function checks.
- (c) Continuity checks of wiring, fuses etc. as required.
- (d) Insulation test: When measured with 500 V Megger the insulation resistance shall not be less than 100 mega ohms.
Trip tests and protection gear test.

SWITCHGEAR

4.1 LT Air Circuit Breakers

4.1.1 General

- The circuit breakers shall be of the air break type, robust and compact design suitable for indoor mounting and shall comply with the requirement IEC 60947-1/IS 13947-2 and 2. Rupturing capacity shall be as stipulated in Schedule of quantities. Heat loss per pole shall be low.
- The breaker shall comply with the isolation function requirement of IEC 60 947-2/IS 13947-2 section 7.12 to be marked as suitable for isolation / disconnection to facilitate safety of operating personal while the breaker is in use.
- The breaker shall provide appropriate insulation between the front panel and internal power circuits to avoid any accidental contact with the live main current carrying path with the front cover open.
- Protective devices, metering, CTs, PTs, push buttons and indicating lamps shall be provided as per schedule of quantities.

4.1.2 Constructional Features

- The Circuit Breaker shall be flush front, metal clad, horizontal draw-out pattern, three/four pole as required and fully interlocked. Each Circuit Breaker shall be housed in a separate compartment enclosed on all sides. In case of 4 pole breaker neutral shall be fully rated with adjustable settings from 50% to 100% of I_n .
- The Circuit Breaker cradle shall be designed and constructed to permit smooth withdrawal and insertion. The movement shall be free of jerks, easy to operate. Mechanical Latch to be provided to identify the Isolated, test & service position of breaker to prevent over racking.

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- All current carrying parts in the breaker shall be silver plated and suitable arcing contacts shall be provided to protect the main contacts which shall be separate from the main contacts and easily replaceable. In addition, Arc chutes shall be provided for each pole, and these shall be suitable for being lifted out for the inspection of the main and the arcing contacts.
- Self aligning cluster type isolating contacts shall be provided for the Circuit Breaker, with automatically operated shutters to screen live cluster contacts when the Breaker is withdrawn from the cubicle. Sliding connections including those for the auxiliary contacts and control wiring shall also be of the self aligning type. The fixed portion of the sliding connections shall be easy access for maintenance purposes.
- There shall be flexibility in changing the types of terminals at site to suit the bus bar orientation if required.
- The cubicle for housing the Breaker shall be free standing dead front pattern, fabricated from the best quality sheet steel.

4.1.3 Operating Mechanism

- The Circuit Breaker shall be trip free with independent manual spring operated or motor wound spring operated mechanism as specified and with mechanical ON/OFF indication. The operating mechanism shall be such that the circuit breaker is at all times free to open immediately the trip coil is energised. The breaker shall be provided with in built antipumping mechanism.
- The closing time shall be less than or equal to 60 ms to ensure faster closing of the breaker. And tripping time Shall be less than 40 ms to reduce the let through energy in the event of fault.
- The operating handle and mechanical trip push button shall be at the front of and integral with the Circuit Breaker.
- There shall be mechanical indicator on the front panel for 'Ready to close' situation for the breaker by checking all interlockings.
- The Circuit Breaker shall be the following four distinct and separate positions which shall be indicated on the face of the panel. The breaker shall get latched in each of three position namely Service, Test and Isolated, operator to de latch before racking in/out to other position.

"Service" -- Both main and secondary isolating contacts closed

"Test" -- Main isolating contacts open and secondary isolating contacts closed.

"Isolated" -- Both main and secondary isolating contacts open

"Maintenance" -- Circuit Breaker fully outside the panel ready for maintenance.



4.1.4 Circuit Breaker Interlocking

- Sequence type strain free interlocks shall be provided to ensure the following:
- It shall not be possible for the Breaker to be withdrawn from the cubicle when in the "ON" position. To achieve this, suitable mechanism shall be provided to lock the Breaker in the tripped position before the Breaker is isolated.
- It shall not be possible for the Breaker to be switched "ON" until it is either in the fully inserted position or, for testing purposes, it is in the fully isolated position.
- It shall not be possible for the Circuit Breaker to be plugged in unless it is in the OFF position.
- A safety latch shall be provided to ensure that the movement of the Breaker, as it is withdrawn, is checked before it is completely out of the cubicle, thus preventing its accidental fall due to its weight.
- Mechanical and electrical antipumping devices shall be incorporated in the ACB's as required.

4.1.5 Circuit Breaker Auxiliary Contacts

The Circuit Breaker shall be suitable free / minimum 4 NO/NC auxiliary contacts rated at 10 amps 415 volts 50 Hz. These contacts shall be approachable from the front for connecting all external wiring from the front. They shall close before the main contacts when the Circuit Breaker is plugged in and vice versa when the Circuit Breaker is Drawn Out of the cubicle.

- All electrical auxiliaries, including the spring charging gear motor shall be instalable on site without requiring adjustment or any tools other than a screw driver
- The auxiliaries shall be placed in a compartment which under normal operating conditions, shall not contain any conducting parts capable of entering into electrical contact with the circuit breaker poles. It shall be possible to connect all auxiliary wiring from the front of the circuit breaker.

4.1.6 Circuit breaker Releases

The Air Circuit Breakers Shall be microprocessor release with inbuilt overload, short-circuit instantaneous, ground fault protection and neutral protection.

The Incoming circuit breaker to be equipped with the microprocessor based release with adjustable short circuit protection with adjustable time delay , Overcurrent protection , and adjustable earth fault protection with adjustable time delay. It Shall be possible to store tripping history of last five faults with time and date of fault and the type of fault with values.

The outgoing ACBs Shall be microprocessor based Release with Short circuit and overload protections

On line setting of the parameters Shall be possible.

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The setting of the ACB Shall be possible digitally and dial settings with the help of screwdriver.

All ACB release shall be inbuilt RS485 port & mod bus RTU protocol.

4. 1.7 Earthing

The frame of the Circuit Breaker shall be positively earthed when the Circuit Breaker is racked into the cubicle.

5.0 MOULDED CASE CIRCUIT BREAKERS

5.1 General

- The circuit breakers shall comply with the requirement of IEC 60 947 / IS 13947-2 : 1993. MCCBs shall be suitable for nominal voltage of 3 phase 690 Volts AC 50 HZ supply.
- The circuit breaker shall comply with the isolation function requirement of IEC 60 947-2/ IS 13947-2 section 7.1.2 to be marked as suitable for isolation / disconnection to facilitate safety of operating personnel while the breaker is in use.
- The circuit breaker shall provide class II insulation between the front cover and internal power circuits to avoid any accidental contact with the live main current carrying path with the front cover open.
- MCCBs shall be $I_{cs}=I_{cu}$ Minimum 50KA (I_{cs}) as specified in BOQ.

5.2 Constructional features

- The MCCBs shall be made of halogen free high strength heat resisting and flame retardant thermo setting insulating material.
- Three phase MCCBs shall be a common handle for simultaneous operation and tripping of all the three phases.
- The contact tips shall be made of suitable arc resistant sintered alloy. Terminals shall be of liberal design with adequate clearances
- Suitable arc extinguishing devices shall be provided for each contact.

5.3 Operating mechanism

- The operating handle of the MCCBs shall be quick make / break, trip free type.
- The operating handle of the MCCBs shall be suitable, ON, OFF and TRIPPED indicators.
- The operating handle and mechanical trip push button shall be at the front of and integral with the circuit breaker



- MCCBs shall be capable of limiting the fault currents. The maximum thermal $I^2 t$ shall be indicated by the manufacturer.
- MCCBs shall comprise of the mechanism designed to trip the circuit breaker in the event of high value short circuit currents.
- The electrical endurance of MCCBs shall be more or equal to that specified by IEC 60 947-2 standard.
- Earth fault protection if specified Shall be an integral part of the breaker, direct operating type & adjustable
- MCCBs range shall be discrimination charts available.
- MCCBs shall be of the same family.
- For Main switchboard, PLUG-IN type, motorised MCCBs to be used.

5.4 Circuit Breaker Interlocking

MCCBs shall be provided with following interlocking devices.

- Handle interlock to prevent unnecessary manipulations of the breaker.
- Door interlock to prevent door being opened when the breaker is in ON position
- Deinterlocking device to open the door even if the breaker is in ON position.

5.5 Circuit breaker auxiliaries

The circuit breaker shall be provided with following accessories, if specified in drawings/schedule of quantities

- Under voltage trip
- Alarm switch
- Auxiliary contact.

6.0 Type test certificate

The contractor shall submit type test certificate from a international recognized test house/CPRI/ERDA for the circuit breakers offered.

7.0 MINIATURE CIRCUIT BREAKERS

The MCB's shall be of the completely moulded design suitable for operation at 240/415 Volts 50 Hz system.

The MCB's shall be a rupturing capacity of 10 KA at 0.5 p.f..

The MCB's shall be inverse time delayed thermal overload and instantaneous magnetic short circuit protection..

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8.0 Manufacturing Facilities

Sheet steel manufacturing shall be done according to the drawings on in house CNC cutting and bending machines.

In house facility to be available for seven tank pre-treatment process and powder coating facilities. The Pre-treatment and painting process shall be regularly checked for the stability of the process the final paint thickness shall be 60 to 80microns.

The manufacturer shall be established stores with proper procedures for checking incoming material, stocking, rejection etc so that non-Quality material does not enter the shop.

In house facility for routine testing of the switchboards

The Manufacturing facility shall be ISO 9001 certification.



TECHNICAL SPECIFICATION FOR L.T CABELS

1.0 **GENERAL**

L.T. Cables shall be supplied, inspected, laid tested and commissioned in accordance with drawings, specifications, relevant Indian Standards specifications and cable manufacturer's instructions. The cable shall be delivered at site in original drums with manufacturer's name clearly written on the drums. The recommendations of the cable manufacturer with regard to jointing and sealing shall be strictly followed.

1.2 **MATERIALS**

The L.T. Power cables shall be XLPE insulated PVC sheathed type aluminium conductor armoured cable conforming to IS : 7098 : 1988 (Part-I) with upto date ammendments whereas control cable shall be XLPE insulated and PVC sheathed copper conductor armoured/ unarmoured cable conforming to IS:7098 (Part-I) 1988.

1.3 **INSTALLATION OF CABLES**

Cables shall be laid directly in ground, pipes, masonry ducts, on cable tray, surface of wall/ceiling etc. as indicated on drawings and/or as per the direction of Engineer-In-Charge. Cable laying shall be carried out as per CPWD specifications.

1.4 **INSPECTION**

All cables shall be inspected at site and checked for any damage during transit.

1.5 **JOINTS IN CABLES**

The Contractor shall take care to see that the cables received at site are apportioned to various locations in such a manner as to ensure maximum utilization and avoiding of cable joints. This apportioning shall be got approved from Engineer-In-Charge before the cables are cut to lengths.



1.6 LAYING CABLES IN GROUND

Cables shall be laid by skilled experienced workmen using adequate rollers to minimize stretching of the cables. The cable drums shall be placed on jacks before unwinding the cable. With great care it shall be unrolled on over wooden rollers placed in trenches at intervals not exceeding 2 metres. Cables shall be laid at depth of 0.75 metres below ground level. A cushion of sand total of 250mm shall be provided both above and below the cable, joint boxes and other accessories. Cable shall not be laid in the same trench or along side a water main.

The cable shall be laid in excavated trench over 80mm layer of sand cushion. The relative position of the cables, laid in the same trench shall preserved. At all changes in direction in horizontal and vertical planes, the cables shall be bent smooth with a radius of bent not less than 12 times the diameter of cables. Minimum 3 metre long loop shall be provided at both end of cable.

Distinguishing marks may be made on the cable ends for identifications of phases. Insulation tapes of appropriate voltage and in red, yellow and blue colours shall be wrapped just below the sockets for phase identifications.

1.7 PROTECTION OF CABLES

The cables shall be protected by bricks laid on the top layer of the sand for the full length of underground cable. Where more than one cables is laid in the same trench, the bricks shall cover all the cables and shall project a minimum of approximately 80mm on either side of the cables. Cable under road crossings and any other places subject to heavy traffic, shall be protected by running them through Hume Pipes of suitable size.

1.8 EXCAVATION & BACK FILL

All excavation and back fill required for the installation of the cables shall be carried out by the Contractor in accordance with the drawings and requirements laid down elsewhere. Trenches shall be dug true to line and grades. Back fill for trenches shall be filled in layer not exceeding 150mm. Each layer shall be properly rammed and consolidated before laying the next layer.

The Contractor shall restore all surface, roadways, side walks, kerbs wall or the works cut by excavation to their original condition to the satisfaction of the Engineer-In-Charge.

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1.9 **LAYING OF CABLES ON CABLE TRAY/SURFACE OF WALL/CEILING**

Cable shall be laid on perforated M.S. Cable tray. Cables shall be properly dressed before cable ties/clamps are fixed. Wherever cable tray is not proposed, cables shall be fixed on surface of wall or ceiling slab by suitable MS clamps/ saddles. Care shall be taken to avoid crossing of cable.

1.10 **CABLES ON HANGERS OR RACKS**

The Contractor shall provide and install all iron hangers racks or racks with die cast cleats with all fixings, rag bolts or girder clamps or other specialist fixing as required.

Where hangers or racks are to be fixed to wall sides, ceiling and other concrete structures, the Contractor shall be responsible for cutting away, fixing and grouting in rag bolts and making good.

The hangers or racks shall be designed to leave at least 25mm clearance between the cables and the face to which it is fixed. Multiple hangers shall have two or more fixing holes. All cables shall be saddled at not more than 150mm centres. These shall be designed to keep provision of some spare capacity for future development.

1.11 **CABLES TAGS**

Cable tags shall be made out of 2mm thick aluminium sheets, each tag 1-1/2 inch in dia with one hole of 2.5mm dia, 6mm below the periphery. Cable designations are to be punched with letter/number punches and the tags are to be tied inside the panels beyond the glanding as well as below the glands at cable entries. Trays tags are to be tied at all bends. On straight lengths, tags shall be provided at every 5 metres.

1.12 **TESTING OF CABLES**

Prior to installation, burying of cables, following tests shall be carried out. Insulation test between phases, phase & neutral, phase & earth for each length of cable.

- a. Before laying.
- b. After laying.
- c. After jointing.

On completion of cable laying work, the following tests shall be conducted in the presence of the Engineer-In-Charge.

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- a. Insulation Resistance Test (Sectional and overall).
- b. Continuity Resistance Test.
- c. Earth Test.

All tests shall be carried out in accordance with relevant Indian Standard code of practice and Indian Electricity Rules. The Contractor shall provide necessary instruments, equipments and labour for conducting the above tests & shall bear all expenses of conducting such tests.



TECHNICAL SPECIFICATION FOR EARTHING

1.0 **SCOPE**

This section covers the essential requirements of earthing system components and their installation. For details not covered in these specifications, IS Code of Practice on Earthing (IS : 3043-1987) shall be referred to.

1.1 **APPLICATION :**

- i) The electrical distribution system is with earthed neutral (i.e. neutral earthed at the transformer/ generator end). In addition to the neutral earthing, provision is made for earthing the metallic body of equipments and non-current carrying metallic components in the substation, as well as in the internal/ external electrical installations.
- ii) Earthing system is also required for lightning protection, computer installations etc. for function reasons.
- iii) Earthing requirements are laid down in Indian Electricity Rules, 1956 as amended from time to time, and in the Regulations of the Electricity Supply Authority concerned. These shall be complied with.

2.0 **MATERIALS**

The material of earth and earth conductor shall be as specified in BOQ.

2.1 **EARTH ELECTRODES**

The type of earth electrode shall be any of the following :-

- a) Plate/ Pipe earth electrode as specified in BOQ.

2.2.1 Electrode materials and dimensions

The materials and minimum sizes of earth electrodes shall be as specified.

2.3 **EARTHING CONDUCTOR**

- i) The earthing conductor (protective conductor from earth electrode upto the main earthing terminal/ earth bus, as the case may be) shall be of the same material as the electrode, viz. GI or copper and in the form of wire or strip as specified. The size of earthing conductor shall be as specified.

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3.0 **HARDWARE ITEMS**

All hardware items used for connecting the earthing conductor with the electrode shall be of GI in the case of GI pipe and GI plate earth electrode and forged tinned brass in case of copper plate electrodes.

3.1 **PROTECTIVE (EARTH CONTINUITY/ LOOP EARTHING) CONDUCTOR**

- i) The material and size of protective conductors shall be as specified.
- ii) Unless otherwise specified, GI conductor should not be ordinarily used as protective conductor within any circuit beyond a Distribution Board downstream.

3.2 **LOCATION FOR EARTH ELECTRODES**

Normally an earth electrodes shall not be located closer than 1.5 m from any building. Care shall be taken to see that the excavation for earth electrode does not affect the foundation of the building; in such cases electrodes may be located further away from the building, with the prior approval of the Engineering-In-Charge.

4.0 **INSTALLATION**

4.1 **ELECTRODES**

4.1.1 **VARIOUS TYPES OF ELECTRODES**

- i)
 - a) Pipe electrode shall be buried in the ground vertically with its top at not less than 20 cm below the ground level. The installation shall be carried out as shown in drawing.
 - b) In locations where the full length of pipe electrode is not possible to be installed due to meeting a water table, hard soil or rock, the electrode may be reduced length, provided the required earth resistance result is achieved with or without additional electrodes, or any alternative method of earthing may be adopted, with the prior approval of the Engineer-In-Charge. Pipe electrodes may also be installed in horizontal formation in such exceptional cases.

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- ii) Plate electrode shall be buried in ground with its faces vertical, and its top not less than 3 m below the ground level. The installation shall be carried out as shown in drawing.
- iii) When more than one electrode (plate/ pipe) is to be installed, a separate of not less than 2m shall be maintained between adjacent electrodes.

4.1.2 ARTIFICIAL TREATMENT OF SOIL

When artificial treatment of soil is to be resorted to, the electrode shall be surrounded by charcoal/ coke and salt and as indicated in enclosed drawings. In such cases, excavation for earth electrode shall be increased as per the dimensions indicated in these figures.

4.1.3 WATERING ARRANGEMENT

- i) In the case of plate earth electrodes, a watering pipe of 20mm dia. medium class GI pipe shall be provided and attached to the electrodes as shown in the drawing and a funnel with mesh shall be provided on the top of this pipe for watering the earth.
- ii) In the case of pipe electrodes, a 40mm x 20mm reducer shall be used for fixing the funnel with mesh.
- iii) The watering funnel attachment shall be housed in a masonry enclosure of size not less than 30 cm x 30 cm x 30 cm.
- iv) A cast iron/MS frame with MS cover of 6mm thick, and having locking arrangement shall be suitably embedded in the masonry enclosure.

4.2 EARTH CONDUCTOR

In the case of plate earth electrodes, the earthing conductor shall be securely terminated on to the plate with two bolts, nuts, check nuts and washers.

In the case of pipe earth electrodes, wire type earthing conductor shall be secured as indicated in drawing using a through bolts, nuts and washers and terminating socket.

The earthing conductor from the electrode upto the building shall be protected from mechanical injury by a medium class, 15mm dia GI pipe in the case or wire, and by a minimum of 40mm dia, medium class GI pipe in the case of strip. The protection pipe in ground shall be buried at least 30 cm deep (to be increased to 60 cm in case of road crossing and pavements). The portion within the building shall be fixed on walls.

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The earthing conductor shall be securely connected at the other end to the earth stud/ earth bar provided on the switch board by;

Soldered or preferably crimped lug, bolt, nut and washer in the case of wire, and, Bolt nut and washer in case of strip conductor.

4.3 EARTH BUS AND MAIN EARTHING TERMINAL

In all installations, main earthing terminal shall be provided at the main switchboard. This may be in the form of earth stud or single earth bar depending on the type of the switchboard.

Following conductors shall be terminated on to the main earthing terminal.

- a) Earth connection from electric supply company (where provided)
- b) Earthing conductor from electrode.
- c) Protective conductors
- d) Equi-potential bonding conductors.

4.4 PROTECTIVE (LOOP EARTHING/ EARTH CONTINUITY) CONDUCTOR

Earth terminal of every switchboard in the distribution system shall be bonded to the earth bar/ terminal of the upstream switchboard by protective conductors.

Two protective conductors shall be provided for a switchboard carrying a 3 phase switchgear thereon.

4.5 EARTH RESISTANCE

The earth resistance at each electrode shall be measured. No earth electrode shall have a greater ohmic resistance than 5 ohms as measured by an approved earth testing apparatus. In rocky soil the resistance may be upto 8 ohms.

Where the above stated earth resistance is not achieved, necessary improvement shall be made by additional provisions, such as additional electrode (s), different type of electrode, or artificial chemical treatment of soil etc., as may be directed by the Engineer-In-Charge, at additional cost as per the provisions of the contract.



4.6 **MARKING**

- i) Earth bars/ terminals at all switch board shall be marked permanently, as 'E'.
- ii) Main earthing terminal shall be marked 'SAFETY EARTH- DO NOT DISCONNECT'.

TESTING OF INSTALLATION

1.0 **SCOPE**

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

1.1 **GENERAL:**

1.1.1 **TESTS**

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

- i) Insulation resistance test.
- ii) Polarity test of switch.
- iii) Earth continuity test.
- iv) Earth electrode resistance test.

1.1.2 **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 RITES.

2.0 **INSULATION RESISTANCE**

The tests described below shall be made before the installation is permanently connected to the supply. For these tests large installations may be divided into groups of outlets, each containing not less than 50 outlets. For the purposes of this code the term 'outlet' includes every point and every switch except that a socket outlet, appliance or luminaire incorporating a switch is regarded as one outlet. The test voltage for insulation resistance measurement shall be 500 V.

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When measured with all fuse links in place, all switches (including, if practicable, the main switch) closed and, all poles or phases of the wiring electrically connected together, the insulation resistance to earth shall be not less than 1 mega ohm.

When measured between all the conductors connected to any one phase or pole of the supply and, in turn, all conductors connected to each other phase or pole the insulation resistance shall be not less than 1 mega ohm. Wherever practicable, so that all parts of the wiring may be tested, all lamps shall be removed and all current-using equipment shall be disconnected and all local switches controlling such lamps or other equipment shall be closed. Where the removal of lamps and/or the disconnection of current-using equipment is impracticable, the local switches controlling such lamps and/or equipment shall be open. Particular attention shall be given to the presence of electronic devices connected in the installation and such devices shall be isolated so that the test voltage does not damage them.

Where equipment is disconnected for the tests prescribed above, and the equipment has exposed conductive parts required by these clauses to be connected to protective conductors, the insulation resistance between the exposed conductive parts and all live parts of the equipment shall be measured separately and shall comply with requirements of the appropriate Indian Standard and the insulation resistance shall not less than 0.5 mega ohm.

3.0 **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, or to the non-earthed conductors of the supply.

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 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.

4.0 **TESTING OF EARTH CONTINUITY PATH**

The earth continuity conductor, including metal conduits and metallic envelops of cables in all cases, shall be tested for electric continuity. The electrical resistance of the same alongwith the earthing lead, but excluding any added resistance, or earth leakage circuit breaker, measured from the connection with the earth electrode to any

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point in the earth continuity conductor in the completed installation shall not exceed one ohm.

5.0 MEASUREMENT OF EARTH ELECTRODE RESISTANCE

5.1 Two auxiliary earth electrodes, besides the test electrode, are placed at suitable distance from the test electrode. A measured current is passed between the electrode 'A' to be tested and an auxiliary current electrode 'C' and the potential difference between the electrode 'A' and auxiliary potential 'B' is measured. The resistance of the test electrode 'a' is then given by

$$R = V/I$$

Where,

R- Resistance of the test electrode in ohms

V- Reading of the voltmeter in volts

I- Reading of the ammeter in amps

- 5.1.1 i) Stray currents flowing in the soil may produce serious errors in the measurement of earth resistance. To eliminate this, hand driven generator is used.
- ii) If the frequency of the supply of hand driven generator coincides with the frequency of stray current, there will be wandering of instrument pointer. An increase or decrease of generator speed will cause this to disappear.
- 5.1.2 At the time of test, the test electrode shall be separated from the earthing system.
- 5.1.3 The auxiliary electrodes shall be of 13mm diameter mild steel rod driven upto 1 m into the ground.
- 5.1.4 All the three electrodes shall be so placed that they are independent of the resistance area of each other. If the test electrode is in the form of a rod, pipe or plate, the auxiliary current electrode C shall be placed at least 30 m away from it and the auxiliary potential electrode 'B' shall be placed mid-way between them.
- 5.1.5 Unless three consecutive readings of test electrode resistance agree, the test shall be repeated by increasing the distance between electrodes A and C upto 50 m, and each time placing the electrode B mid-way between them.



5.1.6 On these principles, "Megger Earth Tester" containing a direct reading ohm-meter, a hand driven generator and auxiliary electrodes are manufactured for direct reading of earth resistance of electrodes.

6.0 **TEST CERTIFICATE**

On completion of an electrical installation or an extension to an installation, a certificate shall be furnished by the Contractor, countersigned by the certificate supervisor under whose direct supervision the installation was carried out. The certificate shall be in the prescribed form in addition to test certificate required by the local Electricity supply authorities.

FORM OF COMPLETION CERTIFICATE

I/We certify that the installation detailed below has been installed by me/us and tested and that best of my/ our knowledge and belief it complies with Indian Electricity Rules 1956, as well as the Contract Specifications.

Electrical Installation at _____

Voltage and system of supply _____

PREAMBLES TO SHEDULE OF QUANTITIES

NOTES:

These preambles apply to all the sections of schedule of quantities and tendered rates shall take into account all these provisions in additions to various provisions in other parts of the tendered documents.

1. The quantities given in this schedule are provisional. The contractor will be paid for the actual quantity of work executed at site at the rates quoted in his tender. The institute reserves the right to increase or decrease any of the quantities or to totally omit any item of work. Any claim by the contractor on these accounts will not be entertained.
2. All the items of work given in this schedule of quantities shall be executed strictly in accordance with the Indian Electricity Act. The Indian Electricity Rules and requirements of the Electric supply authority read in conjunction with the relevant drawings, specifications and the appropriate Indian Standards.
3. All measurements shall be taken in accordance with the Indian standard Electrical installation in buildings method of measurement of IS unless otherwise specified.

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4. The contractor shall visit the site of work and shall satisfy himself if as to conditions under which the work is to be performed. No extra claim consequence of ignorance or on grounds of insufficient description will be allowed at a later date.
5. No alternation whatsoever is to be made to the text or quantities of this schedule of quantities unless alteration is authorised in writing by the institute. Any such alterations notes or additions shall unless authorised in writing be disregarded when tender documents are considered.
6. In the event of error occurring to the amount column of the schedules, as a result of wrong extension of unit rate and quantity the unit rates quoted by the tenderer shall be regarded as firm and the extensions shall be amended on the basis of rates.
7. Any error in descriptions or in quantity or omission of items from the contract schedule shall not vitiate this contract but shall be corrected and deemed to be a variation required by the owner.



ACCEPTABLE MAKE OF EQUIPMENTS AND MATERIALS

ACCEPTABLE MAKE OF EQUIPMENTS AND MATERIALS		
S.No.	Name of items.	Approved Make.
1	MCB (10 KA)	Legrand (DX MCB,s) / Schneider / Siemens
2	MCCB	Schnieder (NS Compact Series) /G.E. / A.B.B / L & T(d sine Range)
3	XLPE Aluminum Conductor Armored cables upto 1100 V Grade	Skytone / Nicco/ Kalinga Premium/ Grandlay (ISI Marked)
4	Copper Conductor Control Cable	Skytone /Nicco/ Kalinga Premium/ Grandlay (ISI Marked)
5	Copper Conductor PVC Insulated Wires.	Skytone / Polycab / Finolex (ISI Marked)
6	Multifunction Meter	Soacmec / Cadel / Conserve / Secure / Ducatli / L & T (VEGA series)
7	Ammeter	Automatic Electric / I.M.P./ Rishab
8	Voltmeter	Automatic Electric / I.M.P./ Rishab
9	Frequency Meter	Automatic Electric / I.M.P./ Rishab
10	CT's	Automatic Electric/KAPPA
11	Selector Switches	Kaycee / L & T / Schnieder / Siemens
12	Contactors	Larson & Toubro / Schnieder / G.E.
13	Push Button & Pilot Lamps	Vaishno / Concord / L & T
14	Timers	Legrand / L & T / BCH
15	Protection Relays	Schnieder / L&T / Alsthom / PIL
16	Toggle Switch	Kaycee
17	Indicating Lights (L.E.D. Type)	Vaishno / Concord /L & T
18	Panels Manufacturers (Panel shall be CPRI Approved)	Milestone / Adlec /Tricolite // ASPL /Ambit Switchgears / SPC / EVA Engineering Services
19	G.I Pipe	Jindal Steel / Hissar / Prakash

N.B.: For any item not covered in the above list, the contractor shall require to get the samples approved from the Engineer-in-charge before the supply is made.



BID SUBMISSION

ONLINE BID SUBMISSION:

The Online bids (Complete in all respect) must be uploaded online in **two** envelopes as explained below.

Envelope – 1 (Following documents to be provided as single PDF file)			
Sl. No.	Documents	Content	File Types
1.	Technical Bid	Organization Declaration Sheet as per Annexure - I	PDF.
2.		Attested Certificate of work experience	PDF.
3.		Certificate of registration for sales tax / VAT and acknowledgement of up to date filed return	PDF.
4.		Affidavit as per NIT condition 1.2.2 on stamp paper	PDF.
5.		Enlistment order of contractor.	PDF.
6.		Acceptance to execute integrity pact	PDF.
7.		IITD 7/8 duly signed by the bidder	PDF.
8.		EPFO & ESIC Registration proof	
9.		Any other document as specified in the NIT	PDF.
10.		Valid Electrical License.	PDF.
Envelope – 2			
Sl. No.	TYPES	Content	
1.	Financial Bid	Price bid should be submitted in BOQ format.	.XLS

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**IITD - 2010 CORRECTION SLIPS**

In General condition of contract for IIT Delhi works department 2010 –

Reference	Existing	Modified
Clause 10B (ii), Para-2	Before any installment of advance is released, the contractor shall execute a Bank Guarantee Bond from Scheduled Bank for the amount of advance & valid for the contract period. This shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery, together with interest.	Before any installment of advance is released, the contractor shall execute a Bank Guarantee Bond from Scheduled Bank for the amount equal to 110% of the amount of advance and valid for the contract period. This (Bank Guarantee from Scheduled Bank for the amount equal to 110% of the balance amount of advance) shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery.
Clause 3 (vii)	If the contractor shall obtain a contract with Government as a result of wrong tendering or other non-bonafide methods of competitive tendering.	If the contractor had secured the contract with Government as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of Integrity Agreement.

Reference	Existing Provision	Modified Provision
Page 5, IITD 2010	Page 5, IITD 2010 4A. Applicable for Percentage Rate Tender only (IITD-7) In case of Percentage Rate Tenders, a tenderer shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender	Page 5, IITD 2010 4A. Applicable for Percentage Rate Tender only (IITD-7) In case of Percentage Rate Tenders, contractor shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. The tender submitted shall be treated as invalid if :- 1. The contractor does not quote percentage above/below on the total amount of tender or any section/sub head of the tender. 2. The percentage above/below is not quoted in figures & words both on the total amount of tender or any section/sub head of the tender.

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	<p>shall have the name and number of the works to which they refer, written on the envelopes.</p>	<p>3. The percentage quoted above/below is different in figures & words on the total amount of tender or any section/sub head of the tender: Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelopes.</p> <p>New Para 4B is added as below: 4B: In case the lowest tendered amount (estimated cost + amount worked on the basis of percentage above/ below) of two or more contractors is same, such lowest contractors will be asked to submit sealed revised offer in the form of letter mentioning percentage above/below on estimated cost of tender including all sub sections/sub heads as the case may be, but the revised percentage quoted above/below on tendered cost or on each sub section/ sub head should not be higher than the percentage quoted at the time of submission of tender. The lowest tender shall be decided on the basis of revised offers.</p> <p>In case any of such contractor refuses to submit revised offer, then it shall be treated as withdrawal of his tender before acceptance and 50% of earnest money shall be forfeited.</p> <p>If the revised tendered amount of two more contractors received in revised offer is again found to be equal , the lowest tender, among such contractors, shall be decided by draw of lots in the presence of SE of the circle, EE(s) in-charge of major & minor component(s) (also DDH in case Horticulture work is also included in the tender), EE(P) or EE(HQ) of the circle & the lowest contractors those have quoted equal amount of their tenders.</p> <p>In case all the lowest contractors those</p>
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		<p>have quoted same tendered amount, refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of EMD of each contractor.</p> <p>Contractor(s), whose earnest money is forfeited because of non-submission of revised offer, shall not be allowed to participate in the re-tendering process of the work.</p>
Reference	Existing Provision	Modified Provision
10A (page 6-7)	<p>In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy. However if the contractor has worked out the amount of the tender and if any discrepancy is found in the percentage quoted in words and figures, the percentage which corresponds with the amount worked out by the contractor shall, unless otherwise proved, be taken as correct. If the amount of the tender is not worked out by the contractor or it does not correspond with the percentage written either in figures or in words, then the percentage quoted by the contractor in words shall be taken as correct. Where the percentage quoted by the contractor in figures and in words tally but the amount is not worked out correctly, the percentage quoted by the contractor will, unless otherwise proved, be taken as correct and not the amount.</p>	<p>In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy.</p> <p>(Remaining part deleted)</p>
Reference	Existing Provisions	Modified Provisions
Deviations/ Variations Extent and Pricing	<p><u>CLAUSE 12</u></p> <p>The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and</p>	<p><u>CLAUSE 12</u></p> <p>The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and</p>



	<p>instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main works except as hereafter provided.</p>	<p>instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main works except as hereafter provided.</p> <p>The completion cost of any agreement for Maintenance works including works of upgradation, aesthetic, special repair, addition/ alteration shall not exceed 1.25 times of Tendered amount.</p>
<p>Deviations, Extra Items, Pricing</p>	<p>12.2</p> <p>In the case of extra items (items that are completely new and are in addition to the items contained in the contract), the contractor may within 90 days of receipt of order or occurrence of the item(s) claim rate, supported by proper analysis, for the work and the Engineer-in-charge shall within one month of the receipt of the claims supported by analysis after giving considerations to the analysis of the rates submitted by the contractor, determined the rates on basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p>	<p>12.2</p> <p>A. For Project and original works:</p> <p>In the case of extra items (items that are completely new and are in addition to the items contained in the contract), the contractor may within 90 days of receipt of order or occurrence of the item(s) claim rate, supported by proper analysis, for the work and the Engineer-in-charge shall within one month of the receipt of the claims supported by analysis after giving considerations to the analysis of the rates submitted by the contractor, determined the rates on basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p>

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		<p>B. For Maintenance including works of upgradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of Extra Item(s) being the schedule items (Delhi Schedule of Rates items), these shall be paid as per the schedule rate plush cost index (at the time of tender) plus/minus percentage above below quoted contract amount.</p> <p>Payment of Extra items in case of non-schedule items (Non-DSR items) shall be made as per the prevailing market rate.</p>
<p>Deviation, Substituted Items, Pricing</p>	<p>In the case of substituted items (items that are taken up with partial substitution or lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following Para.</p> <p>(a) If The market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted).</p> <p>(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)</p>	<p>A. For Project and original works:</p> <p>In the case of substituted items (items that are taken up with partial substitution or lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following Para.</p> <p>(a) If The market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted).</p> <p>(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted). For Maintenance including works of</p>

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		<p>upgradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of Substitute Item(s) being the schedule items (Delhi Schedule of Rates items), these shall be paid as per the schedule rate plush cost index (at the time of tender) plus/minus percentage above below quoted contract amount.</p> <p>Payment of Extra items in case of non-schedule items (Non-DSR items) shall be made as per the prevailing market rate.</p>
<p>Deviation, Deviated Quantities, Pricing</p>	<p>In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.</p>	<p>A. For Project and original works:</p> <p>In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.</p> <p>B. For Maintenance including works of upgradation, aesthetic, special repair, addition/ alteration: In the case of contract items, which exceed the limit laid down in schedule F, the contractor shall be paid rates specified in the schedule of quantities.</p>

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	<p>12.3 The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.</p>	<p>12.3 A. For Project and original works:</p> <p>The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.</p> <p>B. For Maintenance including works of upgradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of decrease in the rates Prevailing in the market of items for the the work excess of the limits laid down in Schedule F, and the</p> <p>Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.</p>
<p>Schedule F</p>	<p>Clause 12</p> <p>No provision.</p>	<p>Clause 12</p> <p>Type of work ___ *** _____</p> <p>*** To be filled by NIT approving authority either Project and original work or Maintenance works including works of upgradation, aesthetic, special repair, addition/ alteration.</p>



Name of work: Replacement of old switch type (Industrial Type) Panel Board with new Cubical Type Panel Board of Kailash Hostel in East Campus at IIT Delhi.

SCHEDULE OF QUANTITY

S. No.	Description of items.	Qty.	Unit.	Rates	Amount.
1	Supplying, Installation, Testing & Commissioning of cubical type Feeder Pillar - 1 Double Door Outdoor Type (Kailash Hostel) suitable for 415V, 3 Phase, 4 wire 50 Hz AC supply system, fabricated in compartmentalized (preferably) design from CRCA sheet steel of 2mm thick for frame work and covers, 3mm thick for gland plates i/c cleaning & finishing complete with 7 tank process for powder coating in approved shade, having 300 amp capacity extensible type TPN Aluminium Alloy bus bars of high conductivity, DMC/SMC bus bars supports with short circuit withstand capacity of 31 MVA for 1 sec., bottom base channel of MS section not less than 100mm x 50mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common copper earth bar of size 25mm x 5mm at the rear with 2 Nos. earth stud, solid connections from main bus bar to switch gears with required size of AL. bus bars and control wiring with 2.5 sq.mm PVC insulated copper conductor S/C cable, cable alleys, cable gland plates in two half, i/c providing following switch gears and i/c dismantling of existing panel board.				
	<u>INCOMER</u>				
i)	1 Set of 250 Amps 415 Volts FP MCCB (Type DN1-250C Cat No-CM9064200PO) of 25 KA with built in protections.				
	<u>MAIN BUS BARS</u>				
	TPN aluminium bus bars of minimum of 300 Amps capacity with heat shrinkable coloured sleeves and i/c DMC/SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc. for withstanding fault level of 31 MVA for 1 sec.				
	<u>METERING</u>				
i)	1 nos. 0-500V Digital type Voltmeter with selector switch.& protection MCB				
ii)	1 nos. 0-300A Digital type Ammeter with selector switch with CT's 250/5A				
iii)	1 nos. Digital type Multifunction Meters to show KWH, KVAH, P.F. and Frequency.				
iv)	3 Nos. phase indication lights LED type with protection MCB.				

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	<u>OUTGOINGS</u>				
i)	2 Nos. 200 Amps. FP MCCB (Type DN1-250C) Cat No.CM9064200NO of 25 KA with inbuilt protection				
ii)	3 Nos. 160 Amps. FP MCCB (Type DN1-250C) CN9064200MO of 25 KA with inbuilt protection				
iii)	1 Nos. 125 Amps. FP MCCB (Type DN1-250C) Cat No.CM964200LO of 25 KA with inbuilt protection				
	Total Panel-I Cubical Panel Board AS DESCRIBED ABOVE.	1	Set		
	CABLES AND CABLE ACCESSORIES				
2	Supplying of following size polythene (XLPE) insulated PVC outer sheathed Aluminium conductor cable for rated voltage 1.1 KV grade conforming to IS: 7098 (Part-I)/88 with amendment No.1 armoured with galvanized steel strip with ISI mark. Make: Skytone / Nicco / Kalinga Premium / Grandlay.				
(a)	3.5C x 120 Sq.mm	10.0	Metre		
(b)	3.5C x 50 Sq.mm	20.0	Metre		
(c)	3.5C x 35 Sq.mm	60.0	Metre		
3	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
(a)	Upto 35 sq. mm	30.0	Metre		
(b)	Above 35 sq. mm and upto 95 sq. mm	10.0	Metre		
(c)	Above 95 sq. mm and upto 185 sq. mm	5.0	Metre		
4	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall / surface as required.				
(a)	Upto 35 sq. mm (clamped with 1mm thick saddle)	30.0	Metre		
(b)	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	10.0	Metre		
(c)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	5.0	Metre		
5	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
(a)	3½ X 120 sq. mm (45mm)	3.0	Each		

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(b)	3½ X 50 sq. mm (35mm)	6.0	Each		
(c)	3½ X 35 sq. mm (32mm)	6.0	Each		
6	Supplying and making straight through joint with cast resin compound including ferrules and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
(a)	3½ X 120 sq. mm (45mm)	1.0	Each		
(b)	3½ X 50 sq. mm (35mm)	2.0	Each		
(c)	3½ X 35 sq. mm (32mm)	6.0	Each		
7	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2.0	Each		
8	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	10.0	Metre		
9	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	10.0	Metre		
10	Supplying and fixing following way prewired horizontal type three pole and neutral, sheet steel, MCB distribution board 415 volts on surface/ recess complete with loose wire box of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, terminal connectors for all incoming and outgoing circuits, duly prewired with adequate size of FRLS PVC insulated copper conductor upto the terminal connector/ neutral link, earthing etc. as required (But without MCB/ RCCB/ Isolator). (Note: Prewired vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
(a)	8 way (4 + 24), Double door	1.0	Each		
	Total (A) = Rs.				

APPENDIX – II

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**SUBMITTALS TO BE MADE BY THE CONTRACTOR DURING
THE EXECUTION OF WORK**

9. Daily Progress report stating number of men employed under each trading, Equipment at site etc.
10. Weekly/ fortnightly progressing report showing progress against programme.
11. Programme of work for the forthcoming week.
12. Labour and Equipment Deployed at site Requirement vs. actual deployed - Programmed
- fortnightly
13. Updated approved monthly PERT CHART along with monthly progress chart - Weekly.
14. Construction materials by Contractor Status and mobilization programme : - Fortnightly.
15. Progress Photographs - Fortnightly.
16. Value of work anticipated to be done in the forth-coming including value of any materials and equipment of large value - monthly

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