IIT (BHU), वाराणसी के वर्कशॉप में स्थित ऑटोमोबाइल शॉप, वेल्डिंग शॉप और फाउंड्री शॉप में इलेक्ट्रिकल नवीनीकरण, इंस्टॉलेशन, वायरिंग, लाइटिंग, पावर पॉइंट, लाइट और फैन पॉइंट लगाने का काम; साथ ही पुरानी इलेक्ट्रिकल वायरिंग की मरम्मत/बदलाव, और खराब डिस्ट्रीब्यूशन बोर्ड व पैनलों की मरम्मत/बदलाव का काम।

के लिए

ई-निविदा दस्तावेज़

E-TENDER DOCUMENT

For

Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.

निविदा संख्या **Tender No.**	:	**IIT(BHU)/IWD/ET-46/2026-27/809 Dated:- 09.11.2026**
निविदा प्रकाशन तिथि **Tender Publishing Date**	:	**10.11.2026 (4:00 P.M.)**
निविदा जमा करने की अंतिम तिथि **Last Date of Submission of bids**	:	**24.11.2026 (4:00 P.M.)**
निविदा खोलने की तिथि **Tender Opening date**	:	**25.11.2026 (4:00 P.M.)**

भारतीय प्रौद्योगिकी संस्थान (बी.एच.यू.), वाराणसी–221005
Indian Institute of Technology (BHU), Varanasi-221005
E-mail: office.iwd@iitbhu.ac.in
नोट: संशय की स्थिति में अंग्रेजी संस्करण मान्य होगा।

ABSTRACT OF COST

NAME OF WORK: **Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.**

Sl. No.	Details of Sub-Head	Amount (in Rs.)
1	Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.	**30,74,352.00**
	Say	**30,74,352.00**

This NIT contains pages 86 as per Index amounting to Rs. **30,74,352.00** is hereby approved.

Sd-
Junior Engineer (Electrical)

sd -
Asst. Executive Engineer (Electrical)

Sd-
Superintending Engineer (IWD)
IIT (BHU) Varanasi

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It is certified that this document contains total 86 pages.

Sd-
Superintending Engineer (IWD)
IIT (BHU) Varanasi

भारतीय प्रौद्योगिकी संस्थान
काशी हिन्दू विश्वविद्यालय
IIT INDIAN INSTITUTE OF TECHNOLOGY
BANARAS HINDU UNIVERSITY

NOTICE INVITING TENDER

(INVITATION FOR BIDS)

Online bids are invited from approved and eligible contractors/vendors of the Central Public Works Department (CPWD) and Central Public Sector Units/Enterprises (CPSUs/CPSEs). Contractors working in Central Universities, other IITs, NITs, and IIMs, as well as those empanelled with Railways, Military Engineering Services (MES), and Uttar Pradesh PWD, shall also be eligible to participate in Civil and Electrical works under IWD tenders for the following works:

S. No.	Tender no.	Specifications & quantity of the item	Earnest Money Deposit (EMD)
1.	IIT(BHU)/IWD/ET-46/2026-27/809 Dated : 09.11.2026	Name of the Project: **Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.** Estimated Cost **Rs. 30,74,352.00** 1. Eligibility Criteria (Cover-1) 2. Financial Bid (Cover-2)	**Rs. 62,000.00**

1. Interested eligible Bidders may obtain further information from IIT(BHU) website: www.iitbhu.ac.in/iitnotifications/purchase enquiries/ or from Central Public Procurement Portal (CPPP) https://eprocure.gov.in/eprocure/app.

2. Intending bidders are advised to visit IIT (BHU) website www.iitbhu.ac.in/iitnotifications/purchase enquiries/ and CPPP website https://eprocure.gov.in/eprocure/app regularly till closing date of BID submission of tender for any corrigendum / addendum/ amendment.

3. Earnest Money Deposit is to be submitted in the form of DD/FDR as per details mentioned in the critical data sheet. Bidders are required to submit the scan copy of payment receipt details of Tender fees and EMD at the time of Bid uploading.

CRITICAL DATA SHEET

Name of Organization	**Indian Institute of Technology (BHU), Varanasi**
निविदा प्रकार (खुला/सीमित/ईओआई/नीलामी/एकल) Tender Type (Open/Limited/EOI/Auction/Single)	खुला / Open
निविदा श्रेणी (सेवाएँ/सामान/कार्य) Tender Category (Services/Goods/Works)	कार्य / Works

अनुबंध का प्रकार / प्रारूप (कार्य / आपूर्ति / नीलामी / सेवा / खरीद / पैनल में शामिल करना / बेचना) Type/Form of Contract (Work/Supply/ Auction/ Service/ Buy/ Empanelment/ Sell)	कार्य / Works
उत्पाद श्रेणी (सिविल कार्य / इलेक्ट्रिकल कार्य / फ्लीट प्रबंधन / कंप्यूटर सिस्टम) Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	इलेक्ट्रिकल कार्य / Electrical Works
निविदा जारी करने / प्रकाशित करने की तिथि Date of Issue/Publishing Original Tender	10.11.2026 (4:00 P.M.)
निविदा दस्तावेज़ डाउनलोड प्रारंभ तिथि Document Download Start Date	10.11.2026 (4:00 P.M.)
दस्तावेज़ डाउनलोड समाप्ति तिथि Document Download End Date	24.11.2026 (4:00 P.M.)
निविदा अपलोड करने की अंतिम तिथि और समय Last Date and Time for Uploading of Bids	24.11.2026 (4:00 P.M.)
निविदा खोलने की तिथि और समय Date and Time of Opening of Bids	25.11.2026 (4:00 P.M.)
निविदा प्रसंस्करण शुल्क (कृपया ध्यान दें: निविदा प्रसंस्करण शुल्क केवल RTGS/NEFT के माध्यम से भुगतान किया जाना चाहिए। किसी अन्य भुगतान विधि को स्वीकार नहीं किया जाएगा।) Tender Processing Fee (Please Note: The Tender Processing Fees must be paid through RTGS/NEFT only. No other mode of payment will be acceptable.)	शून्य/NIL
ईएमडी / EMD	**Rs. 62,000.00** to be paid in the form of DD/FDR in the name of Registrar, IIT(BHU), Varanasi, payable at VARANASI. (Scanned copy of DD/FDR to be uploaded in cover-1) (Original to be submitted in cover-1 alongwith eligibility criteria documents) रुपये **62,000.00** को रजिस्ट्रार, IIT(BHU), वाराणसी के नाम पर डीडी/एफडीआर के रूप में भुगतान किया जाएगा, जो वाराणसी में देय होगा।)डीडी/एफडीआर की स्कैन की गई प्रति कवर-1 में अपलोड की जानी चाहिए) (मूल डीडी/एफडीआर कवर-1 में पात्रता मानदंड दस्तावेजों के साथ प्रस्तुत किया जाना चाहिए(
कवरों की संख्या (1/2/3/4) No. of Covers (1/2/3/4)	02
वैधता दिनों की संख्या (180/120/90/60/30) Bid Validity days (180/120/90/60/30)	180 दिन (निविदा खोलने की अंतिम तिथि से) 180 days (From last date of opening of tender)
कार्य समाप्ति अवधि Work Completion Period	180 Days/दिन
संचार के लिए पता Address for Communication	The Superintending Engineer, Institute Works Department, IIT(BHU), Varanasi – 221005, U.P.
ईमेल पता / Email Address	office.iwd@iitbhu.ac.in

INSTRUCTIONS FOR ONLINE BID SUBMISSION

As per the directives of Department of Expenditure, this 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.

1. 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/eToken.

2. Searching for Tender Documents

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, 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 tender published on the CPP Portal.
2. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3. The bidder should make a note of the unique Tender ID assigned to each tender; in case they want to obtain any clarification / help from the Helpdesk.

3. Preparation of Bids

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2. Please go through the tender advertisement and the 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 tender 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.

4. 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 tender document.
3. Bidder has to select the payment option as "on-line" to pay the tender fee / EMD as applicable and enter details of the instrument. Whenever, EMD/Tender fees is sought, bidders need to pay the tender fee and EMD separately on-line through RTGS.
4. A standard BoQ format has been provided with the tender 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 tender documents become readable only after the tender 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.

5. Assistance to Bidders

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
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

6. General Instructions to the Bidders

1. The tenders will be received online through portal http://eprocure.gov.in/eprocure/app . In the Technical Bids, the bidders are required to upload all the eligibility criteria 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".
3. Tenderer are advised to follow the instructions provided in the Instructions to the Tenderer for the e-submission of the bids online through the Central Public Procurement Portal for e-Procurement at https://eprocure.gov.in/eprocure/app.

INFORMATION AND INSTRUCTIONS TO BIDDERS FOR TENDERING FORMING PART OF BID DOCUMENT AND TO BE POSTED ON WEBSITE

INSTITUTE WORKS DEPARTMENT, NIT

1. IWD, IIT(BHU) invites the online percentage rate/Item rate Bids from eligible contractors/vendors of the Central Public Works Department (CPWD) and Central Public Sector Units/Enterprises (CPSUs/CPSEs). Contractors working in Central Universities, other IITs, NITs, and IIMs, as well as those empanelled with Railways, Military Engineering Services (MES), and Uttar Pradesh PWD, shall also be eligible to participate in Civil and Electrical works under IWD tenders for the following works:

Electrical installation, wiring, illumination, power point, light & fan point works in the different labs, chambers and offices in Electrical Engineering Department IIT(BHU), Varanasi.

The enlistment of the contractors should be valid on the last date of submission of bids. (Self-Certified copy of currently valid enlistment certificate to be uploaded as proof along with other eligibility criteria)

1.1 The work is estimated to cost **Rs 30,74,352.00.** The estimate, however, is given merely as a rough guide).

1.2 Intending bidder is eligible to submit the bid provided, if 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:

1.2.1 Criteria of eligibility for submission of bid documents:

(a) Intending bidder should not be a joint venture**. (Self-Certified copy of relevant documents clearly establishing the status of bidder to be uploaded)**

(b) Should have satisfactorily completed Three similar works each of value not less than **Rs 12.30** Lacs or Two similar works each of value not less than **Rs 18.45** Lacs or One similar work of value not less than **Rs 24.59** Lacs during last seven years ending 31st March 2026. **(Self-Certified photocopy of work order alongwith work completion certificate to be uploaded as proof of eligibility criteria)**

Explanation:

The value of executed works 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 receipt of applications for this tender.

Similar work means **"Electrical installation, wiring, cabling, power point etc. work"**

(c) Should have had average annual financial turnover of **Rs 15.37** Lacs on account of construction works executed during the last three preceding financial years ending 31st March, 2026, duly audited by a Chartered Accountant **(Self Certified photocopy of certificate from CA to be uploaded).** The year in which no turnover is shown would also be considered for working out the average.

(d) Should not have incurred any loss **(profit after tax should be positive)** in more than three years during the last five years ending 31st March, 2026. **(Self-Certified photocopy of certificate from CA to be uploaded alongwith certified copy of last five years Profit & Loss Account)**

(e) Should have a solvency certificate of **Rs 12.30 Lacs** issued by Bank during the last six months.

(Certified copy of original solvency certificate to be uploaded in cover-1).

1.2.2 To become eligible for tender, the contractor shall have to furnish an affidavit on a non-judicial stamp paper of Rs. 10.00 as under:

I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another bidder on back to back basis. Further that, if such a violation comes to the notice of Indian Institute of Technology (BHU), then I/we shall be debarred for tendering in IWD, IIT(BHU) in future forever. Also, if such a violation comes to the notice of Indian Institute of Technology (BHU) before the date of start of work, the SUPERINTENDING ENGINEER-IWD,

IIT(BHU) shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. **(Scanned copy of affidavit to be uploaded in cover-1). The date of issuing affidavit after the tender publishing date. The affidavit must exist tender number also.**

2. Agreement shall be drawn with the successful bidder on prescribed Format.

3. The time allowed for carrying out the work will be **180 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 Published documents.

4. The site for the work is available for start of the work.

5. The Published 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/downloaded from website **www.eprocure.gov.in** or **www.iitbhu.ac.in**

6. While submitting the bids, bidder can revise the rate, but before last date and time of submission of bids as notified. In this case, the last submitted bid before the last date and time will only be considered.

7. **a) Earnest Money** of **Rs. 62,000.00** shall be paid in the form of Banker's cheque/ Demand Draft / Fixed Deposit Receipt (**drawn in favor of Registrar, IIT(BHU), Varanasi, payable at Varanasi)** of any Scheduled Bank. The same shall be submitted in Cover-1 and scanned copy uploaded with cover-1.

   b) Tender processing fees: Tender fee has been exempted with the approval of the competent authority.

Proof of online submission of tender processing fees, EMD & Eligibility criteria document like work experience, financial turn over certificate, Affidavit in original, Solvency certificate in original and any other documents mentioned in relevant clauses above, shall be uploaded under cover-1 on the e-tendering website.

EMD and proof of tender processing fees of the tender shall be placed in an envelope with due mention Name of work, date & time of opening of Tender and to be submitted in the office of SUPERINTENDING ENGINEER, IWD, IIT(BHU), Varanasi on or before 24.11.2026 (4:00 P.M.). The documents submitted shall be opened at 25.11.2026 (4:00 P.M.).
Kindly note that no financial bid in physical format is to be submitted with cover-1 in the office of IWD, IIT(BHU). Financial bid is to be uploaded under cover-2 only on the e-tendering website.
Online Financial Bids submitted by intending bidders shall be opened and only of those bidders, whose Earnest Money deposit, tender processing fees and other documents uploaded on e-tendering website under cover-1 are found in order and eligible.

11. The bid submitted shall become invalid and cost of bid & tender processing fee shall not be refunded if:
(i) The bidder is found ineligible.
(ii) The bidder does not provide all the documents (including PAN No., GST registration etc.) as stipulated in the bid document.

12. The bidder whose bid is accepted will be required to furnish performance bank guarantee of 5% (Five Percent) of the tender amount within the 15 days of issue of letter of acceptance. This guarantee shall be in the form of Demand Draft of any scheduled bank or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the bidder fails to deposit the said performance guarantee within the period as indicated, the Earnest Money deposited by the bidder shall be forfeited automatically

without any notice to the bidder.

13. 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 sub-soil (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 Tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent upon any misunderstanding or otherwise shall be allowed. The bidder 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 tender 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 Institute and local conditions and other factors having a bearing on the execution of the work. Cost of site visit shall be borne by the bidder.

14. The competent authority on behalf of the Institute does not bind itself to accept the lowest or any other Tenders and reserves to itself the authority to reject any or all the Tenders received without the assignment of any reason. All Tenders 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.

15. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the Tenders submitted by the bidders who resort to canvassing will be liable to rejection.

16. The competent authority on behalf of Institute reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

17. The bidder shall not be permitted to tender for works in the IWD, if his near relative is posted as an officer in any capacity between the grades of Superintending Engineerand Junior Engineer (both inclusive). Any breach of this condition by the bidder would render him liable to be removed from the Tendering process.

18. 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 act as a bidder within a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the bidder 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 tender or engagement in the bidder's service.

19. The bid for the works shall remain open for acceptance for a period of 180 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 Indian Institute of Technology (BHU), then the Indian Institute of Technology (BHU), without prejudice to any other right or remedy, be at liberty to forfeit of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the re-bidding process of the work.

20. The notice inviting bid shall form part of the contract document. The successful bidder, on acceptance of his bid by the Accepting Authority, have to sign the contract consisting of "The Notice Inviting bid, all the documents including Special Conditions, General Specifications/ Particular Specifications and drawings, if any, forming part of the bid as submitted 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. Within 15 days from the stipulated date of start of the work.

21. Composite Tender

21.1.1 The SUPERINTENDING ENGINEER is calling this bid for the composite work. The Earnest money is fixed with respect to the combined estimated cost put to Tender for the composite tender.

21.1.2 The bid document is including following components:

Part A: **IWD FORM-1** including schedule A to F for the major component of the work, Standard General Conditions of Contract.

Part B:- General / specific conditions, general technical specifications along with list of Makes. If there is any material not available as per list of makes, bidder has to inform in priority to Architects/owner for approval.

Part C: Schedule A to F for minor component of the work. (SUPERINTENDING ENGINEER of major component shall also be competent authority under clause 2 and clause 5 as mentioned in schedule A to F for major components)

Part D:- Schedule of quantities applicable.

Part E:- Design and Drawings.

Part F:- Composite bill of quantities.

21.1.3 The eligible bidders have to quote rates for all items given in the bill of quantity.

21.1.4 After acceptance of the bid by competent authority, the SUPERINTENDING ENGINEER shall issue letter of award on behalf of the Institute. After the work is awarded, the bidder will have to enter into one agreement with SUPERINTENDING ENGINEER.

21.1.5 Entire work under the scope of composite tender including major and all minor components shall be executed under one agreement.

21.1.6 Security Deposit will be worked out separately for each component corresponding to the quoted/accepted cost of the respective component of works. The Earnest Money will become part of the security deposit of the respective projects under the head Mega projects in ratio of the corresponding estimated value of these projects.

21.1.7 The bidder may associate agency(s) for minor component(s) conforming to eligibility criteria as defined in the tender document and has to submit detail of such agency(s) to SUPERINTENDING ENGINEER. Name of the agency(s) to be associated shall be approved by SUPERINTENDING ENGINEER. Before engaging such associate agencies, bidder has to inform to SUPERINTENDING ENGINEER along with his past experience and all credential's and got the approval of the same from the SUPERINTENDING ENGINEER.

21.1.8 In case the bidder intends to change any of the above agency/ agencies during the operation of the contract, he shall obtain prior approval of respective SUPERINTENDING ENGINEER. The new agency/ agencies shall also have to satisfy the laid down eligibility criteria. In case SUPERINTENDING ENGINEER is not satisfied with the performance of any agency, he can direct the bidder to change the agency and this shall be binding on the bidder.

21.1.9 The main bidder has to enter into agreement with bidder(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to Engineer-in-charge In case of change of associate bidder, the main bidder has to enter into agreement with the new bidder associated by him.

21.1.10A. The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-charge of major component after record of completion certificate of all other components.

21.1.10B. Final bill of whole work shall be finalized by IWD.

21.1.11 It will be obligatory on the part of the bidder to sign the tender documents for all components before the first payment is released.

Sd-
SUPERINTENDING ENGINEER
INSTITUTE WORKS DEPARTMENT
INDIAN INSTITUTE OF TECHNOLOGY(BHU)

List of Documents to be scanned, uploaded and submitted under Cover-1 (Technical Bid) on e-tendering website up to the last date and time of e-tender.

a) Documents clearly indicating the bidder's registration status with any of the following authorities: Central Public Works Department (CPWD), Central Public Sector Undertakings/Enterprises (CPSUs/CPSEs), Central Universities, other IITs, NITs, IIMs, as well as empanelment with Railways, Military Engineering Services (MES), or the Uttar Pradesh Public Works Department (UPPWD).

b) Documents regarding legal status of firm and written power of attorney of the signatory.

c) Self-certified copy of work orders along with work completion certificate as per eligibility criteria.

d) Qualifications and experiences of key site management, technical personnel proposed for the contract.

e) Solvency certificate from bank and scanned copy of DD/FDR for EMD.

f) Affidavit as per 1.2.2 and proof of submission of tender processing fee **only in online mode**. The date of issuing affidavit after the tender publishing date. The affidavit must exist tender number also.

g) No loss certificate, turnover from CA, GST registration certificate, PAN card, ESI/EPF etc.

h) Electrical license issued by office of the Directorate of Electrical Safety, U.P. Govt.

List of documents to be uploaded upto the last date & time mentioned below in Cover-2 (Financial Bid):

a) Duly filled in priced BoQ.

b) Duly signed and scanned copy of priced BoQ in PDF format.

(Kindly note that no physical submission of duly filled in BoQ is required and it is to be uploaded only on e-tendering website).

Sd-
SUPERINTENDING ENGINEER
INSTITUTE WORKS DEPARTMENT
INDIAN INSTITUTE OF TECHNOLOGY(BHU)
VARANASI

A: GENERAL INSTRUCTIONS

1.0 Scope of Tender.

1.1 Indian Institute of Technology (BHU) (referred to as Owner in these documents) invites Tenders for **Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.**
(As defined in these documents and referred to as "the works") detailed in the table given in the Notice Inviting Tenders (NIT).

1.2 The successful Bidder shall complete the works within the completion date specified in the Notice Inviting Tenders (NIT).

2.0 Non-Association / Relation

2.1 All Bidders shall provide in the bid tender and Qualification Information, a statement that the Bidder is not associated, nor has been associated in the past, directly or indirectly, with the IIT(BHU) or any other entity that has prepared the design, specifications, and other documents for the Project.

3.0 Qualification of the Bidder

3.1 All Bidders shall provide tender qualification information.

3.2 All Bidders shall include the following information by submitting relevant documents and certificate with their tenders:

The Bidder must be registered with the GST Department and should submit the registration certificate of GST, ESI, PF, labour license etc.

4.0 Cost of tendering

4.1 The Bidder shall bear all costs associated with the preparation and submission of his tender, and the Owner will in no case be responsible and liable for those costs.

4.2 The Bidder, at its own responsibility and risk is encouraged to visit and examine the Site of Work and its surroundings and obtain all information that may be necessary for preparing the tender. The costs of visiting the Site shall be at the Bidder's own expense.

B: DOCUMENTS INVITING TENDERS

5.0 Invitation

5.1 Tenders are hereby invited on behalf of Indian Institute of Technology (BHU).

6.0 Contents of documents as mentioned in the relevant clauses mentioned.

The Bidder shall be deemed to have examined all instructions, forms, terms, and specifications in the Documents. Failure to furnish the information required in the Tender Document or submission of a Bid not substantially responsive to the Tender Documents in every respect will be at the Bidder's risk and may result in the rejection of the bid.

The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and Special Conditions in preference to General Conditions.

In case of any discrepancy between the Schedule of Quantities, the specifications and/ or the drawings, given in the tender document the following order of preference shall be observed:

Description of Schedule of Quantities.
Particular Specification and Special condition, if any.
Drawings. C. P. W. D. specifications/ IWD specification.
Latest edition Indian Standard Specifications of B. I. S.

7. Amendment of Tendering Documents

7.1 Before the deadline for submission of bids, the Indian Institute of Technology (BHU) may modify the Tender documents by issuing addenda/corrigendum.

7.2 Any addendum thus issued shall be part of the Tendering documents and shall be submitted on Tendering website www.eprocure.gov.in and Institute website www.iitbhu.ac.in.

7.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Publish s, the enlisted may extend if necessary, the deadline for submission of tenders.

C: PREPARATION OF DOCUMENT

8. Earnest Money Deposit (EMD)

EMD amounting to **Rs. 62,000.00** in the form of a bankers cheque or demand draft/F.D.R in favour Registrar, IIT(BHU) payable at Varanasi must accompany each bid. **Bids not accompanying with EMD and unconditional acceptance letter will be summarily rejected**.

The EMD of the unsuccessful Bidders will be discharged / returned within Thirty (30) days from the date of opening of the bids. The EMD of the successful Bidder shall be converted as Security deposit.

The EMD may be forfeited: if the Bidder withdraws his bid during the validity period of the bis; or in case of a successful Bidder, if the Bidder fails to sign the contract or furnish performance security.

Revised Provision as per Para 5.1.2 of latest updated CPWD Works Manual 2024 (5.1.2 Rates of Earnest Money):

(1) For works estimated to cost upto Rs ten crore or as notified from time to time: 2% (Two percent) of the estimated cost.

(2) For works estimated to cost more than upto Rs ten crore or as notified from time to time: Rs. Twenty lacs plus 1% (one percent) of the estimated cost put to tender in excess of Rs. : ten crore.

9.0 Period of validity of bid

The bids shall remain valid for a period of 180 days after the date of opening of bid. A bid valid for a shorter period, shall be rejected by the Indian Institute of Technology (BHU) as non-responsive and the EMD paid along with it will be forfeited.

10. Language of Bid

10.1 The document shall be written in English language. The total amount should be written in the same language.

11.0 Document comprising the E-Tender

11.1 No page of this tenders document shall be removed and the set must be submitted as it is. Each page of the tenders document form is to be signed by the Bidder and must bear the Seal of the Company/Firm.

The tender submitted by the Bidder shall comprise as mentioned above in relevant sections:

12.0 Tender Prices

12.1 The contract shall be for the whole works as described in Sub-Clause 1.1 based on the priced Schedule of Quantities submitted by the Bidder.

12.2 The tender submitted on behalf of Company shall be signed by a person who has the proper legal authority on behalf of the Company to enter into the contract; otherwise, the bid is liable to be rejected. Each page of the tender document and each drawing accompanying is required to be signed by the authorized person submitting the bid, with the company seal as the token of their having examined and acquainted themselves with the General conditions of contract, drawings, specifications, special conditions of contract etc. The forms of tender are to be filled in completely. Any bid with any of the documents not signed is liable to be rejected.

12.3 The notation R.O. written against items of BOQ means 'rate only" and the bidder is to quote only unit rate in such cases.

12.4 The Bidder shall fill in the percentage rate/in rates for items of the Works described in the Schedule of Quantities along with total bidding price. **In case if the rates are not filled for any of the Items of Schedule of Quantities, in such cases the tender shall be summarily rejected**. Failure to comply with either of these conditions will make the bid liable for rejection.

12.5 The work shall be carried out by the Bidder in a manner complying in all respect with the requirement of relevant bye-laws/orders of the Local/Municipal bodies and pay all fees and charges which may be leviable at his own cost. The completion/ occupancy certificates including clearance from fire committee or any other statutory obligation shall be arranged by the bidder. Any official fees shall be paid by the Owner. All other cost of liasoning shall be borne by the bidder.

12.6 All duties, taxes, and other levies payable by the Bidder under the contract, or for any other cause, shall be included in the rates, prices and total Bidding Price submitted by the Bidder. Bidders must include in their rates, the cost of transportation of materials to site, **GST**, Cess as per Building & other construction workers cess act, excise duty, octroi, and any other tax and duty levied by the Central / State Government. None of the above taxes & levies will be entertained by the Owner and no tax exemption forms will be issued by the Owner. Bidder should also take a Group Insurance Policy for his Workmen, Supervisors and Engineers working on site for an adequate insurance cover. BHU shall not be responsible for any accident or happening of any untoward/unforeseen event involving workmen, labour, supervisor or engineer or any person directly or indirectly associated with the execution of work. The insurance policy to be obtained by the successful Bidder must be comprehensive and shall cover all associated risks (known and unknown).

NOTE: ALL RATES QUOTED BY THE BIDDER ARE INCLUSIVE OF ALL TAXES LIKE GST CESS AS PER BUILDING & OTHER CONSTRUCTION WORKERS CESS ACT.

OR ANY STATUTORY TAX APPLICABLE AS PER STATE GOVERNMENT.

12.7 The rates quoted in the tender shall include cost of electrical power supply, water supply, cost of all materials, labour, telephone rent and call charges, water and meter rent charges, electric charges, temporary electric wiring / lighting for execution of work at site, hire for any tools and plants, shed for materials, marking out and clearing of site, transportation complete in all respects. The rates quoted in the tender shall be treated as rated for finally completing the item of work.

12.8 The quantities furnished in the schedule of quantities are only probable quantities and are liable to alterations, by omission, deductions or additions to any extent at the discretion of Indian Institute of Technology (BHU). Payments will be regulated on the actual quantities of work done at accepted rates. Any item of work may be omitted from the schedule of quantities and may be awarded to another agency at any time / stage of the work.

12.9 Errors in the Schedule of Quantities shall be dealt with in the following manner:

i In the event of a discrepancy between the rates quoted in words and the rates in figures, rate quoted in words shall be considered to be correct.

ii In the event of an error occurring on account of arithmetical calculations the same shall be corrected according to rates written in words and quantities in B.O.Q.

iii All the errors in totaling in the amount column and in carrying forward the totals shall be corrected. The tender total shall be accordingly amended.

12.10 The calculations made by the bidder should be based upon quantities of the items of work which are furnished in the Schedule of Quantities, but it must be clearly understood that the contract is not a lump sum contract. The Owners do not in any way assure, represent or guarantee that the said probable quantities are correct or that the work would correspond thereto. The items of work irrespective of the quantities which may vary shall be carried out at the same accepted bidding e-tender rates and no escalation in the rates will be entertained whatsoever. Any item of work may be omitted from the schedule of quantities and may be awarded to another agency at any time / stage of the work.

12.11 The bidders must obtain for themselves on their own responsibility and their own expenses all the information which may be necessary, including risks, contingencies and other circumstances to enable them in making a proper bid and for entering into a contract, and must examine the drawings, specifications and conditions and inspect the site of the work, nature of the work, availability of power, water, shelter for workmen and all the matters pertaining thereto before submitting the bid. They can also get any clarifications required from the Owner, before tendering, by contacting them at their office during working hours.

13.0 Format and signing of Tender document

13.1 The bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. All pages of the tender where entries or amendments have been made shall be initialed by the person or persons signing the tender.

13.2 The tender shall contain no alterations or additions, except those to comply with instructions issued by the Owner, or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the bid. **ANY CONDITIONAL BID WILL BE SUMMARILY REJECTED**.

D: MODE OF SUBMISSION OF BID DOCUMENT

14.0 Sealing and marking of bids.

14.1 All the document to be put in cover-1 should be scanned and uploaded under cover-1 on the e-tendering website.

14.2 All the envelopes/covers needed to be properly sealed by the bidder and shall indicate the name and address of the bidder.

14.3 If the envelopes/covers are not sealed and marked as above, the Owner will assume no responsibility for the misplacement of the bid document.

14.4 Financial/price bid is to be uploaded online only & no hard copy to be submitted.

15.0 Deadline for submission of bid:-

15.1 Any bid will not be received by the Indian Institute of Technology (BHU) after the deadline of submission of bids.

E: TENDER OPENING AND EVALUATION

16. Tender opening

The Owner along with Architect will open all the tenders received, on the date and the place specified in the NIT. In case of any unavoidable circumstances or unforeseen event on the specified date and time of tender opening, the bids will be opened at the appointed time and location on the next working day.

17. Clarification of Tenders

17.1 To assist in the examination, evaluation, and comparison of bids, the Owner/Architect may, at his discretion, ask any Bidder for clarification of his bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by fax, but no change in the price or substance of the tendering shall be sought, offered, or permitted.

18. Examination of Bids and Determination of Responsiveness

18.1 Prior to the detailed evaluation of bids, the Owner will determine whether each bid (a) meets the eligibility criteria defined (b) has been properly signed and meets the requirements mentioned (c) is accompanied by the required securities and; (d) is responsive to the requirements of the tendering documents.

18.2 A responsive bid is one which conforms to all the terms, conditions, and specifications of the tendering documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the tender documents, the Indian Institute of Technology(BHU) rights or the Bidders' obligations under the contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting responsive bids.

18.3 If a bid is not responsive, it will be rejected by the Indian Institute of Technology (BHU), and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

19. Correction of Errors

19.1 Bid determined to be substantially responsive will be checked by the Owner for any arithmetic errors. Errors will be corrected by Owner as follows:

Where there is a discrepancy between the rates in figures and in words, the rate in words will govern, and where there is a discrepancy between the unit rate and the item total resulting from multiplying, the unit rate as quoted will govern.

19.2 The amount stated in the tender will be adjusted by the owner in accordance with the above procedure for the correction of errors and shall be considered as Binding upon the Bidder. If the Bidder does not accept the corrected amount the tender will be rejected, and the EMD will be forfeited.

20. Evaluation and Comparison of Bids

20.1 The Owner along with Architect will evaluate and compare only the bids determined to be substantially responsive.

20.2 In evaluating the bids, the Owner along with Architect will determine for each bid the evaluated bids Price by adjusting the bid Price as follows:

a) Making any correction for errors; or

b) Making an appropriate adjustment for any other acceptable variations, deviations; and

c) Making appropriate adjustments to reflect discounts offered.

21. The Owner reserves the right to accept or reject any variation, deviation, or alternative offer and other factors which are in excess of the requirement of the tender.

F: AWARD OF TENDER

22. Award criteria

22.1 The acceptance of bid will rest with the Owner, which does not bind itself to accept the lowest bid and reserves to itself the authority to reject completely / partially, any or all of the bid/s received without the assignment of a reason.

22.2 The owner with recommendation from the Architect reserves to itself 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.

22.3 The Owner reserves to itself the right of omission of any item of work from the awarded tender at any time / stage during the execution of work and award the same to another agency / bidder.

23. Notification of award

The successful Bidder will be issued a Letter of Intent (LOI) by the Owner after recommendation from the Architect. The issuance of LOI shall not constitute an award of work.

24.0 Performance security

24.1 Within seven (7) days of the receipt of notification of award of work the successful Bidder shall furnish the performance security @ 5% of value of work in the form of Performance Bank Guarantee Format provided in the tender document. The Performance security shall be returned/refunded to the bidder on completion of the work and recording of the completion certificate.

25. Signing of contract form

25.1 On the acceptance of LOI and Performance Bank Guarantee of the successful Bidder that his tender has been accepted in writing, the Indian Institute of Technology (BHU) will send the Bidder the contract form provided in the document duly signed and sent along with the bid incorporating all agreements between the parties.

G: DURING EXECUTION

26. During Execution

The Bidder shall carry out all the works strictly in accordance with the drawing, details and instructions of the Owner/Architect. If in the opinion of the Owner, changes have to be made in the design, and they desire the bidder to carry out the same, the Bidder shall be bound to comply. The Owner/Architect's decisions in such cases shall be final.

The Bidder is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the schedule of quantities and rates. Schedule of instructions in respect of such additional items and their quantities with the prior consent from the Owner. Rates for such items of work will be recommended by the Owner with recommendation from the Architect for approval by the Owner on the basis of Analysis of Rates which will be derived from **actual prevailing market rates of similar item along with 15% as bidder's profit & overhead**. The rates approved by the Owner in such cases will be final.

The Owner may at any time / stage of execution demand for the Analysis of Rates for any item / items of work which in their opinion is / are abnormally high / low rates or required for the Analysis of Rates of other bid/ extra item / items. The Bidder is bound to present the same and if the Bidder is unable to present a justified Analysis of Rates for any item / items, the rate / rates for such item may be adjusted accordingly and the decision of the Owner in such cases shall be final.

The Bidder shall get the quality of work done inspected for material and workmanship at different stages of execution as per instructions given by the Owner or their representative time to time. Any item of work done which is found not conforming to the Contract shall be rejected by the Owner. The decision of the Owner in such cases shall be final.

The Owner may instruct at any stage of execution for testing of samples of any material taken at random. The Owner will decide the testing laboratory / agency and the cost of testing including the expenses for sending the samples to the laboratory / agency and receipt of test reports shall be borne by the Bidder. The material shall be rejected in case the test reports are not within the permissible limits.

The Bidder shall have to present the invoice for purchased material from the manufacturer or from the dealer along with the certificate from the manufacturer. In case material is found to be of sub-standard quality, the same shall be rejected by the Owner. The decision of the Owner in such cases shall be final.

The Bidder shall not be entitled to any compensation for the Loss suffered by him on account of delays in commencing or executing the work whatever the cause of delay may be, including delays arising out of modifications to the work entrusted to him or in any subcontracts connected therewith or delays in awarding contracts for other trades of the project or in commencement or completion of such other works or in procuring Government controlled or other building materials for any other reasons whatsoever. The Owner/Architect shall not be liable for any sum besides the e-tender amount, subject to such variations as are provided for herein and as instructed by Owner. However, necessary time extension will be given if the delays are not attributed to the Bidder.

III. ARTICLES OF AGREEMENT

Articles of Agreement shall be as per Indian Institute of Technology (BHU), Varanasi.

FORM 'A'
FINANCIAL INFORMATION

1. Financial analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last three years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax AUTHORITIES

YEARS			
(i) Gross Annual Turnover on construction works			
(ii) Profit/Loss			

2. Financial arrangements for carrying out the proposed work.

3. The following certificates are enclosed:

(a) Audited Balance sheet.

(b) Solvency certificate from Bankers of Applicant

Signature with Seal & Date

FORM 'B'

PROFORMA FOR LIST OF ELECTRICAL WORKS EXECUTED BY THE BIDDER DURING THE LAST 7 YEARS AND ABOVE

Sl. No	Name of work/ project with address	Name & postal address of the owner & contact person	Contract Value	Date of Start	Date of Completion	Actual Date of Completion

Note: Bidder may furnish the above information in separate sheet if the space is not sufficient.

FORM 'C'

PROFORMA FOR LIST OF WORKS IN HAND

Sl. No	Name of work/ project with address	Name & postal address of the owner & contact person	Published Value	Date of Start	Stipulated date of completion	Present Progress

Note: Bidder may furnish the above information in separate sheet if the space is not sufficient.

FORM 'D'
DETAILS OF KEY PERSONNEL

Sl. No	Name & Designation	Qualification	Experience	Nature of Works Handled	Date from which employed in your organisation

Note: Bidder may furnish the above information in separate sheet if the space is not sufficient.

GENERAL CONDITIONS OF CONTRACT
A: GENERAL

1.0 Definitions

1.1 In this contract, the following terms shall be interpreted as indicated:

(a) "The Contract" means the agreement entered into between the Owner and the Bidder, as recorded in the contract form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein.

(b) "The Contract Value" means the amount payable to the Bidder under the contract for the full and proper performance of its contractual obligations.

(c) "Contract Data" means any information provided in the tender document and agreed to by the Bidder.

(d) "The Work" means all labour, materials, tools and plant, equipment including government taxes and transport, that may be required in preparation of and for and in the full and entire execution and completion of "the Work".

(e) "Services" means services ancillary to the execution of the work such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Bidder covered under the contract.

(f) "GCC" means the General Conditions of Contract contained in this section.

(g) "SCC" means the Special Conditions of Contract.

(h) "The Owner" means the Indian Institute of Technology (BHU), Varanasi.

(i) "The Owner" means the Owner/Project Management Consultant appointed by the Owner for preparing all the drawings, details and specifications of items required for the execution of the work and supervise and monitor the execution at site along with checking and verifying Bidder's bill.

The Bidder shall offer the Engineer or any representative of Owner every facility and assistance for examining the works and materials. The Engineer or any representative of the Owner shall have power to give notice to the Bidder or to his staff, of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the Owner. Such examinations shall not in any way exonerate the bidder from the obligations to remedy any defects which may be found to exist at any stage of the work or after the same is completed.

(j) "The Bidder" means the individual or the firm executing the work.

(k) "The Project Site" where applicable, means the place or places named in SCC.

(l) "Day" means calendar day.

2.0 Interpretation and Application

2.1 These general conditions shall apply to the extent that provisions in other parts of the contract do not supersede them.

2.2 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Owner will provide instructions clarifying queries about the Conditions of Contract.

2.3 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended completion date are for the whole of the Works.

3.0 Standards

3.1 The works executed by the Bidder should be carried out in most professional manner, both as regards material and otherwise, in every respect, in strict accordance with the Technical Specifications. All materials and workmanship shall so far as procurable be of the respective kinds

described in the priced schedule of quantities and/ or specifications and in accordance with the Owner' instructions, and the Bidder shall upon the request of the Owner, furnish them with all invoices, accounts; receipts and other vouchers to prove that the material procured complies therewith. When no applicable standard is mentioned, the work shall be carried out as per the directions of the Owner. The Bidder shall at his own cost arrange for and/or carry out any test of materials which the Owner may require. In case of discrepancies in tender wording as regards the specifications of materials workmanship etc., written instructions will supersede the tender wording unless otherwise mentioned.

3.2 The Owner/Owner in their absolute discretion from time to time shall issue further drawings and/ or written instructions, details, directions and explanations which are hereafter collectively referred to as "the Owner's instructions" in regard to: -

a. The variation or modification of the design quality or quantity of works or the addition or omission or submission on any work.

b. Any discrepancy in the drawings or between the schedule of quantities and / or drawings and /or specifications/ dimensions etc.

c. The removal and / or re-execution of any works executed by the Bidder.

d. The removal from the site of any materials brought thereon by the Bidder and the substitution of any other materials therefore / or rejection of the material brought on site.

4.0 Use of Contract Documents and Information

4.1 The Bidder shall not, without the Owners' prior written consent, disclose the contract or any provision thereof, or any specifications, plan, drawing, pattern, sample or information furnished by or on behalf of the Owner in connection therewith, to any person other than a person employed by the Bidder in performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance.

4.2 The Bidder shall not, without the Owner's prior written consent make use of any document or information enumerated in Para 4.1 except for the purposes of performing the contract.

4.3 All documents included but not limited to contract agreement shall remain the property of the Owner and shall be returned (in all copies) to the Owner on completion of the Bidder's performance under the contract, if so, required by the Owner.

5.0 Owner's Decisions

5.1 Except where otherwise specifically stated, the Owner will decide contractual matters between the Owner and the Bidder, in the role of representing the Owner.

6.0 Performance Security

6.1 Within 7 days after the Bidder's receipt of notification of award of the contract, the Bidder shall furnish performance security in the form of a bank guarantee to the Owner, of the amount specified in the Special Conditions of Contract.

6.2 The proceeds of the performance security shall be payable to the Owner as compensation for any loss or dues resulting from the Bidder's failure to complete its obligations under the contract.

6.3 The performance security shall be in one of following forms:

a) A Bank Guarantee form provided in tender documents issued by a Nationalized/ Scheduled bank to the Owner.

b) The performance security shall be discharged by the Owner and returned to the Bidder on completion of the work and recording of the completion certificate.

7.0 Programme and Reporting

7.1 The bidder shall furnish to the Indian Institute of Technology (BHU) a bar chart laying down weekly financial and physical targets to complete the project within stipulated time for approval within fifteen days from the date of receipt of notification of award. Weekly progress report shall

be furnished to the SUPERINTENDING ENGINEER, Indian Institute of Technology (BHU) showing the progress.

7.2 The bidder must submit every week the following information to the Owner in writing:

i. Number of men employed; trade wise;

ii. Progress achieved;

iii. Expected dates for completion of work;

iv. Any actual or potential delay in completion schedule.

8.0 Assignment and Sub-contracting

8.1 The whole of the works included in the Contract shall be executed by the bidder and the bidder shall not directly or indirectly transfer, assign or underlet the contract or any part, share or interest therein without the written consent of the Owner.

8.2 No sub-contracting shall relieve the Bidder from the full and entire responsibility of the Contract or from the active superintendence of the work during their progress.

9.0 Bidder to provide everything necessary for proper execution of work

9.1 The Bidder shall provide everything necessary for the proper execution of the works according to the intent and meaning of the drawings, priced schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from. If the Bidder finds any discrepancy therein, he shall immediately and in writing refer the same to the Owner whose decision shall be final and binding. Further, if any sample(s) of material(s), fittings, fixtures or finished item(s), to be used in the construction work, has/have been called for from the bidder, no work related to it/these shall be executed unless the same has/ have been approved by the Owner failing which no payment shall be made to the bidder on this account. Any sample, duly approved by the Owner shall become part of the supply to be used in "the works".

9.2 The Bidder shall arrange for water & power supply at site at his cost for the entire work. The water to be used for construction shall be free from excessive salts and minerals that are harmful to the construction work. Making arrangement of water good for construction either through external supply or through treatment at site shall be entirely the responsibility of the Bidder. The Bidder shall on demand of the Owner / Owner get any random water samples tested at the approved testing laboratories. No extra payment shall be made for arranging water good for construction under any circumstances. No excuse for / of Municipal water / electric supply shall be entertained. The bidder shall ensure provision of electricity by generator and water by tanker transport if necessary. No claim shall be entertained on this account. In case the same will be provided by the Owner at any stage, then water/electricity charges shall be deducted from the Bidders running bills as per actual metered consumption.

9.3 The Bidder shall supply fix and maintain at his cost, during the execution of any works, all the necessary power supply, water supply, centering, scaffolding, watching and lighting by night as well as by day, required not only for the proper execution but also for protection of the public and the safety of any adjacent roads, streets, pavements, walls houses, building and other erections, matters or things. The Bidder shall take down and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring pumping, fencing, hoarding, watching and lighting by night as well as by day, required not only for the proper execution but also for protection of the public and the safety of any adjacent roads, streets, pavements, walls houses, building and other erections matters or things. The bidder shall take down and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring etc. as occasion shall require or when ordered so to do so and shall fully reinstate and make good all matters and things disturbed during the execution of the works, to the satisfaction of the Owner.

9.4 Throughout the execution of the work, the Bidder or his representative duly authorized and fully responsible and technically conversant with the work under this agreement, acting on his behalf shall be available at the site for supervising the work. The Bidder shall make adequate arrangements for watchmen to guard the materials brought by them to the site and shall ensure the safety, breakage and any theft of materials fixed or unfixed by him. Any material, T & P brought to the site for bonafide use of the Project shall not be removed/ shifted from the site without the prior written permission of the Engineer/Owner.

9.5 The bidder has to provide at his cost leveling pipe, steel/ metallic tapes etc. required by the supervising staff of the Owner's/Owner' representative during execution of the work.

9.6 Whenever required by the Owner the Bidder shall provide shop drawings / details before execution of work and get them approved by the Owner.

9.7 Wherever the specifications of any item indicate the usage of approved equivalent of any material, the Bidder shall get the sample of the equivalent material approved from the Owner before execution. The approval of the equivalent material is entirely at the discretion of the Owner.

10.0 Infrastructure:

10.1 For storage of materials, bidder has to provide at his own cost sufficient fenced and covered appropriate area on site for storage of above materials with lock and key arrangement. For arranging meetings suitable sized table and chairs shall be provided by Bidder. Temporary space shall be provided to the Bidder for construction of stores for storage of materials /site office/ labour hutments for the project period.

11.0 Site Establishment

The bidder shall provide all stores, workmen and materials. All materials likely to deteriorate in the open shall be stored under suitable cover.

The security of the bidder's equipment and materials is his own responsibility. The Owner accepts no liability for loss or damage to the bidder's plant tools or materials.

The materials issued to the bidder by the Owner will remain under the custody of bidder as a trustee. However, title on the same will remain with the Owner. The bidder will be responsible for loss or damage to such materials and shall preserve them in good working conditions as required for the contract and good construction practices till such time that they are incorporated in the works and erected, aligned and fully installed in position and handed over to the Owner. In case the Owner feels that arrangements made by the bidder are not adequate he shall so advice the bidder and the bidder shall promptly take corrective action. In case the bidder fails to take corrective action, Owner shall take such corrective actions and recover the cost thereof from the bidder's bills. Accounts of such material on completion of work shall be rendered and surplus material returned to the Owner as per instructions of Owner.

The bidder shall clear away periodically or as instructed by Owner any rubbish, scrap materials, etc. and dump the same in the authorized dump sites notified by local authority/area indicated by the Owner. All construction materials shall be neatly stacked in an orderly manner as directed by the Owner and care shall be taken to allow proper access to workmen and easy movement of men, vehicles, cranes and materials.

The bidder shall maintain all the drawings carefully mounted on the board of appropriate size and well protected from the ravages of weather, termites and other insects.

The bidder shall not permit the entry to the site of any person not directly connected/concerned with the work without first having obtained the written permission of Owner.

The bidder shall submit a list of plants, equipments, tools, tackles, etc. which he will use, to perform the work. These tools, etc. shall not be removed from the site till the completion of job. A gate pass

must be obtained from the Indian Institute of Technology (BHU), chief proctor office, in order to remove from site any plant equipment, tools and materials.

All items such as instructions and other pertinent data regarding erection/commissioning and maintenance should be typed and classified for transmittal in a manner approved by the Owner.

For all employees of Owner, the bidder shall conform for no misconduct from any of his workforce, failure of this will be sufficient cause for removal of such person from the site.

12.0 Messing & Accommodation

12.1 The bidder will make his own arrangements for messing and accommodation. No accommodation and messing shall be provided by the Owner.

13.0 Procurement, Consumption and Storage of Materials

13.1 The bidder shall at his own expenses, provide all materials including cement & steel required for the works. Adequate stocks of all materials required for the work are to be maintained at site. No material (unless as provided elsewhere in this document) shall be supplied by the Owner.

13.2 All materials to be provided by the bidder shall be in conformity with the detailed specifications laid down in the contract and the bidder have to prove that the materials conform to the laid down specifications, if requested by the Indian Institute of Technology (BHU).

13.3 All materials required for execution of work must be got approved by the site representative of the Owner before they are actually put to use. All facilities for prior inspection of materials and subsequent inspection of work by the Site Engineer must be made available.

13.4 The bidder shall, at his own expenses and without delay, supply to the Owner samples of materials proposed to be used in the work. The Owner shall within seven days of supply of samples, or within such further period as Owner may require and intimate the bidder in writing, whether samples are approved by Owner, or not. If samples are not approved, the bidder shall forthwith arrange to supply, for their approval, fresh samples complying with the specification laid down in the contract.

13.5 The Owner shall have full powers to require removal of any or all the materials brought to site by the bidder which are not in accordance with the contract specifications or do not conform in character or quality to the samples approved Owner. In case of default on the part of the bidder in removing rejected materials, the Owner shall be at liberty to have them removed by other means. The Owner shall have full powers to direct other proper materials to be substituted for rejected materials and in the event of the bidder refusing to comply. Owner may cause the same to be supplied by other means. All risks and costs which may attend upon such removal and/or substitution shall be borne by the bidder.

13.6 Bidder shall be responsible for procurement of all materials/equipments etc. No delay due to non-availability of any material equipment will be entertained by Owner.

14.0 Method of storing the materials

14.1 The bidder shall at his own cost, provide for all necessary storage on the site in specified areas for all materials such as steel, cement and such other materials which are likely to deteriorate by the action of sun, wind, rain, dampness or other natural causes due to exposure in the compounds or in stores in such a manner that all materials, tool etc. shall be duly protected form damage by weather or any other cause.

14.2 Materials required for the works, by the bidder be stored by the bidder only at places approved by the Owner. Storage and safe custody of materials shall be the responsibility of the bidder.

All the materials including bidder's Tools & Plants brought by the bidder to the site shall become and remain the property of the Owner and shall not be removed off the site without prior written approval of the Owner/Owner. But whenever the works are finally completed and advances, if any,

in respect of such materials are fully recovered, the bidder shall at his own expenses forthwith remove from the site all surplus materials supplied by him and upon such removal, the same shall revert in and become the property of the bidder.

15.0 Shuttering and Scaffolding Materials

15.1 It shall be desirable to have adequate amount of shuttering and scaffolding materials to complete the work speedily and Owner decision so as to the quantum of these desirable/ resources of the site shall be final and binding.

16.0 Completion of Work

16.1 Before finally leaving site, all the Bidders stores, plant, tools and rubbish shall be removed and the site left clean and tidy. The space allocated by Owner shall be vacated and handed over to the Owner.

17.0 Water and Electricity for Construction work

17.1 Water & Electricity as per relevant section's mentioned above

18.0 Employment of Labour

18.1 The bidder shall comply with the requirement of statutory provisions and shall be solely responsible for fulfillment of all legal obligations under Contract Labour (R. & A) Act, Inter State Migrant Workmen (Registration of Employment and condition of Service Act, payment of Wages Act., Minimum Wages Act, Workmen's Compensation act, Factories Act, Employee's Provident Fund & Miscellaneous Provisions Act, Payment of Bonus Act, Payment of Gratuity Act, Industrial Disputes Act and all other Industrial/Labour enactments and Rules made there under as applicable from time to time. In case Owner incurs any liability towards payment of any dues, compensation, cost of any other liability of any kind whatsoever, due to non-fulfillment of statutory provisions under any industrial/labour laws by the bidder, the same shall be made good by the bidder and Owner shall have full right to recover and claim the same against the bidder form his outstanding bills or otherwise. No Labour to stay at site.

18.2 The bidder will be expected to employ on the work only his regular skilled employees with experience of this particular work. The permission of the Owner must be obtained before tradesman are recruited locally for the work. This rule does not apply to unskilled labour. No female labour shall be employed in dark hours/ i.e. hours prohibited under the applicable law. No person below the age of eighteen years shall be employed at any point of time. The bidder shall pay, to each person, the wages as per minimum Wages Act of the State Government.

18.3 All traveling expenses including provision of all necessary transport to and from site, lodging allowances and other payments to the bidder's employees are his own responsibility.

The hours of work on the site shall be decided by the Owner and bidder shall adhere to the same.

All bidders employees shall wear safety helmet and such identifications marks as may be provided by bidder on work site and duly approved by Owner.

All notices displayed on the site and any instructions issued by the Owner shall be strictly adhered to by the Bidder's and/or his sub-bidders employees.

The bidder shall be required to maintain employment records as covered in relevant Acts and produce documentary evidence to the effect that he has discharged his obligations under the Employees Provident Fund Act 1952, and ESI Act, 1948 Group Insurance and other Acts for the workmen working at site.

18.4 It is the sole responsibility of the Contractor to comply with the rules and regulations of the Labour and Employment Department and deposit of the due amount of concerned Labour cess to the Department. It is also the responsibility of the contractor to submit Labour License at the time of

the submission of final bill, if applicable. Also, provisions of the Child Labour (Prohibition and Regulation Act 1986) must be complied by all the contractor at all time.

19.0 Working and Safety Regulations

19.1 The bidder shall observe all statutory safety and legal requirements regulations issued by Central and State Governments applicable to the work as well as any local regulations applicable to the site issued by the Owner or any other authority.

20.0 Particular attention is drawn to the following:

In case of accident, the Owner shall be informed in writing forthwith and First-Aid, Hospitalisation shall be provided by the Bidder. The bidder shall strictly follow regulations laid down by Govt. and State authorities in this regard and all cases are to be defended by the bidder. The Owner shall not refund any insurance claims.

Bidder shall fence his plant, platforms, excavations etc.

Compliance with all electricity regulations.

Compliance with statutory requirements for inspection and test of all lifting appliances and auxiliary lifting gear.

Staircase, doors or gangways shall not be obstructed in any way that will interfere with means of access of escape.

Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosive, the bidder shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulation laid down in Petroleum Act 1934. Explosive Act 1948 and Petroleum and Carbide of Calcium Manual Published by the Chief Inspector of Explosive of India. All such storage shall have prior approvals of the Owner. In case any approval or clearance from Chief Inspector of Explosive or any statutory authorities is required, the bidder shall be responsible for obtaining the same.

The bidder shall have his own Fire Fighting Extinguishers and Equipment.

The bidder shall be responsible for the provision of all safety notices safety equipments including the safety gadgets for his workmen required by both the relevant legislation and such as the Owner may deem necessary.

While working at heights, safety belts and safety helmets shall necessarily be used.

21.0 Owner's and Bidder's Risks

The Owner carries the risks, which this Contract states are The Owner risks, and the Bidder carries the risk, which this Contract states are The Bidder's risks.

21.1 Owner's Risks- The Owner is responsible for the excepted risks which are (a) insofar as they directly affect the execution of the Works. These include war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection of military or usurped power, civil war, riot commotion or disorder (unless restricted to the Bidder's Employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Bidder's design.

21.2 Bidder's Risks- All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Bidder.

21.3 The Bidder shall be responsible for all injury to persons, animals or things, and for all damages to the structural and/or decorative part of property which may arise from the operations or neglect of himself or of any sub-bidder or of any of his or sub-bidder's employees whether such injury or damage arises from carelessness accident or any other causes whatsoever in any way connected with the carrying out to the Contract. This clause shall be held to include interalia any damage to buildings, whether immediately adjacent or otherwise and any damage to roads, footpaths, or ways as well as all damage caused to the buildings and the work forming the subject to this Contract by frost, rain or other inclemency of the weather. The Bidder shall indemnify the Owner and hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under

any acts of Government or otherwise and also in respect of an award of compensation or damages consequent upon such claim.

The bidder shall make good all damages of every sort mentioned in the Clause, as to deliver up the whole of the Contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

22.0 Insurance

22.1 The Bidder shall provide, in the joint names of the Owner and the Bidder, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contracted Data for the following events which are due to the Bidder's risks and shall be covered under respective policies as under:

(a) Workmen Compensation Policy;

(b) Bidder's All Risk Policy;

(c) Third Party Insurance.

22.2 Policies and certificates for insurance shall be delivered by the Bidder to the Owner for the Owner' approval before the Date of Start of work i.e. date of execution of the contract. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

22.3 If the Bidder does not provide any of the policies and certificates required, the Owner may affect the insurance which the Bidder should have provided and recover the premiums the Owner has paid from payments otherwise due to the Bidder or if no payment is due, the payment of the premiums shall be a debt due.

22.4 Alterations to the terms of the insurance shall not be made without the approval of the Owner or Owner.

22.5 Both parties shall comply with the conditions in the insurance policy.

23.0 Setting out Works

23.1 The bidder shall set out the works and responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof, if at any time any error shall appear during the progress of any part of works the bidder shall at his own expenses rectify such error, if called upon to the satisfaction of the Owner.

24.0 Bidder to remove all offensive matter, non-suitable material etc. immediately.

24.1 All debris, excavated soil, filth or other matter or an offensive nature taken out of any trench, sewer, drain cesspool or other place shall not be deposited on the surface but shall be at once carted away by the bidder out of the premises/ site under intimation to concerned authorities.

24.2 Any material brought on site if found unsuitable shall be removed from site at once by the Bidder under intimation to the concerned authorities.

25.0 Inspections by Owner

25.1 The representative of the Owner at all times have free access to the works and /or to the workshops, factories or other places where materials are being prepared or constructed for the Contract and also to any place where materials are lying or from which they are being obtained. No person except the representatives of Public authorities shall be allowed on the work at any time without the written permission of the Owner. If any work is to be done at a place other than the site of the works, the Bidder shall obtain written permission of the Owner for doing so.

25.2 The Owner and their representatives shall have the right to test and/ or inspect the works to confirm their conformity to the contract, at all times, whenever in progress either on the site on the Bidder's premises wherever situated or any firm or company where work in connection with this contract may be in hand. All records, registers or documents relating to the works including materials used on works shall be kept open to the inspection of the Owner or his Authorized representative when so called for in writing.

25.3 The Bidder shall get the quality of work done inspected for material and workmanship at different stages of execution as per instructions given by the Owner or their representative time to time. Any item of work done which is found not conforming to the Contract shall be rejected by the Owner. The decision of the Owner in such cases shall be final.

25.4 The inspections and tests may be conducted on the premises of the Bidder or at the Project site. When carried out on the premises of the Bidder or its sub-Bidder(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Owner.

25.5 Should any inspected items of work fail to conform to the specifications, the Owner shall communicate them and the Bidder shall either replace them or make all alterations necessary to meet specification requirements free of cost to the Owner.

25.6 The Bidder shall permit the Owner/Architect to inspect the Bidder's accounts and records relating to the performance of the Bidder and to have them audited by auditors appointed by the Owner, if so required.

26.0 Covering Up/Uncovering of Works

26.1 No part of the works shall be covered up without the approval of Owner/Architect and the Bidder shall afford full opportunity for examination and inspection by the Owner/Architect. The bidder shall give due notice to the Engineers of Institute about the work to be covered up for its measurements and examination. The Engineer shall within a reasonable time attend for the purpose of examining such work, unless the Engineer specifically advises the Bidder in writing of his unwillingness not to attend for such examination in which case the Bidder may proceed further with the Contract work.

26.2 Should the Owner consider it necessary in order to satisfy himself as to the quality of the work, the Bidder shall at any time during the continuance of the contract pull down or cut into any part of the work and make such opening into and to such an extent through the same, as the Engineer may direct and the Bidder shall make good the whole to the satisfaction of the Engineer, should the work prove to be faulty or in any respect not in accordance with the terms of the contract documents, the Engineer shall be at liberty to order such further removal as he may consider necessary and the whole of the expenses incurred shall be borne by the bidder. If, however, the work proves to be sound and in accordance with the contract document, the actual expenses incurred in such examination will be borne by the Owner.

26.3 Rates charged by the Bidder for works performed under the contract shall not vary from the rates quoted by the Bidder in its Publish, with the exception of any price adjustments authorized in SCC or in the Owner's request for Publish validity extension, as the case may be.

26.4 If requested by the Owner, the Bidder shall provide the Owner with a detailed cost breakdown of any rate in the Schedule of Quantities.

26.5 The Owner may at any time / stage of execution demand for the Analysis of Rates for any item / items of work which in their opinion is / are abnormally high / low rates or required for the Analysis of Rates of other Publish / extra item / items. The Bidder is bound to present the same and if the Bidder is unable to present a justified Analysis of Rates for any item / items, the rate /

rates for such item may be adjusted accordingly and the decision of the Owner in such cases shall be final.

27.0 Change in the order/ Extra items of work

27.1 The Owner may at any time, by written order given to the Bidder, make alterations in, omissions from, additions to, or substitutions for, in drawings, designs or specifications or quantities of the items of work

27.2 IIT(BHU) reserves to itself the right of omission of any item of work from the awarded Publish at any time / stage during the execution of work and award the same to another agency / bidder.

27.3 The Owner may at any time, by written order given to the Bidder, increase the scope of work or include any new item of work. The Bidder shall be bound to carry out such works, the rates for which shall be arrived at on the basis of the CPWD Schedule of Rates or if the Schedule is silent by standard methods of rate analysis as derived by the Owner/Architect.

27.4 If any such changes cause an increase or decrease in the cost of, or the time required for the Bidder's performance of any part of the work under the contract, whether changed or not changed by the order, an equitable adjustment shall be made in the contract value or work schedule, or both, and the contract shall accordingly be amended. Any claims by the Bidder for adjustment under this clause must be asserted within seven (7) days from the date of the Bidder's receipt of the Owner's change order. Escalation shall be payable as per Clause 10 CC of CPWD Works Manual.

28.0 Payment

28.1 The method and conditions of payment to be made to the Bidder under the contract shall be specified in SCC.

28.2 Payment shall be made promptly by the Owner within fifteen (15) days of certification of the bill by the Owner A retention amount of 10% of Gross value of each running bill shall be deducted from each running payment as Security Deposit subject to maximum of 5% of the total contract value.

28.3 All intermediate running payments to the bidder shall be regarded as payments by way of advance against the final payment and shall not preclude the requiring of bad, unsound and imperfect or unskillful work to the removed, taken away and reconstructed or re-erected.

29.0 Variations and Provisional Cost:

29.1 Where work cannot be measured and valued properly, the Bidder shall be allowed day work rates on the prices prevailing when such work is carried out (unless otherwise provided in the contract):

a. At the rates if any inserted by the Bidder in the priced Schedule of Quantities or

b. If no such rates have been inserted then at the rates prevailing in the market for material and labour and at the control rates for the controlled materials including in all cases the rate for delivery of the material at the work.

29.2 Provided that in any case voucher specifying the time daily spent upon the work (and if required by the Owner the workman's names) and the materials used shall be delivered for verification to the Owner, or his authorised representative not later than the end of the week following that in which the work has been executed. Effect shall be given to the measurement and valuation of variations in interim Certificates and by adjustment of the total Contract Value.

30.0 Material Advances on Unfixed Material

75 percent of the assessed rate of materials at 90% of the assessed quantity of material brought to site for incorporation except for perishable materials like glass and chinaware. This advance shall be adjusted in the subsequent running bill.

31.0 Claims for Extra or for Deductions

31.1 The Owner shall not be responsible for the payment of any claim for extra work not included in the contract nor the Bidder shall be entitled to claim any addition to the contract sum in respect of any changes or alterations in the materials used unless the same shall have been ordered or sanctioned, as the case may be, in writing by the Owner.

31.2 The Bidder has to submit a monthly return by 10th of the ensuing month for any extra work which in his opinion is not covered by the contract agreement through the Owner's/ Owner's representatives and obtain a receipt from the authorized signatory of the Owner. Failing this, he shall have no right to any such claim, whatsoever may be the circumstances, later on.

31.3 In the event of any dispute arising either as to validity of the claim or as to the account to be paid or allowed in respect thereof, the decision of the Owner shall be final and binding on the bidder. In the meantime, the Bidder may either proceed with the work in question or suspend the same as may be determined by the Owner.

31.4 All extra works (those permitted by Owner) of every description shall be executed by bidder on site of work in pursuance of any of the provision of the contract, shall be measured up, and shall be paid according to actual quantities ascertained by such measurements and the prices as finalized by the Owner based on the priced schedule of quantities so that such priced schedule of quantities shall include all such operations and accessories as appear in the said schedule of prices or specification to be or shall in the opinion of the Owner the contingencies upon the works mentioned in such schedule of prices or required to make such works perfect and fit for use.

31.5 Provided also that if any work shall be ordered by the Owner and executed by the Bidder for the payment of which no provision in the opinion of the Owner have been made in the priced schedule of quantities or the specifications, the Owner shall fix and determine such prices for the same based on the prices appearing in the priced schedule of quantities, such allowance being made as may seem to the Owner sufficient for any difference in the character of conditions of the work. However, rates for extra items shall be fixed on the basis of actual rate analysis.

31.6 The Owner may at any time / stage of execution demand for the analysis of rates for any item / items of work which in their opinion is / are with abnormally high / low rates or required for the analysis of rates of other Publish / extra item / items. The Bidder is bound to present the same and if the Bidder is unable to present a justified analysis of rates for any item / items, the rate / rates for such item may be adjusted accordingly and the decision of the Owner in such cases shall be final and binding.

Removal of Imperfect Work.

31.7 If, it shall appear that the work has been executed with unsound, imperfect or unskilled workmanship, or with material of any imperfect or any inferior quantity or otherwise not in accordance with the contract documents the Bidder shall at his own cost rectify, reform, remove, or reconstruct the same, wither in the whole or in part, as may be directed by the Institute Engineer, whether or not the value of any such work or materials shall have been included in any payment made to the Bidder.

31.8 The Bidder shall remove all malba etc., wash and clean the floors and hand over the site quite clean on the completion of the work.

32.0 Delay in the Bidder's performance

33.1 Execution of the work and performance of the services shall be done by the Bidder in accordance with the time schedule specified by the Owner in the Notice for Invitation of Publish s.

33.2 If, at any time during performance of the contract, the Bidder should encounter conditions impending timely execution of the works and performance of services, the Bidder shall promptly notify the Owner in writing of the fact of the delay, its likely duration and its cause(s). As soon as possible, after receipt of the Bidder's notice, the Owner shall evaluate the situation and may,

entirely at its discretion, extend the Bidder's time for performance with or without liquidated damages.

34.0 Liquidated Damages.

If the Bidder fails to execute any or all of the works or to perform the services within the period(s) specified in the contract, the Owner shall deduct from the contract value, as liquidated damages, a sum specified in the SCC for each week or part thereof delay until actual completion or performance, up to a maximum deduction of the percentage specified in SCC. Once the maximum is reached, the Owner may consider termination of the contract. The prorata progress envisaged and expected from the bidder shall maintained, time being the essence of the contract.

35.0 Termination by Default

35.1 The Owner may without prejudice to any other right or remedy, by written notice (of fifteen days) of default sent to the Bidder, terminate the contract in whole or part:

a) if the Bidder fails to complete any or all of the works within the period(s) specified in the NIT or any amendment thereof, or within any extension thereof granted by the Owner,

or

b) if the Bidder fails to perform any other obligation(s) under the contract,

35.2 In the event, the Owner terminates the contract in whole or in part, the Owner may procure, upon such terms and in such manner as it deems appropriate, works or services similar to those unexecuted and the Bidder shall be liable to the Owner for any excess costs for such similar work or services. However, the Bidder shall continue the performance of the contract to the extent not terminated.

36.0 Force Majeure

36.1 The Bidder shall not be liable for forfeiture of its performance security, liquidated damages or termination by default, if and to the extent that, its delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.

36.2 For purposes of this clause, "Force Majeure" means an unforeseeable event beyond the control of the Bidder and is not because of the Bidder's fault or negligence. Such events may include acts of the Owner either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics.

36.3 If a Force Majeure situation arises, the Bidder shall promptly notify the Owner in writing of such conditions and the cause thereof. Unless otherwise directed by the Owner in writing, the Bidder shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

37.0 Termination for Insolvency

37.1 The Owner may at any time terminate the contract by giving written notice to the Bidder, if the Bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Bidder, provided such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Owner.

38.0 Termination for Convenience

The Owner, by written 30 days prior notice sent to the Bidder, may terminate the contract, in whole or in part, at any time for its convenience. The notice shall specify that the termination is for Owner's convenience, the extent to which performance of the Bidder under the contract is terminated, and the date upon which such termination becomes effective.

The items of work that are complete and ready within (1) month after the Bidder's receipt of notice of termination shall be accepted by the Owner at the contract terms and values. For the remaining works, the Owner may elect;

a) to have any portion completed at the contract terms and value and/or

b) to cancel the remainder and pay to the Bidder an amount, finalized by the Owner, for partially competed works and for materials and parts previously procured by the Bidder.

39.0 Resolution of Disputes

39.1 The Owner and the Bidder shall make every effort to resolve amicably by direct informal negotiations any disagreement or dispute arising between them under or in connection with the contract.

If, after thirty (30) days from the commencement of such informal negotiations, the Owner and the Bidder have been unable to resolve amicably a contract dispute, either party may require that the dispute be referred for resolutions to the formal mechanisms specified in the SCC. These mechanisms may include but are not limited to, Arbitration in accordance with rules of Arbitration Act and award made in pursuance thereof shall be binding on both the parties.

39.2 All disputes should be under the Jurisdiction of civil court Varanasi.

40.0 Governing language

40.1 The contract shall be written in English language. All correspondence and other documents pertaining to the contract that are exchanged by the parties shall be written in the same language.

41.0 Governing law

41.1 The contract shall be governed by the laws of The Union of India for the time being in force. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in New Delhi and only the courts in New Delhi alone shall have exclusive jurisdiction to determine the same.

42.0 Notices

42.1 Any notice given by one party to the other pursuant to this contract shall be sent to other party in writing or by cable, telex, or facsimile and confirmed in writing to the other party's address specified in SCC.

A notice shall be effective on the date on which it is delivered, or on the notice's effective date, whichever is later.

43.0 Discoveries

43.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Owner. The Bidder is to notify the Owner of such discoveries and carry out the Owner' instructions for dealing with them.

44.0 Dismissal of workmen:

44.1 The bidder on request from the Owner, immediately dismiss from the works any person employed by him who may be found in the opinion of the client to be unsuitable or incompetent or who has shown misconduct.

45.0 Working Hours:

45.1 Normal working hours shall be from 9.00 a.m. to 6.00 p.m. No construction work of important structural nature shall be carried out on Sundays, Holidays and during nights. However, permission to work beyond normal working hours can be granted by the Owner/ Owner in exceptional circumstances to achieve the target schedule of completion.

B. TIME CONTROL

46.0 Programme

46.1 Within the time stated in the Contract Data the Bidder shall submit to the Owner for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the works, along with weekly cash flow forecast.

An update of the Program shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

The Bidder shall submit to the Owner, for approval, an updated Program at intervals no longer than the period as stated in the clause no. 7.1. If the Bidder does not submit an updated Program within this period, the Owner may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted.

The Owner's/Owner's approval of the Program shall not alter the Bidder's obligations. The Bidder may revise the Program and submit it to the Owner again at any time. A revised Program is to show the effect of Variations.

At any stage of work, Owner award any item/part of item of work to bidder's workman/ external agency, if in their opinion, the progress of work is suffering because of that. The work done will be added to the Bidder's bill and the amount paid for the job will be deducted from the Bidder's account.

47.0 Delay and Extension of time

If in the opinion of the Owner the work be delayed (a) by force majeure or (b) by reason of any exceptionally inclement weather or (c) by reason of proceedings taken or threatened by or disputes with adjoining or neighboring owners or public authorities or (d) by delays of other bidder or Tradesmen engaged by the Owner or the Owner and the works not referred to in the Schedule of Quantities and/or specification or (e) by reasons of Owner's instruction as per Clause No. 2 or (f) by reason of civil commotion, local combination of workmen or strike or lockout affecting any of the building trades or (g) in consequence of the bidder not having received in due time necessary instructions from the Owner for which he shall have specially applied in writing or (h) from other cause which the Owner may certify as beyond the control of the bidder or (i) by reason of non-payment of interim certificate at specified time, the Owner shall recommend for approval by the Owner a fair and reasonable extension of time for completion of the Contract works. In case of strike or lockout the bidder shall as soon as may be given written notice thereof to the Owner, but the bidder shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required to the satisfaction of Owner to proceed with the work.

C. QUALITY CONTROL

48.0 Identifying Defects

48.1 The Owner/Architect shall check the Bidder's work and notify the Bidder of any Defects that are found. Such checking shall not affect the Bidder's responsibilities. The Owner may instruct the Bidder to search for a Defect and to uncover and test any work that the Owner/Architect consider may have a Defect.

49.0 Correction of Defects

49.1 The Owner shall give notice to the Bidder of any Defects before the end of Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability period shall be extended for as long as Defects remain to be corrected.

49.2 Every time notice of Defect is given; the Bidder shall correct the notified Defect within the length of time specified by the Owner' notice.

49.3 All materials must pertain to single manufacturer for water proofing work to make the company responsible & accountable for any defect during defect liability period.

50.0 Uncorrected Defects

50.1 If the Bidder has not corrected a Defect within the time specified in the Owner' notice, the Owner will assess the cost of having the Defect corrected, and the Bidder will pay this amount.

D. COST CONTROL

51.0 Schedule of Quantities

51.1 The Schedule of Quantities shall contain items for the construction work, installation, testing, and commissioning work to be done by the Bidder.

51.2 The Schedule of Quantities is used to calculate the Contract Price. The Bidder is paid for the quantity of the work done at the rate in the priced Schedule of Quantities for each item.

52.0 Variations

52.1 All variations in the programme pursuant to clause no. 7.0 of GCC shall be included in the updated programmes produced by the Bidder.

53.0 Payments for Variations

53.1 The Bidder shall provide the Owner with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Owner. The Owner with recommendations from Architect shall assess and finalise the quotation, which shall be given within seven days of the request or within any longer period stated by the Owner and before the Variation is ordered.

53.2 If the Bidder's quotation is unreasonable, the Owner/Architect may order the Variation and make a change to the Contract Price which shall be based on Owner' own forecast of the effects of the Variation on the Bidder's costs.

53.3 If the Owner decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and shall be treated as a Variation.

53.4 The Bidder shall not be entitled to additional payment for costs, which could have been avoided by giving early warning.

53.5 Escalation shall be payable as per Clause 10 CC of CPWD Works Manual.

E: FINISHING THE CONTRACT

54.0 Completion Certificate

54.1 The Bidder shall request the Owner to issue a Certificate of Completion of the Works and the Architect will do so upon deciding that the Work is completed.

55.0 Taking Over

55.1 The Owner shall take over the Site and the Works within seven days of the Owner issuing a certificate of Completion. Before handing over the site, the bidder must obtain a site clearance certificate from the Owner/Architect.

56.0 Final Account

56.1 The Bidder shall supply to the Owner a detailed account of the total amount that the Bidder considers payable under the Contract before the end of the Defects Liability Period. The Architect shall issue a Defect Liability Certificate and certify any final payment that is due to the Bidder within 5-6 days of receiving the Bidder's account if it is correct and complete. If it is not, the Owner shall issue within 5-6 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Owner shall decide on the amount payable to the Bidder and issue a payment certificate within 5-6 days of receiving the Bidder's revised account.

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract are supplementary, to the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions of Contract is indicated in parentheses.

1.0 Definition (GCC clause 1.0)

(A) Owner means

The Superintending Engineer
INSTITUTE WORKS DEPARTMENT
Indian Institute of Technology (BHU)
Varanasi

(B) Site means the project site situated at BHU, Main campus

2.0 (i) Security Deposit

The person(s) whose tender may be accepted (hereinafter called the contractor) shall permit Government at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running and final bill till the sum deducted will amount to security deposit of 2.5% of the tendered amount of the work. Such deductions will be made and held by Government by way of Security Deposit unless he/they has/have deposited the amount of Security at the rate mentioned above in the form of Government Securities or fixed deposit receipts. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government as part of the security deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

(ii) Performance Guarantee (PG)

1. PG shall be 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher, or as prescribed from time to time, to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of six months beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions.
2. A bid will be treated as abnormally low if the quoted bid amount is lesser than 80% of the estimated cost put to tender.
3. Requirement of Additional Performance Guarantee (APG): In case of abnormally low bids as defined above, the bidder shall be required to submit Additional Performance Guarantee (APG) in addition to the Standard Performance Guarantee (PG). The amount of Additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be …).

3.0 Payments

Following terms of payment shall be applicable –

3.1 Mobilization Advance

Mobilization advance shall be payable to the bidder equivalent to 10% of contract value. The mobilization advance shall be against a Bank Guarantee for the equivalent amount from any Nationalized / Scheduled Bank in the prescribed proforma.

Recovery of this advance shall be made @ 15% from each bill so that full mobilization advance is recovered by the time 67% of work is done. Mobilization Advance shall be paid only on signing of agreement and establishment of site office by bidder. The guarantee shall remain valid till the entire advance is recovered or repaid by the Bidder.

3.2 Payment against Running Bills

The Bidder shall be paid for the work done against running bills to be raised not less than 60 days. Running Bills can be raised only if the contract value is equal to or more than 10 Lakhs for Civil Works and 5 Lakhs for Electrical Works and Composite Tenders.

Retention money @ 10% of gross value of the bill

Statutory deductions like income Tax, Cess under Building and Other Construction Workers Welfare Cess Act, 1996 etc. as applicable.

Any other recovery if becomes due.

Payment shall not be released against 1st R/A bill until submission of following documents by bidder to the Owner.

- Financial Guarantee for Performance
- Labour License (as per statutory requirements), if applicable
- EPF Code Registration number with RPFC, if applicable
- Insurance – Bidder's All Risk (CAR) Policy, if applicable
- Workmen compensation policy, if applicable
- Third Party Liability Insurance, if applicable
- GST registration number, if applicable

Registration under Building and Other Construction Workers Welfare Cess Act, 1996.

Undertaking for compliance of all labour laws

All contractors are required to comply above provisions, if applicable, as per the Govt. rules/regulations and compliance is the sole responsibility of the contractor.

3.3 Basis of Payment in RA bills

Payment in RA bills shall be based on quantity of work executed at site (as per the item of work) & verified by Owner and certified by the Architect as per the item rate in work orders. Owner is authorized to allow part rate/reduced rate for any item of work. The Owner shall specify the reason for the part rate payment in the RA bill.

3.4 Disallowance of payment

If payment has been made in RA bill for any item of work but later on some defect is noticed, Owner/Architect is authorized to disallow the payment in the subsequent bills till rectification of the work.

3.5 Final bill

The final bill complete in all respect shall be submitted by the bidder within 60 days from the date of completion of work. The total quantity may vary as per actual work execution/site requirement/and user suggested changes during execution but the final bill value shall not exceed more than 10% of agreement value. The bill should be accompanied with the following documents.

Job completion certificate.

No claim certificate on Owner/s prescribed proforma

Site clearance certificate.

Performance guarantee duly amended to cover certified maintenance period.

Indemnity certificate towards labour payment and all statutory payments.

The final bill should be accompanied with the following documents:

Certificate of test on materials etc.

Statement of accounts showing the advances taxes, deductions, security deposit at a latest position duly attested by Owner.

Certificate of measurement sheets.

Copy of the insurance policy. (Workmen compensation act and bidders all risk policy).

Original quality control record, measurement records and any other joint site records maintain at site. No claim shall be entertained after receipt of final bill.

Settlement of final bill shall be made subject to deduction of all dues payable by bidder, settlement of all disputes and furnishing of all required documents/clarifications and grant of extension of time, if any, by Owner's competent authority.

Submission of the valid labour license under Contract Labour Regulation and Abolition Act 1970 and Labour Regulation and Abolition Act 1971, if applicable.

3.6 Secured Advance

Payment of secured advance against materials brought at site shall be considered to the extent of 75% of the assessed rate of materials at 90% of the assessed quantity of material brought to site for incorporation except for perishable materials like glass and chinaware etc. This advance shall be adjusted in subsequent running bill. The bidder shall be required to submit the bill for secured advance payment along with photocopies of vouchers of cost of materials and proof of bringing the materials at site (if applicable). Bidder shall also be required to submit indemnity bond on Non-judicial stamp paper of appropriate value. Recovery of the secured advance shall be effected from running account bill, on consumption basis of that material in works.

3.7 Escalation

Escalation shall be payable as per Clause 10 CC of CPWD Works Manual.

4.0 Liquidated Damages

1% per week upto a maximum of 10% (Ten percent) of the Contract value from the stipulated date of completion.

5.0 Resolution of Disputes

In case the parties cannot agree to the advice of IIT(BHU)**,** then the Director, INDIAN INSTITUTE OF TECHNOLOGY(BHU) shall appoint a sole arbitrator within 30 days of receipt of request forthwith. The arbitration shall be governed by Arbitration and Reconciliation Act 1956.

6.0 Notices

For the purpose of all notices, the following shall be the address of the Owner and the Bidder.

Owner: **The Superintending Engineer**
INSTITUTE WORKS DEPARTMENT
Indian Institute of Technology (BHU)
Varanasi

Bidder: _____

(To be filled in at the time of Signing of the Contract)

_____

7.0 Resolution of Disputes & Arbitration

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, terminations, completion or abandonment thereof shall be dealt with as mentioned hereinafter.

If the bidder considers any work demanded of him to be outside the requirements of the contract or disputes any drawings, record or decision given in writing in connection with or arising out of the contract or carrying out of the work, he shall promptly within 15 days request the Owner in writing for written instruction or decision.

If the Bidder is dissatisfied with this decision, the Bidder shall within a period of 30 days from receipt of the decision, give written notice to the Indian Institute of Technology (BHU) for appointment of Arbitrator failing which the said decision shall be final binding and conclusive and not referable to adjudication by the Arbitrator.

Except where the decision has become final, binding and conclusive in terms of Sub Para (i) above disputes or difference shall be referred for adjudication through arbitration by a sole arbitrator appointed by The Director, Indian Institute of Technology (BHU). If the arbitrator so appointed is unable or unwilling

to act or resign his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such Indian Institute of Technology (BHU) as aforesaid should act as arbitrator and if for any reason that is not possible, the matter shall not be referred to arbitration at all.

It is also a term of this contract that if the contactor does not make any demand for appointment of arbitrator in respect of any claims in writing as aforesaid within 30 days of receiving the intimation from the Owner that the final bill is ready for payment, the claim of the bidder shall be deemed to have been waived and absolutely barred and IIT(BHU) shall be discharged and released of all liabilities under the contract in respect of these claims.

The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 (26 of 1996) or any statutory modifications or reenactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause.

8.0 Protection of environment

8.1 The Bidder shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

8.2 During continuance of the contract, the Bidder and his sub-bidders shall at all times abide by all existing enactment on environmental protection and rules made there under, regulations, notifications and bye-law of the State or Central Government, or local authorities and any other law, by-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

8.3 Salient features of some of the major laws that are applicable are given below:

The Water (Prevention and Control of Pollution) Act, 1974 This provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, This provides for prevention, control and abatement of air pollution, 'Air Pollution' means the presence in the atmosphere of any air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Prevention and Control of Pollution) Act, 1986 This provides for the protection and improvement of environment and for matters connected to herewith, and the prevention of hazards to human beings. Other living creatures, plants and property, 'Environment' includes water, air and land and the interrelationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance ACT 1991. This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

INDIAN INSTITUTE OF TECHNOLOGY(BHU)
INSTITUTE WORKS DEPARTMENT
(IWD) FORM-1

TENDER FOR WORKS

Tender for the work of: **Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi**

(i) To be submitted by **24.11.2026 (4:00 P.M.)** to the SUPERINTENDING ENGINEER, INSTITUTE WORKS DEPARTMENT, IIT(BHU), Varanasi.

(ii) To be opened in presence of bidders who may be present at **25.11.2026 (4:00 P.M.)** in the office of the SUPERINTENDING ENGINEER, INSTITUTE WORKS DEPARTMENT, IIT(BHU), Varanasi

BID

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 submit bid for the execution of the work specified for the Institute 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 Bid open for Thirty/Forty-five/Sixty/ninety/one eighty (30/45/60/90/180) days from the due date of its opening and not to make any modification in its terms and conditions.

A sum of **Rs. 62,000.00** is hereby forwarded in fixed deposit receipt of scheduled bank/demand draft of a scheduled bank as earnest money. If I/We, fail to furnish the prescribed performance guarantee within prescribed period. I/We agree that the Institute has to right to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that the Institute has to right to forfeit the said performance guarantee absolutely. The said performance guarantee shall be a guarantee 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 or 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 bidder on back to back basis. Further that, if such a violation comes to the notice of COMMITTEE, then I/We shall be debarred for tendering in IWD in future forever. Also, if such a violation comes to the notice of

COMMITTEE before date of start of work, the Engineer-in-Charge shall 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 Bidder

Witness: Postal 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 Indian Institute of Technology (BHU) for a sum of ……

(Rupees……)

The letters referred to below shall form part of this contract agreement: (a)

(b)

(c)

For & on behalf of Indian Institute of Technology (BHU)……..

Dated: ……..

Designation ……..

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of quantities

SCHEDULE 'B'

Schedule of materials to be issued to the bidder if available in the IWD store, if not available the same may be arranged by the bidder.

SCHEDULE 'C'

Tools and plants to be hired to the bidder

S. No.	Description	Hire charges per day	Place of Issue
1	2	3	4
As mentioned in relevant sections			

SCHEDULE 'D'

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

As attached in e-tender form

SCHEDULE 'E'

Reference to General Conditions of contract.

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:

Officer inviting tender	SUPERINTENDING ENGINEER INSTITUTE WORKS DEPARTMENT Indian Institute of Technology (BHU) Varanasi
Maximum percentage of quantity of items of work to be executed beyond which rates are to be determined in accordance with Clause 12.2.& 12.3	See below

Definitions:

2(I) Engineer-in-Charge

For Electrical items of work — S.E. (IWD)
IIT(BHU), Varanasi.

2(II) Accepting Authority — S.E. (IWD),
IIT(BHU), Varanasi.

2(III) Percentage on cost of materials and labour to cover all overheads and profits 15%

2(IV) Standard Schedule of Rates: D.S.R. 2025

2 (V) Standard procedures: CPWD works manual 2024

Time allowed for execution of work **180 Days**

Authority to decide Extension of time	Engineer-in-Charge
Rescheduling of mile stone	Engineer-in-Charge
	Shifting of date of start in case of delay in handing over of site Engineer-in-Charge

Clause 11 Specification to be followed for execution of work to be as per :

For Electrical items of work	CPWD Specifications 2019 Vol. 1 and Vol. 2 with up-to-date correction slips. (Hereinafter called CPWD specifications also) and Specification mentioned in This Publish document for Each project
For Electrical items of work	CPWD Specifications for electrical works 2013 (Internal) and CPWD Specifications for electrical works 1995 (External) and Specification mentioned in This Publish document for Each project
	For Other Items Specification mentioned in this Tender document for Each project.

Clause 12, CPWD Works manual 2024		
Clause 12.1	Deviation limit for maintenance work including works of upgradation, special repair and renovation, addition/alteration	
2	Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work	
3	(i) Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation work (except earth work)	
	(ii) Deviation limit for items in earth work subhead of DSR or related items	

Clause 16	Competent Authority for Deciding reduced rates:	
	For Civil items of work	SE(IWD), IIT(BHU), Varanasi.
	For Electrical items of work	SE(IWD), IIT(BHU), Varanasi.

Clause 25

Constitution of Dispute Redressal Committee (DRC)	Competent Authority to appoint DRC
DRC shall constitute one SUPERINTENDING ENGINEER and two members	SE (IWD)

SALIENT / MANDATORY REQUIREMENTS FOR THE TENDER

NAME OF WORK: Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.

The bidder is advised to read and examine the Tender documents for the work and the set of drawings available with Engineer-in-charge and on www.itbhu.ac.in . He should inspect and examine the site and its surroundings by himself before submitting his Publish.

1 Schedule of quantity is included in this Tender is for components of work. If the bidder wants to offer any unconditional rebates on their rates that should be clearly mentioned.

2 Time allowed for the execution of work is **180 Days**.

3 The bidder(s) shall submit a detailed program of execution in accordance with the master programme/milestone within 7 days from the date of issue of award letter.

4 ~~Bidder has to arrange and install ……during~~ the currency of work and nothing extra will be paid on this account.

5 Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of Tender specifications and guidelines given in the relevant para's.

6 Cement if available may be issued by the IIT(BHU), otherwise have to be arranged by the bidder, Steel Reinforcement shall be arranged by the bidder himself.

7. Bidder has to deploy required Plant and machinery in sufficient number on the project.

8. The bidder shall submit the running bills in the shape of the computerized MB in pages of A-4 size as per the standard format of COMMITTEE.

9. The bidder shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the SUPERINTENDING ENGINEER/Executive Engineer may in his discretion, without prejudice to any other right or remedy available in law, cancel the contract. The bidder shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

ADDITIONAL TERMS AND CONDITIONS

1 Till the work is almost completed to the satisfaction of Engineer-in-Charge-

(i) Bidder shall not divert any advance payments or part thereof for any purpose other than needed for completion of the contracted work. All advance payments received as per terms of the contract (i.e. mobilization, secured against materials brought at site, secured against plant & machinery and/required to be re-invested in the contracted work to ensure advance availability resources in terms of materials, labour, plant & machinery needed for required pace of progress for timely completion of work.

(ii) All running account bills preferred by the bidder for advance payments shall be processed only if Engineer-in-charge is satisfied that upto date investments (excluding security deposit & performance guarantee, which are not considered as investments) made by the bidder against contracted work are more than the payments received. Accordingly, all running account bills shall be supported with an account of upto date payments received vis-à-vis upto date investments made on the work to enable Engineer-in-charge to check to his satisfaction that the payments made by Engineer-in-charge are properly utilized only on the work and nowhere else.

2 Unless otherwise provided in the Schedule of Quantities/Specifications, the rates submitted by the bidder shall be all inclusive and shall apply to all heights, lifts, leads and depths of the work and nothing extra shall be payable to him on account of the same. Extra payment for centering/shuttering, if required to be done for heights greater than 3.5 m shall however be admissible at the rates arrived at in accordance with clause 12 of the agreement, if not already specified.

3 Other agencies doing works related with this project may also simultaneously execute their works and the bidder shall afford necessary facilities for the same. The bidder shall leave such necessary holes, openings etc. for laying/burying in the work, pipes cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for the other agencies. Nothing extra over the Agreement rates shall be paid for doing these.

4 Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The bidder shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on account of the same.

5 The bidder shall fully comply with all legal orders and directions of the Public or local authorities or municipality by their rules and regulations and pay all fees and charges for which he may be liable in this regard. Nothing extra shall be paid/reimbursed for the same.

6.1 The building work shall be carried out in the manner complying in all respects with the requirements of the relevant bylaws and regulations of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra shall be paid on this account.

6.2 The work of water supply, internal sanitary installations and drainage etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the bidder shall produce necessary completion certificates from such authority after completion of work.

6.3 All water tanks, taps, sanitary, water supply and drainage pipes fittings and accessories etc. shall conform to the bylaws and specifications of the Municipal Body/Corporation where IWD specifications are not available.

6.4 The bidder shall engage licensed plumbers for the work and the materials (fixtures/fittings) tested by the local Municipal Body/Corporation wherever required at his own cost. Nothing extra shall be paid/reimbursed for the same.

7 The bidder shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.

8 If as per local Municipal regulations, huts for labour are not to be erected at the site of work, the bidder shall be required to provide such accommodation at a place as is acceptable to the local body and nothing extra shall be paid on this account.

9 The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the Tender and Architectural drawings relating to the relevant item, the former shall prevail unless otherwise given in writing by the Engineer-in-charge.

10.1 For the purpose of recording measurements and preparing running account bills, the abbreviated nomenclature indicated in the publications Abbreviated Nomenclature of Items of DSR 2025 shall be accepted. The abbreviated nomenclature shall be taken to cover all the materials and operations

as per the complete nomenclature of the relevant items in the agreement and relevant specifications.

10.2 In case of items for which abbreviated nomenclature is not available in the aforesaid publication and also in case of extra and substituted items for which abbreviated nomenclature are not provided for in the agreement, full nomenclature of item shall be reproduced in the measurement books and bill forms for running account bills.

10.3 For the final bill, however, full nomenclature of all the items shall be adopted in preparing abstract in the measurement books and in the bill forms.

11 The bidder shall take instructions from the Engineer-in-charge for stacking of materials. No excavated earth or building materials etc. Shall be stacked/ collected in areas where other buildings, roads, services, compound walls etc. are to be constructed.

12 Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the bidder only when all men, machinery's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.

13 It shall be ensured by the bidder that no electric live wire is left exposed or unattended to avoid any accidents in this regard.

14 In case the supply of timber/steel frames/shutters for doors, windows etc. is made by some other agency, the bidder shall make necessary arrangements for their safe custody on the direction of the Engineer-in-charge till the same are fixed in position by him & nothing extra shall be paid on this account.

15 The bidder shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.

16 The entire royalty at the prevalent rates shall have to be paid by the bidder on all the boulders, metals, shingle sand etc. collected by him for execution of the work, directly to the Revenue authority or authorized agents of the State Government concerned or the Central Government, as the case may be.

17.1 The materials shall be issued to the bidder at the place of delivery as mentioned in the Schedule-B during the working hours as per the rules of IWD stores in force from time to time. If these are delivered at any other place, adjustments on accounts of the difference in cost of cartage shall be affected as per the terms of clause 12 of the contract agreement. The bidder shall however have to cart the materials to the site of work at his cost as soon as these are issued.

17.2 Materials like reinforcing bars, flats, tees, angles, sheets, CI and SCI pipes etc., if contemplated to be issued shall be issued in available sizes and lengths and the bidders shall bear the cost of cutting and shaping them according to the requirements of work. No claim for the wastage on this account shall be entertained.

17.3 The bidder shall bear all incidental charges for cartage, storage and safe custody of materials issued by the Department and shall construct suitable godowns, yards at the site of work for storing all materials as to be safe against damage by sun, rain, dampness, fire, theft etc. at his own cost and also employ necessary watch and ward establishment for the purpose, at his own cost. Materials to be charged directly to work and stipulated for issue free of cost shall also be issued to the bidder as soon as those are received at site or at the stipulated place of issue. The provision of this para shall apply equally and fully to those as well.

17.4 All materials obtained from the IWD stores or other than IWD stores but authorized on receipt shall be got checked by the Engineer-in-charge of the work or his representations before use.

18. Final bill of whole work shall be finalized and paid by SUPERINTENDING ENGINEER. Including in the final bill for composite work.

19. The Guarantee Bond attached in the Tender should be used for the items if applicable.

PROFORMA FOR AUTHORIZATION LETTERFROM MANUFACTURER
(to be submitted by bidder if they are authorized Applicator of a Manufacturers)

Sub.: Recommendation letter for water proofing work to be carried out at IIT (BHU), Varanasi against Tender No. ……..

We …….. an established and reputable manufacture of M/s. …….. do hereby authorize M/s. …….. …….. (Name and address of Agents) to represent us for participating in online bidding process and conclude the contract on our behalf with your organization against above Tender No. ……

Further, we assure that overall workmanship and quality of waterproofing and paint application work at various sites by the above-mentioned firm have been found to be good. The firm/company and its staffs have undergone training at various sites given by us on various product application. We appreciate the quality of work done by them and the firm is our Super Premium Applicator/Rising Star Premium Applicator.

Please note that this certificate is valid only for above stated Tender No. IIT(BHU)/IWD/ET-46/2026-27/809 Dated 09.11.2026, and I am competent and fully authorized by the company to sign this authorization letter for this work in the state of Uttar Pradesh. I also confirm that this authorization letter has been issued to only M/s. …….. and other authorization letters signed by any other signatory, if received, be treated invalid and illegal.

Yours faithfully,
Name
For & on behalf of M/s. ……..
Name of Manufacturers

Note: This letter of authority should be on the Letter-Head of the Manufacturing company and should be signed by a competent person and having the power of attorney to bind the manufacturer.

PERFORMANCE GUARANTEE BOND

In consideration of the Indian Institute of Technology (BHU) having agreed under the terms and conditions of agreement No…… dated…….. made between …….. and

……..(hereinafter called "the contractor(s)")…… for the work……..(hereinafter called "the said agreement") having agreed to production of a irrevocable Bank Guarantee for…….. (Rupees……only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement,

1. We……..hereinafter referred to as "the Bank") hereby undertake to pay to IIT(BHU)

(Indicate the name of the bank)

Institute an amount not exceeding Rs…….. (……only) on demand by the Indian Institute of Technology(BHU).

2. We ……..do hereby undertake to pay the amounts due…… and payable

(Indicate the name of the Bank) under this Guarantee without any demur, merely on a demand from the Indian Institute of Technology (BHU) stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding (Rupees……only).

3. We, the said bank further undertake to pay to the Institute any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

4. We ……further agree that the guarantee herein contained shall (Indicate the name of the Bank) remain in full force and effect during the period that would be taken for performance of the said agreement, and it shall continue to be enforceable till all the dues of the Indian Institute of Technology(BHU) under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-charge on behalf of the Institute certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges this guarantee.

5. We ……..(indicate the name of bank) further agree with the Indian Institute of Technology (BHU) that Indian Institute of Technology(BHU) shall have the fullest liberty without our consent and without effecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Indian Institute of Technology(BHU) against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act of omission

on the part of the Institute or any indulgence by the Indian Institute of Technology(BHU) to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. We …… (Indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Indian Institute of Technology (BHU) in writing.

8. This guarantee shall be valid up to…….. unless extended on demand by Indian Institute of Technology (BHU). Notwithstanding anything mentioned above, our liability against this guarantee is restricted to …….. (Rupees……only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged. Dated the ……day of…… for …….. (Indicate the name of the Bank)

TECHNICAL SPECIFICATIONS

QUALITY ASSURANCE, INSPECTION AND TESTING:

a) Bidder needs to submit SLD, GA drawings with Bill of Materials for approval within 7 days from the date of LOA.

b) The bidder shall have a Quality Assurance Programme (QAP) for the execution encompassing quality assurance at manufacturers‟ works, storage, erection, testing and commissioning activities.,

c) Bidder shall submit the individual quality plan for various equipment after placement of award and obtain approval of IIT (BHU) VARANASI.

d) Drawings and Individual Manufacturing Quality plan (MQP)s and Field quality Plan (FQP)s pertaining to each equipment like LT panels as per BOQ shall be submitted by bidder after award for review and approval by IIT (BHU) Varanasi.

e) Suitable inspection call has to raised for witness the routine test as per approved MQP by the bidder. EIC shall reserve the right to wave off the physical inspection and accept the equipment based on the reports submitted by the manufacturer/Bidder.

f) Bidder shall strictly adhere to the provisions or approved MQP & FQPs. The bidder shall offer proven and type tested equipment for the project.

g) All routine and acceptance tests shall be carried out as per approved MQP. The bidders shall arrange to give sufficient advance intimation of the manufacturing and testing schedules to facilitated timely inspection of the equipments by the IIT (BHU) Varanasi

h) The Manufacturing Quality Plans for each equipment submitted by supplier shall cover detailed checks at various stages of raw material, bought out items, in process, final testing, etc. and packing, prior to dispatch. The submitted Quality Plan shall be in line with manufacturer‟s plant, national/international standards, Approved Data Sheet and contract specification. This shall also contain statutory testing requirements, if any.

i) This shall also contain statutory testing requirements, if any. Field Quality Plan (FQP) is intended to cover all activities at site from material receipt and storage, handling, pre-assembly, assembly up to completion of erection activities of equipment.

j) Required commissioning checklists shall be submitted for approval for all equipment and systems of the project and putting them into successful commercial operation.

SPECIFICATIONS

The work shall be carried out as per CPWD general Specifications for Electrical Works Part – I, II & IV as amended up to date along with the relevant IE Rules and as per directions of Engineer-in-Charge. For electrical panels, CPWD General Specifications for Electrical Works Part-IV shall be applicable.

1 Scope of work

1.1 Project Brief

Electrical renovation, installation, wiring, illumination, power point, light & fan point, lighting and repairing/replacement of old electrical wiring, faulty distribution boards and panels works in the Automobile shop, Welding shop and foundary shop of Workshop IIT(BHU), Varanasi.

1.2 Specifications for Electrical Works

1.2.1 Specifications Medium Voltage Switchgear

1. STANDARDS AND CODES

The following Indian Standard Specifications and Codes of Practice will apply to the equipment and the work covered by the scope of this contract. In addition the relevant clauses of the Indian Electricity Act 1910 and Indian Electricity Rules 1956 as amended upto date shall also apply. Wherever appropriate Indian Standards are not available, relevant British and/or IEC Standards shall be applicable.

BIS certified equipment shall be used as a part of the Contract in line with Govern- ment regulations. Necessary test certificates in support of the certification shall be submitted prior to supply of the equipment.

It is to be noted that updated and current Standards shall be applicable irrespective of those listed below.

Low voltage Switchgear and Control gear specifications IS 13947 : 1993
Part I – General
Part 2 – Circuit Breakers
Part 3 – Switch Fuse Units
Part 4 – Contactors and Motor Starters
Part 5 – Control Circuit Devices
Electrical Relays for power system protection IS 3231 : 1986
Low voltage Switchgear and Controlgear assemblies IS 8623 : 1993
Marking of Switchgear busbars IS 11353 : 1985
Degree of Protection of Enclosures for low
Voltage switchgear IS 2147 : 1962
Code of Practice for selection, installation and maintenance of Switchgear IS 10118 : 1982

2. SWITCH FUSE UNITS

2.1 Switch fuse units, incorporated in switchboards wherever required shall conform in all respects to IS 13947 : 1993. Switch fuse units shall be suitable for 415 Volts 3 Phase 50 HZ AC supply and shall be suitable for AC - 23 A duty.

Unit housing shall be of robust construction designed to withstand ardous conditions. Sheet steel used shall be given rigorous rust proofing treatment before fabrication and painting Units shall have double break per phase in order to isolate fuse links when the switch is in OFF position.

Operating mechanism of units shall be crisp and positive in action with quick- make and quick-break silver plated contacts. Operating handle shall be suitable for rotary operation unless otherwise specified. Position of handle such as ON and OFF shall be clearly indicated.

All live parts inside the switch fuse units shall be shrouded to prevent any accidental contact.

All the terminals shall be liberally designed. All units above 100 A shall be provided with integral cable sockets.

All switch units shall be provided with suitable interlocks such that the door of the switchboard panel shall not open unless the switch is in OFF position. Provision for padlocking the switch in OFF position shall also be provided.

Routine and type tests as per IS 13947: 1993 shall be conducted at works and test certificates furnished.

3. MOULDED CASE CIRCUIT BREAKERS

i) Moulded case circuit breakers (MCCB) or fuse free breakers, incorporated in switchboards wherever required, shall conform to IS 13947 : 1993 in all respects. MCCBs shall be suitable either for single phase 240 Volts or 3 Phase 415 Volts AC 50 HZ supply.

ii) MCCB cover and case shall be made of high strength heat resisting and flame retard- ant thermosetting insulating material. Operating handle shall be quick make/break, trip - free type. Operating handle shall have suitable ON, OFF and TRIPPED indicators. Three phase MCCBs shall have a common handle for simultaneous operation and tripping of all the three phases. Suitable arc extinguishing device shall be provided for each contact. Tripping unit shall be of thermal/magnetic type provided on each pole and connected by a common tripe bar such that tripping of any one pole causes three poles to open simultaneously. Thermal/magnetic tripping device shall have IDMT characteristics for sustained over loads and short circuits.

iii) Contact trips shall be made of suitable arc resistant sintered alloy. Terminals shall be of liberal design with adequate clearances.

iv) MCCBs shall be provided with following accessories, if specified in draw- ings/schedule of quantities :

- Under voltage trip
- Shunt trip
- Alarm switch
- Auxiliary switch

v) MCCBs shall be provided with following interlocking devices for interlocking the door a switch board.

- 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. MCCBs shall have rupturing capacity as specified in drawings/schedule of quantities.

4. METERING, INSTRUMENTATION AND PROTECTION.

The switchboard shall have required current and potential transformers as per schedule of quantities for metering and protection. The transformers shall comply to relevant ISS and class of accuracy required for metering and protection. Separate sets of CTs shall be provided for metering and protection.

4.1 Current Transformers

C/Ts shall confirm to IS 2705 (part -I, II and III) in all respects. All C/Ts used for medium voltage application shall be rated for 1 kV. C/Ts shall have rated primary current, rated burden and class of accuracy as specified in schedule of quantities/drawings. Rated secondary current shall be 5A unless otherwise stated. Minimum acceptable class for measurement shall be class
0.5 to 1 and for protection class SP 10. C/Ts shall be capable of withstanding magnetic and thermal stresses due to short circuit faults of 31 MVA on medium voltage. Terminals of C/Ts shall be paired permanently for easy identification of poles. C/Ts shall be provided with earthing terminals for earthing chassis, frame work and fixed part of metal casing (if any). Each C/T shall be provided with rating plate indicating:

- Name and make
- Serial number
- Transformation ratio
- Rated burden
- Rated voltage
- Accuracy class

CTs shall be mounded such that they are easily accessible for inspection, maintenance and replacement. Wiring for CT shall be with copper conductor PVC insulated wires with proper termination works and wiring shall be bunched with cable straps and fixed to the panel structure in a neat manner.

4.2 Potential Transformer

PTs shall confirm to IS 3156 (Part-I,II and III) in all respects.

4.3 Measuring Instruments

Direct reading electrical instruments shall conform to IS 1248 or in all respects. Accuracy of direct reading shall be 1.0 of voltmeter and 1.5 for ammeters. Other instruments shall have accuracy of 1.5. Meters shall be suitable for continuous operation between -10^{o} C and +50^{0}C. Meters shall be flush mounting and shall be enclosed in dust tight housing. The housing shall be of steel or phenolic mould. Design and manufacture of meters shall ensure prevention of fogging of instrument glass. Pointer shall be black in colour and shall have Zero position adjustment device operable from outside. Direction of deflection shall be from left to right. Suitable selector switches shall be provided for ammeters and volt meters used in three phase system. The rating type and quantity of meters, instruments and protective device shall be as per Schedule of Quantities /drawings

4.3.1 Ammeters

Ammeters shall be of moving iron type. Moving part assembly shall be with jewel bearings. Jewel bearings shall be mounted on a spring to prevent damage to pivot due to vibrations and shocks. Ammeters shall be manufacture and calibrated as per IS 1248.

Ammeters shall normally be suitable for 5 A secondary of current transformers. Ammeters shall be capable of carrying substantial over loads during fault conditions.

4.3.2 Voltmeters

Voltmeters shall be moving iron type range of 3 phase 415 volt voltmeters shall be 0-500. Volt meters shall be provided with protection fuse.

4.3.3 Watt meter

Wattmeter shall be of 3 phase electro dynamic type and shall be provided with a maximum demand indicator if required.

4.3.4 Power factor meters

1 phase power factor meters shall be of electro dynamic type with current and potential coils suitable for operation with current and potential transformers provided in the panel. Scale shall be calibrated for 50% lag - 100% - 50% readings. Phase angle accuracy shall be $+4^0$.

4.3.5 Energy and reactive power meters

Trivector meters shall be two element, integrating type, KWH, KVA, KVARH meters. Meters shall confirm to IEC 170 in all respects. Energy meters, KVA, and KVARH meters shall be provided with integrating registers. The registers shall be able to record energy conception of 500 hours corresponding to maximum current at rated voltage and unity power factor. Meters shall be suitable for operation with current and potential transformers available in the panel.

4.4 Relays

Protection relays shall be provided with flag type indicators to indicate cause of tripping. Flag indicators shall remain in position till they are reset by hand reset. Relays shall be designed to make or break the normal circuit current with which they are associated. Relay contacts shall be of silver or platinum alloy and shall be designed to withstand repeated operation without damage. Relays shall be of draw out type to facilitate testing and maintenance. Draw out case shall be dust tight. Relays shall be capable of disconnecting faulty section of network without causing interruption to remaining sections. Analysis of setting shall be made considering relay errors, pickup and overshoot errors and shall be submitted to Engineer-in-Charge for approval.

4.4.1 Over current relays

Over current relays shall be induction type with inverse definite minimum time lag charac- teristics. Relays shall be provided with adjustable current and time settings. Setting for current shall be 50 to 200 % insteps of 25%. The IDMT relay shall have time lag (delay) of 0 to 3 seconds. The time setting multiplier shall be adjustable from 0.1 to unity. Over current relays shall be fitted with suitable tripping device with trip coil being suitable for operation on 5 Amps.

4.4.2 Earth fault relay

Same as over current relay excepting the current setting shall be 10% to 40% in steps of 10%.

4.4.3 Under voltage relay

Under voltage relays shall be of induction type and shall have inverse limit operation characteristics with pickup voltage range of 50 to 90% of the rated voltage.

Power factor correction capacitors

Power factor correction capacitors shall conform to IS 2834 in all respects. Approval of insurance association of India shall be obtain if called for. Capacitors shall be suitable for 3 phase 415 volts 50 HZ supply and shall be available in single and three phase units of 5,10,15,20,25 and 50 kVAR sizes as per requirements. Capacitor shall be usable for indoor use, permissible overloads being as below.

- Voltage overloads shall be 10% for continuous operation and 15% for six hours in a 24 hours cycle.
- Current overloads shall be 15 % for continuous operations and 50% for six hours in a 24 hours cycle.
- Over load of 30% continuously and 45% for six hours in a 24 hours cycle.

Capacitors shall be hermetically sealed in sturdy corrosion proof sheet steel containers and impregnated with non inflammable synthetic liquid. Every element of each capacitory unit shall be provided with its

own built in silvered fuse. Capacitors shall have suitable discharge device to reduce the residual voltage from crest value of the rated voltage to 50 volts or less within one minute after capacitor is disconnected from the source of supply. The loss factor of capacitor shall not exceed 0.005 for capacitors with synthetic impregnates The capacitors shall withstand power frequency test voltage of 2500 volts AC for one minute. Insulation resistance between capacitors terminals and containers when a test voltage of 500 volts DC is applied shall not be less than 50 meg.ohms.

5. MEDIUM VOLTAGE SWITCH BOARDS

5.1 GENERAL

- All medium voltage switchboards shall be suitable for operation at three phase/three phase 4 wire, 415 volt, 50 Hz, neutral grounded at transformer system with a short circuit level withstand of 31 MVA at 415 volts or as per schedule of quantities.
- The Switch Boards shall comply with the latest edition with upto date amendments of relevant Indian Standards and Indian Electricity Rules and Regulations.

5.2 SWITCH BOARD CONFIGURATION

- The Switch Board shall be configured with Air Circuit Breakers, MCCB's, and other equipment as called for in the Schedule of Quantities.
- The MCCB's shall be arranged in multi-tier formation whereas the Air Circuit Breakers shall be arranged in Single or Double tier formation only to facilitate operation and maintenance.
- The Switch Boards shall be of adequate size with a provision of 25% spare space to accommodate possible future additional switch gear.

5.3 EQUIPMENT SPECIFICATIONS

All equipment used to configure the Switch Board shall comply to the relevant Standards and Codes of the Bureau of Indian Standards and to the detailed technical Specifications as included in this tender document.

5.4 CONSTRUCTIONAL FEATURES

- The Switch Boards shall be metal enclosed, sheet steel cubicle pattern, extensible, dead front, floor mounting type and suitable for indoor mounting.
- The Switch Boards shall be totally enclosed, completely dust and vermin proof. Synthetic rubber gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust and vermin proof to provide a degree of protection of IP 42. All doors and covers shall also be fully gasketed with synthetic rubber and shall be lockable.
- The Switch Board shall be fabricated with CRCA Sheet Steel of thickness not less than 2.0 mm and shall be folded and braced as necessary to provide a rigid support for all components. The doors and covers shall be constructed from CRCA sheet steel of thickness not less than 1.6 mm. Joints of any kind in sheet metal shall be seam welded and all welding slag ground off and welding pits wiped smooth with plumber metal.
- All panels and covers shall be properly fitted and square with the frame. The holes in the panel shall be correctly positioned.
- Fixing screws shall enter holes tapped into an adequate thickness of metal or provided with hank nuts. Self threading screws shall not be used in the construction of the Switch Boards.

5.5 SWITCHBOARD DIMENSIONAL LIMITATIONS

- A base channel 75 mm x 5 mm thick shall be provided at the bottom.

- A minimum of 200 mm blank space between the floor of switch board and bottom most unit shall be provided.
- The overall height of the Switch Board shall be limited to 2300 mm
- The height of the operating handle, push buttons etc shall be restricted between 300 mm and 1800 mm from finished floor level.

5.6 SWITCH BOARD COMPARTMENTALIZATION

The Switch Board shall be divided into distinct separate compartments comprising

- A completely enclosed ventilated dust and vermin proof bus bar compartment for the horizontal and vertical busbars.
- Each circuit breaker, and MCCB shall be housed in separate compartments enclosed on all sides.
- Sheet steel hinged lockable doors for each separate compartment shall be provided and duly interlocked with the breaker/switch fuse unit in "on" and "off" position.
- For all Circuit Breakers separate and adequate compartments shall be provided for accom- modating instruments, indicating lamps, control contactors and control fuses etc. These shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, busbars and connections.
- A horizontal wire way with screwed cover shall be provided at the top to take interconnecting control wiring between vertical sections.
- Separate cable compartments running the height of the Switch Board in the case of front access Boards shall be provided for incoming and outgoing cables.
- Cable compartments shall be of adequate size for easy termination of all incoming and outgoing cables entering from bottom or top.
- Adequate and proper support shall be provided in cable compartments to support cables. Following minimum clearances to be maintained after taking into consideration connecting bolts, clamps etc.

  i) Between phases 32 mm

  ii) Between phases and neutral 26 mm

  iii) Between phases and earth 26 mm

  vi) Between neutral and earth 26 mm

5.7 SWITCH BOARD BUS BARS

- The Bus Bar and interconnections shall be of electrolytic Copper/Aluminium and of rectangular cross sections suitable for full load current for phase bus bars and half rated current for neutral bus bar. The maximum current density for copper shall be 1.2 amps per sq. mm. and for Aluminium shall be 0.8 amp per Sq. mm. and suitable to withstand the stresses of a 31 MVA fault level or at 415 volts for 1 second or as per schedule of quantities. .
- The bus bars and interconnections shall be insulated with insulation tape/ fiber glass.
- The bus bars shall be extensible on either side of the Switch Board.
- The bus bars shall be supported on non-breakable, non-hygroscopic insulated supports at regular intervals, to withstand the forces arising from a fault level of 31 MVA at 415 volts for 1 second.
- All bus bars shall be colour coded.

- All bus bar connections in Switch Boards shall be bolted with brass bolts, washers and nuts.

5.8 SWITCH BOARD INTERCONNECTIONS

- All connections between the bus bars/Breakers/ shall be through solid copper strips of adequate size to carry full rated current and PVC/fibre glass insulated.

5.9 DRAW-OUT FEATURES

Air Circuit Breakers shall be provided in fully drawout cubicles. These cubicles shall be such that drawout is possible without disconnection of the wires and cables. The power and control circuits shall have self aligning and self isolating contacts. The fixed and moving contacts shall be easily accessible for operation and maintenance. Mechanical interlocks shall be provided on the drawout cubicles to ensure safety and compliance to relevant Standards. The MCCB‟s shall be provided in fixed type cubicles.

5.10 INSTRUMENT ACCOMMODATION

- Instruments and indicating lamps shall not be mounted on the Circuit Breaker Com- partment door for which a separate and adequate compartment shall be provided and the instrumentation shall be accessible for testing and maintenance without danger of accidental contact with live parts of the Switch Board.
- For MCCB's instruments and indicating lamps can be provided on the compartment doors.
- The current transformers for metering and for protection shall be mounted on the solid copper/ aluminum bus bars with proper supports.

5.11 WIRING

All wiring for relays and meters shall be with PVC insulated copper conductor wires.

The wiring shall be coded and labelled with approved ferrules for identification. The minimum size of copper conductor control wires shall be 1.5 sq. mm.

5.12 CABLE TERMINATIONS

- The cable terminations of the Circuit Breakers shall be brought out to terminal cable sockets suitably located at the rear of the panel.
- The cable terminations for the MCCB‟s shall be brought out to the rear in the case of rear access switchboards or in the cable compartment in the case of front access Switch Boards.
- The Switch Boards shall be complete with gland plates

5.13 SPACE HEATERS

The Switch Board shall have in each panel thermostatically controlled space heaters with a controlling 15 amp 230 volt switch socket outlet to eliminate condensation

5.14 EARTHING

A main earth bar of G.I shall be provided throughout the full length of the Switch Board with a provision to make connections to earth stations on both sides.

5.15 SHEET STEEL TREATMENT AND PAINTING

- Sheet Steel materials used in the construction of these units should have undergone a rigorous rust proofing process comprising of alkaline degreasing, descaling in dilute sulphuric acid and a recognised phosphating process or by using sand blasting method. The steel work shall then receive two costs of oxide filler primer before final painting. Castings shall be scrupulously cleaned and fettled before receiving a similar oxide primer coat.

- All sheet steel shall after metal treatment be spray or powder painted with two coats of shade 692 to IS 5 on the outside and white on the inside. Each coat of paint shall be properly stoved and the paint thickness shall be adequate.

5.16 NAME PLATES AND LABELS

Suitable engraved white on black name plates and identification labels of metal for all Switch Boards and Circuits shall be provided. These shall indicate the feeder number and feeder designation.

6. INSTALLATION

The foundations prepared as per the manufacturers drawings shall be levelled, checked for accuracy and the Switch Board installed. All bus bar connections shall be checked with a feeler gauge after installation. The able end boxes shall be sealed to prevent entry of moisture. The main earth bar shall be connected to the sub-station earths.

A 15 mm thick rubber matting of approved make on a 100 mm high timber platform shall be provided in front of and along the full length of the Switch Board. The width of the matting shall be 1000 mm. The rubber mat shall withstand 15 KV for 1 minute and leakage current shall not exceed 160 mA/sq. metre.

After installation the Switch Board shall be tested as required prior to commissioning.

7. OUTDOOR TYPE DISTRIBUTION FEEDER PILLARS

The feeder pillar shall be of the floor mounting type, totally enclosed, and weather proof, conforming to ISI IP 54 incorporating phenolic moulded fuse fittings with high rupturing capacity cartridge fuse links having a certified rupturing capacity of not less than 35 MVA at 433 volts. The feeder pillar shall be suitable for 440 volts 3 phase 4 wires, 50 cycles AC supply.

The cubicle should be fabricated out of heavy gauge sheet steel of thickness not less than 2 mm thick with suitable side frame and stiffeners. Hinged doors of not less than 1.6 mm thick should be provided at the front and rear of the cubicle to provide access for installation, operation, tests and inspection. The rear door is provided to facilitate cable termination and the front door for inspection of fuses, to switch „ON" and „OFF" the switch as and when required. All doors should be fitted with dust excluding neoprene gaskets. The doors should also be fitted with suitable locking arrangement with lock to prevent unauthorized opening. The cubicle should be designed for mounting over cement concrete plinths by the roadside, and should be of substantial construction capable of withstanding the vibrations normally experienced due to vehicular traffic. The top of the feeder pillar is of slanting construction in all directions to prevent any collection of water due to rain. A gland plate is provided at the bottom of the feeder pillar (removable) for mounting the cable glands. The feeder pillar shall be fitted on an angle iron pedestal at the bottom covered with sheet metal from all the four sides which facilitates cable bending etc specially with aluminium cables. Two lifting hooks shall be provided at the top. A door switch shall be provided in the feeder pillar so as to switch „ON" and „OFF" the lamp fixed in the brass batten holder below the top sheet of the pillar.

The sheet steel materials used in the construction of the cubicle should have undergone a rigorous rust proofing process comprising alkaline degreasing, descaling in dilute sulfuric acid solution and recognized phosphating process. After metal treatment, the interior of the cubicle should be painted with two coats of air-drying red lead primer followed by two coats of air drying anti-condensation paint. The exterior of the cubicle should be painted with two coats of staving red oxide primer followed by one coats of epoxy finishing paint. One final spray of epoxy paint shall be applied at the time of handing over the installation.

All the nuts, bolts shall be cadmium plated with spring washers. A minimum spacing from cable connection to the bottom of gland plate shall be 300mm.

The bus bars should be of electrical grade copper. They should be air insulated with adequate clearances between conductors and between conductors and earth. These should be colour coded to enable immediate identification of the phases and neutral. The current density for bus bars shall not be more than

1.0 amps per square mm. All bus bar joints and tapings should be of the clamped type as far as possible thereby avoiding drilling of holes on bus bars. The bus bars should be carried on supports made out of a suitable non-inflammable and non-hygroscopic material such as Hylam, Permali or Formics. Suitable insulating phase barriers should be provided to prevent accidental short-circuits during operation.

The fuse base contacts should be of copper comprising one top contact for bolting to the bus bar, one bottom contact for terminating the incoming or outgoing cable and a cable lug. The bottom contacts should be so designed that the cable tail from the cable gland to the cable lug is vertical and does not foul with any live parts in its run. The spacing between the respective fuse bases should not be less than 40mm.

The fuse carriers should be fitted as standard to all fuses to minimize accidental contact with live metal during inspection or maintenance. The carriers should be phenolic moulded, designed

to accommodate HRC fuse-links and should incorporate a wedge action device for tightening the fuse-link to the base contact. This wedge action should be operated externally by insulated thumb screws giving uniformly high pressure contact ad ensuring cool running under full load conditions, with positive location of the fuse-link tags on the base contact. The fuse-link shall not work loose due to vibration occurring from vehicular traffic.

A viewing aperture should be provided on the carrier to facilitate location of a „blown" fuse. The fuse carriers should also be easily withdrawable in service. The design of the carrier should be such that carrier components do not carry any current and the contact is decidedly between fuse-link tag and base contact. When incoming links are called for it should be possible to fit the carriers with solid links in lieu of fuses.

1.2.2 Specifications for LT Panel/ Switchgear

1.2.2.1 **CONSTRUCTION:-**

Switchgear enclosure shall conform to the degree of protection IP4x minimum thickness of sheet metal used shall be 2 mm.

The switchgear shall comprise a continuous line up of single / Multi-tire cubicles. The installations of circuit breakers however shall be limited to the bottom two tires only.

The design shall be of fully compartmentalized execution with metal/ insulating portions. Working height shall be limited between 750 mm to 1800 mm from the floor level.

Each breaker shall be housed in a separate cubicle, complete with an individual front access door; each vertical section shall have a removable back cover. All doors & covers shall be gasketed.

Switchgear cubicle shall be so sized as to permit closing of the front access door when the breaker is pulled out to ISOLATED position.

All switchgear, lamps & indicating instruments shall be flush mounted on the respective cubicle door whereas relays & other auxiliary devices of any may be mounted on a separate cubical.

1.2.2.2 BUS AND BUS TAPS

The main buses & connections shall be of high conductivity aluminium alloy, as per IS : 5082 sized for specification current rating with maximum temperature limited to 85 degree C (i.e., 35 degree C rise over 50 degree C ambient). Bus bars shall be designed for a maximum current density of 0.8A/ sq.mm.

All bus connections shall have adequate contact pressure which should be ensure by means of two bolt connections with plain & spring washers locknuts. Bimetallic connections between dissimilar metals.

Bus connections shall be fully insulated for working voltage with adequate phase / ground clearances.

Insulating sleeves for bus bars & surrounds for joints shall be provided.

Bus insulator shall be flame-retardant, track resistant type with high creep age surface.

All buses & connections shall be supported & braced to with stand the stresses due to maximum short circuit current & also to take care of any thermal expansion.

Bus-bars shall be sleeved in colour coded manner for easy identification & so located that the sequence RYB shall be from left to right, top to bottom of front to rear, when viewed from the front of switchgear assembly.

Bolted disconnected links shall be provided from all incoming & outgoing feeders for isolation of neutral, if necessary.

1.2.2.3 CIRCUIT BREAKER

Circuit breaker shall be three poles, single throw, air breaker type with stored energy, trip free mechanism & shunt trip. The circuit breaker of the outgoing feeder shall have an in built microprocessor base release, short circuit, over current & earth fault protection release.

Circuit breakers shall be draw out type, having SERVICE, TEST & ISOLATED position with positive indication for each position along with in built relay unit.

Circuit breaker of identical rating shall be physically & electrically interchangeable.

Circuit breaker shall be motor wound spring charged mechanism, motor voltage should be 240 V AC. For motor wound mechanism, spring charging shall take place automatically after each breaker closing operation. One open close-open operation of the circuit breaker shall be possible after failure of power supply to the motor. Power supply for this motor shall be taken from the output of auto changeover.

Mechanical safety interlocking shall be provided to prevent the circuit breaker from being racked in or out of the service position when the breaker is closed.

Automatic safety shutters shall be provided to fully cover the female primary disconnects when the breaker is withdrawn.

Each breaker shall be provided with an emergency manual trip, mechanical ON-OFF indicator, an operation counter & mechanism charge/ discharge indicator.

In additional to the auxiliary contacts required for normal breaker operation & indication, each breaker shall be provided with following for interlocking purpose:-

a) Position/ cell switch with 4 NO. + 4 NC contacts. These shall be available as spare for automation work.

Control Supply:- 230V AC for closing,

Tripping & indication lamps.

Auxiliary switch, with 6 NO+ NC contact, mounted on the stationary portion of the switchgear & operated mechanically by a sliding level from the breaker, in SERVICE position. These shall be available as spare for automation work.

Limit / auxiliary switches shall be convertible type, that is, suitable for changing NO contact to NC & Vice-Versa.

1.2.2.4 Moulded Case Circuit Breakers

Moulded case circuit breakers (MCCB) or fuse free breakers, incorporated in switchboards wherever required, shall conform to IS 13947 : 1993 in all respects. MCCBs shall be suitable either for single phase 240 Volts or 3 Phase 415 Volts AC 50 HZ supply.

MCCB cover and case shall be made of high strength heat resisting and flame retardant thermosetting insulating material. Operating handle shall be quick make/break, trip
- free type. Operating handle shall have suitable ON, OFF and TRIPPED indicators. Three phase MCCBs shall have a common handle for simultaneous operation and tripping of all the three phases. Suitable arc

extinguishing device shall be provided for each contact. Tripping unit shall be of microprocessor based electronic type provided on each pole and connected by a common tripe bar such that tripping of any one pole causes three poles to open simultaneously. Electronic tripping device shall have IDMT characteristics for sustained over loads and short circuits.

Contact trips shall be made of suitable arc resistant sintered alloy. Terminals shall be of liberal design with adequate clearances.

MCCBs shall be provided with following accessories, if specified in drawings/schedule of quantities:

- Shunt trip
- Alarm switch
- Auxiliary switch

MCCBs shall be provided with following interlocking devices for interlocking the door a switch board.

- Handle interlock to prevent unnecessary manipulations of the breaker.
- Door interlock to prevent door being opened when the breaker is in ON position
- De interlocking device to open the door even if the breaker is in ON position. MCCBs shall have rupturing capacity as specified in drawings/schedule of quantities.

i) MCCB shall be triple pole air break.

ii) The MCCB shall have a quick - make, quick - break mechanism operated by a suitable external rotary handle, complete with position indicator this handle shall have provision for pad locking in ON & OFF position.

iii) MCCB should have microprocessor base electronic release with over current, earth fault & short circuit protection equivalent to L&T „D" since with RC-10 release.

1.2.2.5 **CONTROL & INDICATION :-**

The circuit breaker shall be wired up wired up for both local & remote operation. A local- remote selector switch shall be provided for this purpose. Each breaking cubicle shall be equipped with following:-

One (1) Test- neutral - service selector switch stay put type with test/ service position pistol grip handle & key interlock for breaker marked 'E'.

Two (2) heavy duty, oil tight push buttons for TRIP & CLOSE.

Three (7) LED indicating lights on front of compartment:-

GREEN : Breaker open & spring charged
RED : Breaker close

AMBER : Trip / circuit healthy condition

WHITE : Control supply failure
Phase indication : One Red, One Blue & One Yellow

O & 1 NC should be provided for status monitoring of the remote / local position. Lamps shall be low watt, LED type lamp & lens shall be replaceable from the front.

The general scheme of connections for control, interlock & protection shall got approved before fabrication of panel.

1.2.2.6 **FUSES :-**

Fuses shall be HRC, preferably link type with a minimum interrupting capacity equal to the short circuit current.

Fuses shall be furnished complete with fuse base & fittings of such as to permit easy & safe replacement of fuse element. Visible indicated indication shall be provided on blowing of the fuse.

1.2.2.7 CURRENT TRANSFORMER :-

Current transformer shall be cast- resin type. All secondary connections shall be brought out to terminal blocks where or delta connection will be made.

1.2.2.7.1 Ratings :

- for incomers and bus coupler 1500-750/5+5 : 3 sets
- For out goings :

  800-400/5+5 : 4 sets

  600-300/5+5 : 4 sets

  400-200/ 5+5 : 2 sets

1.2.2.7.2 Accuracy class of the current transformers shall be :-

a. Class 5P10 for other relaying (protection).

b. Class 1.0, ISF < 5 for metering.

1.2.2.8 RELAYS :-

Relays shall be of draw out design with built in testing facilities. Small auxiliary relays may be in non-draw out execution.

Relay shall be rated for operation on 5 Amp secondary current & 110 / 220 V secondary voltage; number & rating of relay contacts shall suit the job requirements.

The contractor shall furnish, install & co-ordinate all relays to suit the requirements of protection & interlock & as broadly indicated in the annexure & drawings.

1.2.2.9 METERS (digital display):-

Indicating instruments shall be switch board type & accuracy class of 2% .

All Digital Watt-hour meter shall be provided, alternatively, they may have test block to facilitate testing of meter without disturbing C.T. or V.T. secondary connections.

Each breaker shall be with volt meter, amp meter with selector switches & KWH meters. Only outgoing feeders will be relaxed from voltmeters.

1.2.2.10 SECONDARY WIRING :-

i. The switchgear shall be fully wired at the factory to ensure proper functioning of control, protection, & interlocking schemes.

ii. Fuses & links shall be provided to permit individual circuit isolation from bus wires without disturbing other circuits. All spare contacts of relays, switches & other devices shall be wired upto terminal blocks.

iii. Wiring shall be done with FRLS PVC flexible, 650V grade, PVC insulated switchboard wires with solid copper conductors of 2.5 sq.mm for voltage circuits along with numbered ferrules.

iv. Each wire shall be identified, at both ends, with permanent markers bearing wire numbers as per contractors wiring diagrams.

v. Wire terminations shall be made with crimping type connectors with insulating sleeves. Wire shall not be spliced between terminals.

11 TERMINAL BLOCKS

i) Terminal blocks shall be 660V grade box clamp type with marking strips, similar to ELMEX 10 sq.mm of equal. Terminals for C.T. secondary leads shall have provision for shorting.

ii) Not more than two wires shall be connected to any terminals equal in number to 20% active terminals shall be furnished.

iii) Terminal blocks shall be located to allow easy access. Wiring shall be so arranged that individual wires of an external cable can be connected to consecutive terminals.

12 CABLE TERMINATION :-

i) Switchgear shall be designed for cable entry from the bottom. Sufficient space shall be provided for each of termination & connection.

ii) All provision & accessories shall be furnished for termination & connection of cables, including removable gland plates, cable supports, crimp type tinned copper/ aluminum lugs, brass compression gland with tapered washer (power cable only) & terminal block.

iii) Gland plate shall be minimum 4 mm thick.

13 BUS DUCT CONNECTION :-

i) Bus duct connections, where specified shall be furnished along with transportation of panel. Bus duct connections shall be generally from the top.

ii) All connecting bus work shall have the same continuous rating as associated switchgear bus & shall be fully braced for the listed short circuit current.

iii) All provision such as matching flange & other accessories shall be furnished for connection to bus duct if any, being supplied by this purpose will be furnished by contractor.

14 GROUND BUS :-

i) A ground bus, rated to carry maximum fault current, shall external full length of the switchgear.

ii) The ground bus shall be provided with two bolt drilling with GI bolts & nuts at each to receive 50 x 6mm GI flat.

iii) Each stationary unit shall be connected directly to the ground bus. The frame of each circuit breaker & draw out VT unit shall be grounded through heavy multiple contacts at all times except when the primary disconnecting devices are separated by a safe distance.

iv) Whenever the schematic diagrams indicate a definite ground at the switchgear, a single wire for each circuit thus grounded shall be run independently to the ground bus & connected thereto.

v) C.T. & V.T. secondary neutrals shall be earthed through removable links so removed without disturbing others.

15 NAME PLATES :-

i) Nameplates of approved design shall be furnished at each cubicle & at each instrument & device mounted on or inside the cubicle.

ii) The material shall be lamicoid or approved equal, 3mm thick with white letter on block background.

iii) The name plate shall be held self-tapping screws. Nameplate size shall be minimum 20 x 75 mm for instrument device & 40 x 150mm for panels.

iv) Caution notice suitable metal plate shall be affixed at the back of each vertical panel.

16. **SPACE HEATERS PLUG SOCKETS :-**

i) Each vertical section shall be provided with thermostat controlled space heater & 5A, 3 pin plug socket.

ii) Cubical heater, plug-socket circuit shall have individual switch fuse units.

17. **A.C. / D.C. POWER SUPPLY :-**

i) The following power supplied will be made available to the switchgear :

240 A.C. Supply : Two Feeders From these two single-phase feeders a reliable 240V, 1 Ph. AC bus shall be obtained using auto changeover scheme. The necessary equipment‟s for this scheme should be indicated.

The DC supply required for control purposes is to be obtained in each module through a rectifier arrangement, which will convert the 250V AC supply to 110V DC. The equipment necessary for this rectification including protective relaying as per the approved drawing are also to be included.

ii) Isolating switch fuse units shall be provided at each switchgear for the incoming supplies, 2-pole, single throw for A.C. & 2-pole, double throw for D.C. Bus-wires of adequate capacity shall be provided to distribute the incoming supplies to different cubicles. Isolating switch- fuse units shall be provided at each cubicle for AC/DC supplies.

iii) AC load shall be so distributed as to present a balance loading on three-phase supply system.

18. PAINTING :-

i) All surfaces shall be sand blasted, pickled & grounded as required to produce a smooth, clean surface free of scale, grease & rust.

ii) After cleaning, the surface shall be given a phosphate coating followed by 2 coats of high quality prime & stove after each coat.

iii) The switchgear shall be finished in light gray (IS shade # 631) with two coats of synthetic enamel paint.

iv) Sufficient quantity of touch- up paint shall be furnished for application at site.

19. SPECIAL TOOLS & TACKLES :-

i) A set of special tools & tackle (manual charging handle & operating handle trolley for lifting outside breaker for maintenance) which are necessary or convenient for erection, commissioning, maintenance & overhauling of the equipment shall be supplied.

ii) The tools shall be shipped in separate containers (Tool Box) clearly marked with the name of the equipment for which they are intended.

20 SPARES:-

i) The bidder shall submit list of recommended spare parts for three (3) years satisfactory & trouble free operation indicating the itemized price of each item of the spares.

21. **DRAWINGS, DATA & MANUALS :-**

i) To be furnished for approval after award of work.

a. General arrangement drawing showing constructional features, space required in front for withdrawals, power & control cable entry points etc.

b. Details of materials with specifications.

c. Typical foundation plan & loading.

d. Typical breaker control schematic.

e. Matching flanges & terminals for the bus termination.

f. Type test reports on circuit breaker.

g. Technical leaflet on

h. Circuit breaker

i. Instrument transformer

j. Relays, meters, switches etc.

k. Single line diagram

l. Control schematic

m. Wiring diagram

22. Instruction manuals of switchgear & individual equipment:-

The manual shall clearly indicate the installation method, checkup & tests to carried out before commissioning of the equipment.

23. The bidder may note that the drawings, data & manuals listed here in are minimum requirements only the bidder shall ensure that the other necessary write-ups, curves & information required to fully describe the equipment are submitted with his bid.

CIRCUIT BREAKER

Make - As per approved make. Type - Microprocessor release air
- circuit breaker

Rated voltage - 415 Volts Rated frequency - 50 Hz
Rated current - **1600/(Icu=Icf=1sec 50 kA) 800A(Icu=Icf=1sec 50 kA)**
No. of pole - 3

Aux. Voltage for trip/close coil - 110 V DC Motor for spring charging Voltage- 240 V AC Protection unit - Equivalent to SR-18G with fault indication & thermal masonry.
Interlocking arrangement electrically & mechanically with bus coupler & incomer.

PROTECTION (FOR LT SUPPLY 415V PANEL)

The minimum protections to provided for different type of circuit are listed below:-

INCOMING FEEDER:-

2 over current +E/F relay microprocessor based along with the element of instantan- eous o/c & E/F protection.

BUS COUPLER:-

3 O/C relay microprocessor based

All inverse time O/C relay shall be 3 sec. Version.

All definite time O/C relay shall have adjustable time range of 0-6 Sec.

Apart from protection relays each breaker shall be provided with auxi. Contact multiplier relay, anti-pumping relay, trip supervision relay, lockout relay test terminal block. These relay shall be hand reset.

1.2.3 Specifications for LT Bus Duct

1.2.3.1 Design Criteria

- The LT non phase segregated bus duct serve as a interconnection between the LT switchgear and outdoor LT transformer.
- The LT bus ducts will be installed partially indoor and partially outdoor in a hot, humid and tropical atmosphere. All panels associated.
- Bus duct associated equipment and wiring shall be provided with tropical finish to prevent fungus growth. All ventilation openings shall be screened and drains shall be filtered to prevent entrance of dust and insects.
- For continuous operation at specified ratings, temperature rise of the bus duct and auxiliary equipment shall be limited to the site permissible values stipulated in relevant standards and / or this specification.
- Bus duct and auxiliary equipment shall be capable of withstanding the mechanical forces and thermal stresses of the short circuit currents listed in the annexure without any damage or deterioration of material.
- The bus ducts shall be self-cooled and shall not be equipped with blower or any other type of forced ventilation.
- Bus duct enclosure shall be of sheet steel.

1. Specific Requirements.

- **General**
- The LT bus duct shall be non-phase segregated enclosure type.
- The layout of the bus ducts shall be generally in accordance with enclosed drawings. The details shown however are only typical. Bidder may propose changes to suit his particular design.
- All parts and accessories shall have appropriate match mark and part numbers for easy identification and installation at site.

1. Enclosure

- Phase shall be enclosed in weather proof, dust-tight, enclosure of sheet steel fabricated type conforming to degree of protection of IP 55.
- Circumferential neoprene rubber gaskets shall be provided for dust tight joints with adjacent enclosure section.
- The bus enclosure shall have extended bellows or equivalent means to allow for temperature changes and vibrations. Flexible joints shall be provided in enclosures at all points where the bus duct terminates at equipment to withstand vibration, expansion/ construction and at suitable intervals in any straight run of the bus duct where expansion and contraction would otherwise result in stress in the supporting structures.
- All outdoor bus enclosures shall be so designed & constructed as to prevent accumulation of rain water on top sheet. Similarly all gasketted flanged joints shall be suitably protected against direct splashing of rain water in case of outdoor runs.
- Suitable inspection openings shall be provided for access to support insulators, bus joints, transformer terminals, switchgear terminals etc. All inspection openings shall have reliable sealing arrangement with neoprene gaskets.

- Seal-off bushings complete with wall frame and support plates shall be provided where the bus duct penetrates the building wall. The seal is to prevent free exchange of air between indoor and outdoor portions of the bus duct.
- Silica-gel breather shall be provided on both indoor and outdoor portions of the bus duct.
- Filtered drains for drainage of condensate shall be provided at the lowest points and at such locations where accumulation of condensate can be expected.
- Shipping length of the bus duct shall be not more than three (3) meters in length.

4. Bus Conductor

- The bus conductor shall be of high conductivity, aluminium allow, supported on wet process porcelain insulators.
- The bus conductor shall be designed for bolted connections throughout the run.
- Flexible connections shall be provided between bus sections to allow for expansion and contraction of the conductor. Flexible connections shall also be provide at all equipment terminations.
- All contact surfaces shall be silver plated to ensure an efficient and trouble-free connection. All connection hardware shall be non-magnetic and shall have high corrosion resistance.

5. Disconnect Link

- Removable bolted discount link shall be provided in the bus where shown on the drawing for the purpose of isolation.
- Disconnect link shall consist of a removable section of conductor and shall be so constructed as to permit easy removal or reinsertion without alignment difficulties.
- The bus on both sides of the link shall be rigidly supported so that the disconnect link is equal in mechanical strength to any other section of the bus.
- A minimum clearance of 300mm (12") shall be provided between the disconnected bus sections with the link removed.

6. Insulators

- Bus support insulators shall be interchangeable, high creep, high strength, wet process, fine glazed porcelain. Alternatively good quality cast resin insulators.
- Insulator shall be mounted in such a way so as to permit easy removal or replacement without disassembly of the bus. The insulator mounting plate shall be designed for cantilever loading to withstand the short circuit.
- The conductor shall be fastened on the insulator through fixed and slip joints so as to allow conductor expansion or contraction without straining the insulator.
- Space heater shall be provided preferably located near to each insulator to avoid moisture condensation within bus-duct. No and wattage rating of space heater shall be decided by the tenderer.

7. **Connections & Terminations**

- All matching flanges seal off bushings, gaskets, fittings, hardware and supports required for termination of the bus duct at the switchgears, transformers shall be furnished.
- In this connection the contractor is required to coordinate through the Engineer in Charge with

the suppliers of the switchgear, transformers with regard to connection details, mechanical and thermal stresses.

- Flexible connections both for conductor and enclosure shall be furnished.
- At all equipment termination to provide for misalignment upto 25mm (1") in all directions.

8. Between bus duct supported from building steel to prevent transmission of vibration.

- The equipment terminal connections shall be readily accessible and shall provide sufficient air gap for safe isolation of equipment during testing.
- If the material of bus conductor and that of the equipment terminal connectors are different then suitable bi-metallic connectors shall be furnished.

9. **Grounding**

- A separately run 50x6mm GI flat suitably clamped along the enclosure shall be used as the ground bus. All parts of the bus enclosure supporting structures and equipment frames shall be bonded to above ground bus.
- Ground pad shall be bolted type to accommodate 50x6mm galvanized steel flats. Complete with suitable tapped holes, bolts and washers.

10. **Supporting Structures**

- All supporting structures required for hanging and/or supporting the complete bus duct shall be furnished. These include all members, indoor/outdoor posts, bolts, shims, base plate, beams, hangers, brackets, bracings and hardware.
- All buses shall be adequately supported and braced to successfully withstand normal operation, vibration, thermal expansion, short circuit forces and all specified design loads.
- Supports shall be designed to provide tolerance of plus/minus 12mm (1/2") in the horizontal and vertical directions.
- All steel members shall be hot dip galvanized after fabrication. All hardware shall be of high strength steel with weather resistant finish.
- Concrete foundation, building steel, concrete, inserts/plates will be provided by the owner.
- The contractor shall co-ordinate with the owner for this purpose giving well in advance the details of his requirements so as to enable the owner to arrange for the same in time.

11. **Wiring**

- All wiring for space heaters shall be done with insulated stranded copper conductor of not less than 2.5 sqmm cross section. Each wire shall be identified at both ends with wire designation as per contractor‟s wiring diagram and shall be brought out to a terminal box outside the bus duct.
- Terminal blocks shall be box-clamp type Elemex 10 sq.mm with marking strips or approved equal.
- At least 20% spare terminals shall be furnished in the terminal block.

3. **Name Plate**

- Suitable name plate shall be furnished with each piece of equipment.
- Materials for name plate shall be plastic/lamicoid, 3mm thick, using white letters on black background.

1. Finish

- Except for supporting steel structures which shall be galvanized, all equipment shall be finished with an undercoat of high quality primer followed by two coats of synthetic enamel paints.
- The interior surface finish shall be as per manufacturer‟s standard. The shade of exterior surface finish will be battle ship gray shade 632 as per IS-5.
- Pre-treatment consisting of degreasing, derusting etc. shall be done on all fabricated parts before painting or galvanizing.
- Paints shall be carefully selected to withstand heat and weather conditions. The paint shall not scale-off or crinkle or get removed by abrasion due to normal handling.
- Sufficient quantities of all paints and preservatives required for touching up at sites shall be furnished.

4. **Handling of cable drum and cable:**

- Rolling of drum shall be avoided as far practicable. For short distance, the drums may be rolled they are rolled slowly and in proper direction as marked on the drum. In absence of any identification. The drums may be rolled in the same direction as it was rolled during taking up the cable.
- For unreeling the cable, the drum shall be mounted on jacks or on cable well. The spindle shall be strong enough to carry the weight without bending. The drum shall be rolled on the spindle slowly, so that cable should come out over the drum & not below the drum.
- While laying cable, cable shall be used at and interval of 2 meters. The cable shall be pushed over the roller by a gang of people positioned in between rollers. The cable shall not be pulled from the end without laying intermediate pushing arrangement. Bending radius shall no be less than what is specified by manufacturer.

15. **Cable laying:**

- Cables shall generally be installed in cable trays except for some short runs in buried formation or in conduit / pipe for protection or crossing. Multi core power cable laid on trays & riser shall be neatly dressed & clamped with fabricated 25 x 3 mm G.S flat or cable tray at an interval of maximum 1 meter for vertical / inclined run & 1.50 meter for horizontal run. Control cables may be laid in single layer with touching formation. Power & control cables shall be claimed in separate group. Power & control cables shall be no be laid in a common tray excepting in very special case where a gap of 150 mm shall be maintained between power & control cables.
- H.T & L.T power cables shall be laid in cable trays in single layer & with spacing equal to the diameter of cable.
- Control cable can be laid upto a maximum of three layers in each tray.
- Both power & control cables shall be clamped to the trays rungs by means of clamp made up to 25 x 3 mm fabricated G.S flat at an interval of 1500 mm for horizontal run & 1000 mm for vertical / inclined cable run.
- The cable trays shall be run with a vertical spacing of 300 mm cable trenches. A minimum of 300 mm clearance shall be provided between the top of tray & beams, cold piping, 500 mm clearance for hot piping / object to facilitate installation of cables in tray.
- Adequate pull boxes shall be provided in conduit run to facilitate. Cable pulling in long runs & also to ensure that there will be no more than 270 degree bend between the pull points.
- Cable tray shall be installed to accommodate cable manufacture‟s recommended maximum pulling tension & minimum bending radius.

- All opening in the floor & wall for cable access shall be sealed after installation of the cable system with non-inflammable materials.
- All floor/ wall for cable entry to the electrical equipment & accessories shall be sealed with non-inflammable material, after completion of cable installation. Thickness of such materials shall be equal to the thickness of floor / wall.

16. **Cable power & control:**

- The tender shall install & connect all power & control cable required for complete installa- tion with in his scope of work. Type and size of power& control cable shall be as specified & as supplied under a separate sub section for power and control cable.
- In general all power and control cable shall be run in cable trays in cable trenches. Isolated runs of control cables shall be run in rigid conduit.
- Jointing of power cable should be avoided as per as possible. However, if any splicing of control cable is required to carry out interlock it will be done junction boxes not in the conduit or in the trays. Such junction boxes shall be in scope of tenderer.
- The contractor shall not installs cables with different voltage in the same cable tray.
- During cable installation care shall be taken so that actually binding radius of each cable is not less than the one recommended by the cable manufacturer.
- For cable buried directly underground their shall be a stone free sand cushion both above and below the cable run being held by brick wall support on two (2) sides. The excavated portion above the top sand cushion shall be covered by concrete precast slab supported on the side walls & finally filled up with standard back fill.
- Cables shall be pulled into the trenches in strict accordance with the cable manufacture‟s instruction.
- Tender shall furnish & install suitable solder less crimping type cable lugs at the termination of all wires & cables if not already furnished with the equipment.
- All exposed conduits & armoured cables shall be tagged with numbers that appear in the conduit & cable schedules as prepared by the tenderer. All conduits & armoured cable shall be tagged at their entrance and / or exist from any piece of apparatus, junction box or pull box. Aluminum tags shall be used with the number engraved / punched on the tag. Tag shall suitable secured to the conduit or armoured cable.
- The cable tags shall also be provided at all bends and at interval of 30 M on straight run of cable in order to facilitate the identification.
- Laying termination & connection of all control cables for interlock, protection, indication & annunciation.
- The tender shall prepare cable schedule & interconnection diagram & submit the same for approval of the Authority. Cable laying shall be started with the approval cable schedule & interconnection diagrams. Separate cables for each type of following services/ functions as applicable shall be used & laid along the run for each feeders.
- Power - designate as „P‟
- Control protection interlock, meeting, indication & annunciation designate as “C”.

17. **Filed Testing:**

- Filed testing shall be required for all the equipment & accessories furnished, installed or connected

by the tenderer to ensure proper installation, setting, connection & in accordance with the plans, specification and manufacturer‟s recommendations.

- Testing shall be conducted in presence of Owner‟s Engineer (i.e., Engineer in Charge) with prior notice at least 2 weeks before commencement of any test.
- Filed testing work shall be done as per the latest edition of the relevant standards. All tests recommended by the equipment manufacturer shall be conducted. The tenderer shall submit the list of all filed tests to be conducted for all equipment & accessories for review
- / approval by the owner.
- Testing shall include any additional tests suggested by the owner that the deems necessary
- because of filed condition to determine that equipment, materials & system meet require- ments of the specification.
- The tender shall depute qualified personal to conduit all testing & shall provide all labour and testing equipment required for & incidental to testing.
- The tender shall be responsible for any damage to equipment & material due to improper test procedure or test apparatus & shall replace to original condition of any damaged equipment or material.
- The tender shall maintain in quadruplicate a written record of all tests showing date, personal making the tests, equipment or material tested performed & result. Two copies of test records shall be given to the authority.

18. **Commissioning:**

After the satisfactory test is performed the equipment & material shall be put on trial operation by the tenderer. After successful trial operation, the equipment shall be put on performance tests initially at no load condition & finally with different loading conditions

Figure 2: Modified provisions in CPWD works manual 2019 regarding testing charges to be borne by contractor

SPECIFICATION FOR THE ELECTRICAL INSTALLATION WORK

The following specifications will apply under all circumstances to the equipment to be installed against this contract and it is to be ensured that the contractor shall obtain for himself at his own expense and on his own responsibility all the information which may be necessary for purpose of making the tender and for entering into a contract keeping in view the specification and inspection of site etc.

The tendered rates shall include for the cost of material erection, connection, commissioning, labour, supervision, tools, transport all taxes, contingencies, breakage, wastage, sundries, scaffolding, maintenance of installations for defect liability period i.e. they should be for an item complete in all respects.

The general specifications of electrical works for internal-2023, general specifications for DG sets-2013 and general specifications for Sub-station works-2013 of CPWD shall be followed.

1. SITE CONDITIONS: the equipment to be erected and commissioned should be suitable for the site conditions, it is estimated that the maximum temperature as site will be 50ºC.

2. L. S. SPECIFICATIONS:

The following Indians standard specifications will apply to the equipment and the contract unless specified otherwise.

a)	Transformer	IS 2026-1977 & 1981
b)	Low tension air-circuit breakers and MCCB	IS 2516-1965
c)	Switch fuse unit on cubicle switch boards etc.	IS 4047-1967
d)	Switch fuse unit on industrial boards etc	IS 4064-1967
e)	Switch gear bus bars	IS 375-1963
f)	HRC fuse links	IS 2208-1962
g)	Distribution fuse boards	IS 2675-1966
h)	Degree of protection provided by enclosure For low voltage switchgear	IS 2147-1962
i)	PVC cables.	IS 1954-1962
j)	11,000 volt paper insulated lead sheathed cables	IS 692-1965
k)	Tubular fluorescent lamps for general lighting Service.	IS 2418-1965
l)	Tungsten filament lamps for general service.	IS 418-1963
m)	Ceiling fans	IS 374-1966
n)	Flood light	IS 1947-1961
o)	Well glass flame proof electric light fitting	IS 2206-1962 Part-I
p)	XLPE cables	IS 7098-Part-II
q)	Industrial light fittings with metal reflectors.	IS 1971-1961
r)	Water tight electric light fittings	IS 3533-1966
s)	Fittings for rigid steel conduits	IS 2667-1964
t)	Rigid steel conduits for electrical wiring	IS 1958-1964
u)	Accessories for rigid steel conduit for electrical Wiring.	IS 3873-1966
v)	Switch socket outlets.	IS 4615-1963
w)	Three pin pug and socket outlets`	IS 1233-1967
x)	Switches for domestic and similar purpose	IS 3858-1966
y)	AC electricity meters	IS 722-1977/1980+86

CODE FOR PRACTICE

Earthing	IS 3043-1966
Electrical wiring installations	IS 732-1963
Lighting protection	IS 2309-1969

TERMS AND CONDITIONS

1- The work shall be carried out strictly in accordance with IIT, (BHU) VARANASI General Specifications for Internal Electrical Works 2023 & External Work-2023 in accordance with Indian Electricity Rules, 1956, Indian Electricity Act, 2003 as amended up to date and as per instructions of the Engineer-in-Charge including as below and nothing will be paid extra.

2- No T&P shall be issued by the Deptt. to the contractor.

3- The rate quoted by the contractor should be inclusive of all Taxes, Cartage, Packing & Forwarding, Loading & Unloading, Installation, Testing & Commissioning at site of work.

4- The contractor shall be responsible for any damage done to the building or electrical installations during the execution of the work. Damage, if any, shall have to be made good by the contractor at his own cost failing which the same shall be got rectified & made good at the risk & cost of the contractor.

5- During execution of work if any accident occurs it will be responsible of the contractor for any claim to Human Lives etc.

6- The tenderer should in his own interest visit the site and familiarize himself with the site conditions before tendering. For any clarification tenderer may discuss with the engineer in charge.

7- Making opening and its repair in the walls/floors/slabs or modification in the existing opening for pipes/cables is to be done by the tenderer free of cost.

8- Complete testing is to be given up to full satisfaction of the engineer-in-charge.

9- The materials shall be procured only from the manufacturers or their authorized dealers & documentary proof for such procurement & supply shall be produced by the contractor if desired by the department. The department reserves the right to send such materials to the manufacturers or authorized test laboratory to verify the genuineness & quality of the product. Contractor shall preserve the copies of invoices, test certificates. gate passes etc. to prove the genuineness of material / purchases. The responsibility of procurement, genuine material of specialized works shall rest with the contractor.

10- The work shall be carried out in engineering like manner & bad workmanship shall be rejected summarily. For redoing the job, no claim of the contractor shall be entertained on this account.

11- The site shall be cleared of malba, debris etc. due to execution of work at site by the contractor without any extra cost to the department.

12- The contractor or his authorized representative shall sign the site order book & comply with the remarks entered therein by the Engineer-in-charge or his representative.

13- The watch & ward of the materials & of the installations would be responsibility of the contractor till the work is completed / handed over. Nothing extra shall be paid to the contractor on this account.

14- All the material shall be got approved by engineer-in-charge before use at site.

15- The firm will be required to submit guarantee/warranty certificate of all solar LED fittings for 5 years from the manufacturer/OEM to the department. A certificate OEM regarding availability of spare parts during the guarantee/warranty period shall also be submitted.

The sole responsibility about efficiency of equipment rest with the contractor. **5% (Five percent) of the cost of LED fittings shall be retained as Security Deposit from each bill and the amount so deducted would be released after guarantee/warranty period (i.e. 5 years) from the date of completion of the entire work under the agreement if the performance of the equipment is found satisfactory.** If any defect is noticed during the guarantee/warranty period, the contractor shall rectify it within 15 days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

APPROVED MAKES OF MATERIALS (E & M)

Sl.	Details of Materials/ Equipment	Manufacturer's Name
A	**I.E.I, MCBDB & MCB, CABLES AND WIRES**	
1	MCB, Isolator, Industrial plug Socket, RCCB, RCBO's (ISI Marked/IEC Compliant)	Schneider Electric ACTI-9(N)/ Legrand (DX3)/ LK (Formerly L&T) (Exora)/ ABB (SB200M)/Seimens (Betaguard)/ Indoasian (Optipro)
2	MCBDB & Loose Wire Box	Schneider Electric/ Legrand/ L&T/ ABB (Elegance)/ Siemens/ Indoasian (Optipro)
3	Change Over Switch	LK/ Hagger/ C&S/Indoasian (Optinova)
4	Automatic Transfer Switch (ATS)	Asco/Russel/Socomac/Hager/ABB/ L&T
5	FRLS PVC insulated copper conductor single core cable for wiring. (ISI marked)	Finolex/ RR Kabel/ LK/ Polycab/ KEI
6	Armoured/Unarmoured Telephone cable, Coaxial Cable	Finolex/ RR Kabel/ GLOSTER/KEI
7	MS Conduit (ISI marked) with heavy duty MS conduit pipe accessories	BEC/NIC/AKG/RMCON/JPC **(Note: The make of accessories shall be same that of conduit pipe and will comply to IS/4768 part 2 2003)**
8	PVC conduit (ISI marked) with heavy duty PVC conduit pipe accessories	AKG/ Norpack/BEC/Polypack/Precision/Anchor/ Polycab
9	Modular switches, socket/ telephone socket/ cable TV socket/ data outlet socket/ fan regulator/ GI boxes etc (Wiring accessories)/ regulators etc.	LK/Legrand / Schneider electric / Wipro NORTH WEST/Hagger / ABB
10	Selector Switch & Toggle Switch	Salzer (L&T)/ Siemens/ Kaycee/Rishabh/ABB
11	PVC/Metal Trunking	MK/ Schneider Electric/ Legrand/OBO
12	GI Pipe	Tata/ Jindal (Hissar)/ Prakash Surya
13	Paints	Nerolac/ Asian/ Berger
14	Terminal Blocks & Connectors	Elmax/Wago/Hensel/Connect well
15	Phenolic Laminated Sheet/ Bakelite sheet	Hylam/ Formica (P-I Grade)/ Mylam/Greenlam
16	Cat-6 Cable, Co-Axial cables, Telephone Wires & cable	Amp, Avaya/ Beldon/ Legrand/ Molex/ Schneider/ Comscope/ D-Link
B	**FANS & FITTINGS**	
1	LED Fittings (ISI Marked/BEE Certified)	Wipro/ Phillips/ Crompton Greaves/ polycab
2	Exhaust fan	Crompton greaves/USHA/ Orient heavy duty
3	Ceiling Fan ISI Marked/BEE Certified)/Wall Fan	Crompton Highspeed / USHA Striker /Orient
4	Wall Bracket Fitting	Crompton Greaves / Phillips/Lighting Technology/ Jaquar/Anchor Panasonic/ Orient Electric
5	Lamps / Fluorescent tubes/ T-5 Fluorescent Tubes/ LED lamp	Wipro/Phillips/ Crompton Greaves
6	Geysers (BEE Certified)	CG/Usha/Jaquar/Bajaj/Vegard
C	**STREET LIGHTING**	
1	LED post Top fitting	Wipro/ Phillips/ Crompton Greaves / Polycab
2	LED Street light fitting	Wipro/ Phillips/ Crompton Greaves / Polycab
3		
4	Ornamental MS & G.I pole (factory finish)	Schreder- Ecopole3m ATG in GI with base plate/ Valmont / Wipro/ Phillips/ Crompton greaves/ Bajaj/Paruthi Engineers Pvt. Ltd./ Luster/Twinkle
5	Hot Dipped Galvanized Octagonal Pole (Factory finish)	Valmont/ Wipro/ Phillips/Crompton Greaves/Bajaj/
6	Polycarbonate Junction Box/ Enclosure	Hensel/ Spelsberg/ Naptune-Bals/OBO

7	XLPE Insulated PVC Sheathed Alum./ Copper Conductor Armored Cable of 1.1KV Grade	Finloex/ RR Kabel/KEI/Gloster/Polycab
D	**SUB STATION EQUIPMENTS**	
1	LT panel/ Meter Panel Board/ Outdoor Feeder Pillar/APFC panels / Bus ducts	Tricolite Electrical Industries/ C&S/ Sterling & Wilson/ MILESTONE/ Indoasian /Associated Switchgears & Projects Ltd/ Allied Engineers/ Pristine/Electro care/ SPC Electrotech Pvt. Ltd. /ASES/Shalabh/Excel Control System
2	SMDB	Schneider Electric ACTI-9(N)/Legrand/LK(FORMERLY L&T)(ENERSYS-S)/ABB(Elegance)/Siemens/Indoasian (Optipro)
3	Air insulated Rising Main/ Bus Trunking & accessories	C&S/ L&T/Schneider/Legrand/Godrej
4	Sandwich type bus Trunking/ Rising Main	C&S/ L&T/Schneider/Legrand/Godrej
5	Moulded Case Circuit Breaker (MCCB) Thermal Release/ Microprocessor Based (Ics=Icu=100%)	Schneider electric NSX series/ Legrand (DPX3)/ L&T(D-Sine)/ABB(T-Max)/Siemens(VL series)/C&S(Winbreak-1/2) / Indoasian (Optium)
6	Power/ Aux. Contactor 3/4 Pole	Schneider Electric/ Legrand/Hager/L&T/ ABB/ Siemens
7	Potential transformers/ Current Transformers	Automatic Electric/ Gilbert & Maxwell/ Matrix/ Precise/ L&T/ Kappa
8	LED Type Indicating Lamps/ Push button	Schneider electric /L&T / Siemens/C&S/Vaishno
9	Over load relays	Schneider Electric/ L&T/ Siemens/C&S/ABB
10	Conventional/Electronic Digital Meters (A/V/PF/Hz/KW/KWH)	Conzerv/ L&T/ Secure/ AE/ C&S
11	Timer	Schneider Electric/ Legrand / Hager / L&T/ABB/Siemens/C&S
12	Fasteners/ GI Clamps	Hilti/ Fisher/ Chilli / GMGR
13	D.W. Corrugated HDPE Pipe (ISI Marked)	REX/ Duraplast/Triputi/ Duraline/CPE
14	Transformer (Oil/ Dry pipe)	Crompton/ ABB/ Schneider/VOLTAMP
15	HT Panel/ Ring main Unit	Compton/ Siemens/ ABB/ L&T/ Schneider
16	H.T. Cable (ISI marked)	Finloex/ RR Kabel/KEI/Hagger/Polycab
17	HT End Termination/Cable Joining Kit	Reychem/ Denson/ Cab Seal/safekei/3M
18	ACBs with Display	SchneiderElecric(Masterpact)/Legrand(DMX3MP4)/L&T (U-Power-OMEGA)/ABB(Emax)PR122/Seimens
19	Rubber mat	Jyoti/ Deep Jyoti/ Premier (Duly ISI Marked)
20	Ammeter	Rishab/ L&T/AE/C&S
21	Voltmeter	Rishabh/ L&T/AE/C&S
22	Capacitor and Reactors /APFC Relay	EPCOS/ L&T/ DUCATI/ ABB/ Siemens/ Schneider
23	XLPE Insulated PVC Sheathed Alum. / Copper Conductor Armored/ Unarmored Cable of 1.1KV Grade	Finloex/RR kabel/KEI/ Hagger/Polyacb
24	Cable Glands Double Compression With Earthing Links	Baliga Lighting/ Comet/ Cosmos/ Dowells/Gripwell
25	Bimetallic Cable Lug	Comet/ Dowells (Biller India)/ Hex Brass (Copper Alloy India) / Jainson/ Action
26	MS/ GI Cable Tray	Pilco/slotco/pasco/MEM/ BEC/ steelways/ Legrand/ RMcon/True leader/R.P. Controls/OBO
27	Programmable Logic Controller (PLC)	Siemens/ Allen Bradley/ L&T/ ABB

BILL OF QUANTITY

Sl. No.	Item Description	Quantity	Units	Estimated Rate in Rs. P.	TOTAL AMOUNT With Taxes in Rs. P.
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (Make: Polycab/ Finolex/ L&T)				
1.01	Group C	175.00	Points	1704.00	**298200.00**
2	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required. (Make: Polycab/ Finolex/ L&K)				
2.01	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	450.00	Mtrs	311.00	**139950.00**
2.02	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	750.00	Mtrs	373.00	**279750.00**
2.03	2 X6sq. mm + 1 X 6 sq. mm earth wire	150.00	Mtrs	482.00	**72300.00**
2.04	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	520.00	Mtrs	813.00	**422760.00**
2.05	4 X 10sq. mm + 2 X 6 sq. mm earth wire	95.00	Mtrs	1078.00	**102410.00**
3	Supplying and fixing suitable size GI/PVC box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required Make- L&K/ABB/LEGRAND /INDOASEAN	100.00	Nos	545.00	**54500.00**
4	Supplying and fixing suitable size GI/PVC box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.Make- L& T/ABB/LEGRAND /INDOASEAN	120.00	Nos	659.00	**79080.00**
5	Supplying & fixing suitable size GI/PVC box wih modular plate and cover in front on surface or in recess including providing and fixing 25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required. Make- L&K/ABB/LEGRAND /INDOASEAN	10.00	Nos	807.00	**8070.00**
6	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator) Make- L&K/ABB/LEGRAND /INDOASEAN				
6.01	12way , Double door	2.00	Nos	2871.00	**5742.00**

7	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator) Make- L&K/ABB/LEGRAND /INDOASEAN				
7.01	8 way (4 + 24), Double door	4.00	Nos	6337.00	**25348.00**
8	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 125 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCCBs and incomer) as required . (Note : Vertical type MCCB TPDB is normally used where 3 phase outlets are required.) Make- L&K/ABB/LEGRAND /INDOASEAN				
8.01	8 way (4 + 24), Double door Make- L&K/ABB/LEGRAND /INDOASEAN	3.00	Nos	10724.00	**32172.00**
9	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required				
9.01	200 A, 36 kA,FP MCCB Make- L&K/ABB/C&S/Legrand/Hagger/Seimens/Schneider	3.00	Nos	15956.00	**47868.00**
10	Supplying, installing, testing and commissioning of following capacity TPN tap off box made of 1.6mm thick sheet steel enclosure duly painted with powder coating on existing rising mains complete with TPN disconnector FSU and HRC fuses, connections, earthing etc. as required.				
10.01	200 A TP&N Make- L&K/ABB/C&S/Legrand/Hagger/Seimens/Schneider	1.00	Nos	19533.00	**19533.00**
11	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required. Make-L&K/ABB/C&S/Legrand/Hagger/Schneider				
11.01	Single Pole MCB Make- L&T/ABB/C&S/Legrand/Hagger/Seimens/Schneider	120.00	Nos	285.00	**34200.00**
11.02	Triple Pole MCB Make- L&K/ABB/C&S/Legrand/Hagger/Seimens/Schneider	10.00	Nos	1070.00	**10700.00**
12	FP MCB 40/63 A Make- L&T/ABB/C&S/Legrand/Hagger/Seimens/Schneider	15.00	Nos	2389.00	**35835.00**
13	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 A 240 V "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	5.00	Nos	1258.00	**6290.00**
14	4 Way Enclosure Metal Box	15.00	Nos	670.00	**10050.00**
15	Supply & laying of 3.5CX95 Sqmm Aurmoured Aluminium cable XLPE Cable and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface or as per the site requirement . Make: KEI/ Gloster/ Universal./Polycab	140.00	Mtr	1275.00	**178500.00**

16	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	3.00	Nos.	7658.00	**22974.00**
17	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 meter below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50 mm)	70.00	Mtr	755.00	**52850.00**
18	LED Batten light (System lumen efficacy ≥105 85%, Operating voltage AC 140 270 Volt, frequency 50/60 hz, Operating temp range -5 °C to 40 °C, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10%, P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Colour Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-inCharge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).				
18.01	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm) 36 watt Make: Wipro/ Philipse/CG/Polycab/)	20.00	Nos	678.00	**13560.00**
19	LED Panel light 2x2 ft., (System lumen efficacy >135 lm/Watt) Supplying, installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.95, IP20, CRI >80,UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends ,CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Colour Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).				
19.01	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm) 36 watt Make-Phillipse/Wipro/CG/Polycab	95.00	Nos	3997.00	**379715.00**

20	LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy >135 lm/Watt) Supplying, Installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, frequency 50/60 hz, Operating temp range -5 0C to 50 0C, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2, P. F.≥0.95, IP-66,IK-10, CRI >70, under voltage and over voltage protection,EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirement., suitable tilt able fitting, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin) , SDCM(Standard Deviation Colour Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).				
20.01	100 watt	35.00	Nos	2567.00	**89845.00**
21	Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminium alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, suitable for operation with regulator for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 0C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC supply, Ceiling Fan compliant to IS 374:2019 fan i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required.				
21.01	1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	40.00	Nos	2737.00	**109480.00**
22	Supplying and fixing of 230VAC 1Ph. Stepped type Modular Fan regulator (2 module)	40.00	Nos	220.00	**8800.00**
23	Supplying,Cutting of huck , painting and fixing of MS Down down conduit for installation of ceiling fan upto 5 to 8 feet	40.00	Nos	550.00	**22000.00**
24	Supplying and fixing of 230VAC 1Ph. 450 mm exhaust Fan with sweep feature. (Make: Usha / Crompton / Orient)	35.00	Nos	5200.00	**182000.00**
25	Supplying and fixing of 230VAC 1Ph.400 mm ,900 rpm Wall Fan Make: Usha / Crompton / Orient	35.00	Nos	3050.00	**106750.00**
26	Supply and installation of industrial type wall fan heavy duty . Make: Usha / Crompton / Orient	25.00	Nos	6500.00	**162500.00**

27	Supplying and installing following size of perforated painted with powder coating M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
27.01	100 mm width X 50 mm depth X 1.6 mm thickness	70.00	Nos	866.00	**60620.00**
Total in Figures					**3074352.00**

Sd-
Junior Engineer (Electrical)

Sd-
Asst. Executive Engineer (Electrical)

FORWARDED/APPROVED/NOT APPROVED

Sd-
Superintending Engineer, IWD