NIT No.: IITH/CMD/ELE/NIT/2022-23/13

భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

NOTICE INVITING TENDER
(NIT)

Name of the work: **Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.**

Executive Engineer-Electrical
IIT Hyderabad

SUSHANT VATSA
Digitally signed by SUSHANT VATSA
Date: 2023.03.21 22:35:20 IST

INDEX

INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD

NOTICE INVITING TENDER

NIT No. IITH/CMD/ELE/NIT/2022-23/13

Indian Institute of Technology Hyderabad invites on behalf of President of India online bids (e-tenders) in Item rate / ~~Percentage rate~~ in Two Bid (Technical Eligibility + Financial) System, from approved and eligible Electrical contractors of CPWD and those of appropriate list of M.E.S. / BSNL/ Railways/ State P.W.D./Central PSUs/State Govt. departments/Central Govt. Departments /working Electrical contractors of IIT Hyderabad or the Specialized Agencies for the following work as per the stipulated terms and conditions mentioned below:

Copy of valid Registration of Firm (ROF) certificate, PAN card, GST Registration certificate & GSTIN should accompany the Technical Bid and those certificates should be valid on the last date of submission of bid.

1.1	NIT No.:		**IITH/CMD/ELE/NIT/2022-23/13**
1.2	Name of Work:		***Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.***
1.3	Location of work		**Indian Institute of Technology (IIT) Hyderabad campus, Kandi-502284, Sangareddy, Telangana, India**
1.4	Estimated Cost: (*given merely as a rough guide)*		***Rs. 1,06,46,350/-***
1.5	Earnest Money Deposit (EMD):		***Rs. 2,12,950/-***
1.6	Period of Completion:		**120 days**
1.7	Date of Online Publication/Download of Tender		***21/03/2023 @ 15:00hrs***
1.8	Last Date & time for receiving of Pre-Bid Queries and to mail ID	Date & Time	**28/03/2023 @1500hrs**
		To Mail	**ee.electrical@iith.ac.in**
1.9	Date and Time of Pre-bid meeting at Conference Hall, CMD, IIT Hyderabad		**29/03/2023 @ 1100 hrs**
1.10	Last Date for Submission of Bids		***13/04/2023 @ 15:00hrs***
1.11	Date and time of Opening of Technical Bids		***13/04/2023 @15:30hrs***
1.12	Date and time of Opening of Financial Bids		***To be Finalized***
1.13	Cost of Bid Document:		**NIL**

The Tender Document can be downloaded from https://mhrd.euniwizarde.com OR Institute website- https://www.iith.ac.in/tenders/#Civil%20Works.

The bid is to be submitted online mode only through the E-procurement portal of https://mhrd.euniwizarde.com up to the last date and time of submission of tender. Manual bids shall not be accepted. All quotation (both Technical and Financial) should be submitted online through E-procurement portal of https://mhrd.euniwizarde.com.

Any queries relating to the process of online bid submission or queries relating to e-tender Portal in general may be directed to the Helpdesk Support - Phone No. 011-49606060. Mail id: - helpdeskeuniwizarde@gmail.com.

INSTRUCTIONS FOR ONLINE BID SUBMISSION:

The Tender Document can be downloaded from https://mhrd.euniwizarde.com OR Central Public Procurement (CPP) Portal https://eprocure.gov.in/epublish/app OR Institute website- https://iith.ac.in/tenders.

The bidders are required to submit soft copies of their bids electronically on the https://mhrd.euniwizarde.com using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the Portal, prepare their bids in accordance with the requirements and submitting their bids online.

More information useful for submitting online bids may be obtained at: https://mhrd.euniwizarde.com

GUIDELINES FOR REGISTRATION:

1. Bidders are required to enrol on the e-Procurement Portal with clicking on the link "Bidder Enrolment" on the e-tender Portal by paying the Registration fee as applicable + Applicable GST.
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 e-Wizard Portal.
4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Only Class III Certificates with signing + encryption key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.) with their profile or bidders can contact help desk for getting the DSC.
5. Only valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6. Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC / e-Token.
7. The scanned copies of all original documents should be uploaded in **pdf format** on portal https://mhrd.euniwizarde.com
8. After completion of registration payment, bidders need to send their acknowledgement copy on help desk mail id helpdeskeuniwizarde@gmail.com for activation of their account.

SEARCHING FOR TENDER DOCUMENTS:

1. There are various search options built in the e-tender Portal, to facilitate bidders to search active tenders by several parameters like Department name, Tender category, estimated value, Date, other keywords, etc. to search for a tender published on the Online Portal
2. Once the bidders have selected the tenders they are interested in, you can pay the form fee and processing fee (NOT REFUNDABLE) by net-banking / Debit / Credit card then you may download the required documents / tender schedules, Bid documents etc. Once you pay both fee tenders will be moved to the respective 'requested' Tab. This would enable the e- tender Portal to intimate the bidders through e-mail in case there is any corrigendum issued to the tender document.
3. The bidder should make a note of the unique Tender No assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

PREPARATION OF BIDS:

1. Bidder should take into account any corrigendum published on the 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.
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/XLSX/PNG etc., formats**. Bid Original documents may be scanned with 100 dpi with Colour option which helps in reducing size of the scanned document.
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, GST, Annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Documents" available to them to upload such documents.
5. These documents may be directly submitted from the "My Documents" 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.
6. 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 needs to be submitted. Any deviations from these may lead to rejection of the bid.

SUBMISSION OF BIDS:

1. Bidder should log into the website well in advance for the submission of the bid so that it gets uploaded well 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 as a token of acceptance of the terms and conditions laid down by IIT Hyderabad.
3. Bidder has to select the payment option as **"e-payment"** to pay the **tender fee / EMD** as applicable and enter details of the instrument.
4. ***In case of Bank Guarantee (BG) bidder should prepare the BG as per the instructions specified in the tender document. The BG in original should be posted/couriered/given in person to the concerned official of IIT Hyderabad before the Online Opening of Technical Bid. In case of non-receipt of BG in original by the said time, the uploaded bid will be summarily rejected.***

5. ***Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white Colored (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.***

6. 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.

7. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data, which cannot be viewed by unauthorized persons until the time of bid opening.

8. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

9. ***Upon the successful and timely submission of bid click "Complete" (i.e. after Clicking "Submit" in the portal https://mhrd.euniwizarde.com), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details.***

10. The tender summary has to be printed and kept as an acknowledgement of the submission of the tender. This acknowledgement may be used as an entry pass for any bid opening meetings.

11. The off-line tender shall not be accepted and no request in this regard will be entertained whatsoever.

12. As per portal norms Tender Processing Fee will be applicable.

AMENDMENTS OF BID DOCUMENT:

At any time prior to the deadline for submission of Bids, the department reserve the right to add/modify/delete any portion of this document by the issuance of a Corrigendum, which would be published on the website and will also be made available to the all the Bidder who has been issued the tender document. The Corrigendum shall be binding on all bidders and will form part of the bid documents.

ASSISTANCE TO BIDDERS:

For any clarification in using https://mhrd.euniwizarde.com

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 e-Wizard Portal in general may be directed to the 24X7 e-Wizard Helpdesk Support.

Please feel free to contact euniwizard helpdesk (as given below) for any query related to e- tendering - Phone No. 011-49606060.

Mail id: - helpdeskeuniwizarde@gmail.com

The contact number for the helpdesk is 8448288994/86/87/89/88/81/90/92/82

011-49606060, 07903269552, 9355030608, 9055030613, [illegible]

9355030623, 9355030628, 8800526452, 9205898228, 9122643040, 9355030604

eprochelpdesk.01@gmail.com, eprochelpdesk.44@gmail.com, eprochelpdesk.06@gmail.com

3. The tender inviting authority has the right to cancel this e-tender or extend the due date of receipt of the bid(s).

4. The bid should be submitted through e-Wizard portal (https://mhrd.euniwizarde.com/) only.

NOTICE INVITING TENDER
NIT No. IITH/CMD/ELE/NIT/2022-23/13

Technical Eligibility Criteria:

1. Bidders shall produce 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:

   Experience of having successfully completed similar works during the last 7 years ending last day of the month previous to the one in which tenders are invited.

   Three similar completed works each costing not less Rs. 42,58,540/- or

   Two similar completed works each costing not less than Rs. 63,87,810/-or

   One similar completed work costing not less than Rs. 85,17,080/-

   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 the last date of submission of tender.

   "Similar Work" shall mean the work of Supply, Installation, Testing and commissioning (SITC) of Electro-Mechanical works including LT panels, DG Set (of minimum 200kVA rating)/UPS (of minimum 120kVA rating), VRV AC system, LT cabling and allied services in the Data Centre facilities/ Research laboratories/ Hospitals/Reputed Institutions and Organizations.

   (For private works TDS certificate or Form-26 AS in support of value of work done.)

2. **Turnover:** Average annual financial turnover on construction works should be at least 30% of the estimated cost put to tender during the immediate last three consecutive financial years ending 31st March 2022. The value of annual turnover figures shall be brought to current value by enhancing the actual turnover figures at simple rate of 7% per annum. The annual turnover certificate from the chartered accountant need to be enclosed by the bidder.

3. **Profit/loss :** The bidder should not have incurred any loss (profit after tax should be positive) in more than two years during available last five consecutive balance sheet (balance sheet in case of private/public limited company means its standalone financial statement and consolidated financial statement both), duly audited and certified by the Chartered Accountant.

4. **Banker's Certificate** from a Commercial Bank or Net worth Certificate:
   Banker's Certificate of the amount equal to 40% of the Estimated Cost put to tender (ECPT) as per Form-A,
   or
   Net worth certificate of minimum 10% of the estimated cost put to tender issued by certified Chartered Accountant with UDIN as per format enclosed as Form-B

5. The bidder shall submit the Indemnity bond as per format provided in Annexure-II.

6. The bidder shall submit the authorization certificates from the Original Equipment Manufacturers (OEMs) of DG set as well as UPS separately respectively as per the format enclosed as Annexure-III

7. The bidder shall have Employees Provident Fund (EPF) enlistment and proof of the same shall be attached along with the Technical Bid clearly showing the Provident Fund Code number.

8. To become eligible, the tenderer shall have to furnish an affidavit as per Form 'J' of the NIT.

9. Agreement shall be drawn with the successful tenderer on prescribed Form which is available in the website: *https://drive.google.com/file/d/19_LkFZ1IeQb_3BznXQtinslcLISYVdbo/view* **(with up to date correction slips if any)** Tenderer shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

10. The time allowed for carrying out the work will be as stated at para 1 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 tender documents.

11. The site for the work is available.

12. Tender documents consisting of plans, specifications, the schedule of quantities of the various classes of work to be done and the set of terms & conditions of contract to be complied with by the contractor whose tender may be accepted, and other necessary documents can be seen for information at the above-mentioned website.

13. Applicants are advised to keep visiting the above-mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respects including updates thereof, if any. An incomplete application may be liable for rejection.

14. The contractor whose tender is accepted, will be required to furnish performance guarantee of 3% (Three Percent) of the tendered amount within the period specified in Schedule F. This guarantee shall be in the form of Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order 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 contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F'. including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.

15. The description of the work is as follows:

    Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.

    Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders 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 tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The tenderer 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 tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

16. Tenders with any condition including that of conditional rebates shall be rejected forthwith.

17. Cost of **Bid document cost** and **EMD** may also be remitted to Institute's account number as per bank particulars given below:

Name of the Account Holder	**: Indian Institute of Technology Hyderabad**
Account Number	**: 30412797764 (Current Account)**
Name of the Bank	**: State Bank of India**
Address of the Bank	**: IIT Kandi, IIT Hyderabad Campus, Kandi, Sangareddy, Telangana - 502284**
Branch code	**: 14182**
IFSC code	**: SBIN0014182**
MICR code	**: 502002528**
SHIFT code	**: SBININBB762**

18. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other tender 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 tenderer shall be summarily rejected.

19. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.

20. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.

21. The contractor shall not be permitted to tender for works if his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Institute.

22. No Engineer of gazette rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at 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 contractor's service.

23. The tender for the works shall remain open for acceptance for a period of Sixty (60) days from the date of opening of tenders/Sixty days from the date of opening of financial bid in case tenders are invited on 2/3 envelop system (strike out as the case may be) if any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.

24. **(A) All taxes, Labor Cess etc., as applicable shall be borne by the contractor himself. The contractor shall quote his rates considering all such taxes including GST on works. Any recovery towards GST is notified by the competent authority, the same shall be effected and no claim what so ever shall be entertained by IITH. The contractor shall quote his rates accordingly.**
(B) 2% as TDS amount of GST amount payable on the bills will be deducted as per the Govt. of India, Ministry of Finance, Department of Revenue notification vide No.65/39/2018-DOR, dtd: 14-09-2018.

25. ***GST registration certificate of the state in which the work is to be taken up, if already obtained by the bidder.***
If the bidder has not obtained GST registration in the state in which the work is to be taken up or as required by GST authorities, then in such a case the bidder shall scan and upload following under taking along with other bid documents.

"If the work awarded to me, I/We shall obtain GST registration certificate of the state, in which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by IIT Hyderabad, whichever earlier, failing which I/We shall responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by IIT Hyderabad or GST department in this regard."

26. ***Bidder has to submit Undertaking on their letter head pursuant to the Section 206AB (as applicable) of the Income Tax Act,1961 in prescribed format as enclosed at Annexure-A along with each and every bill submitted for payment.***

27. This notice inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of :-

a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

b) Standard Contract form (General Conditions of Contract) as posted in the website of the Institute. The bidder is deemed to have gone through and understood the Standard Contract Form and the General Conditions of Contract.

Executive Engineer-Electrical
IIT Hyderabad

(Signature of bidder)

FORM 'J'

AFFIDAVIT

I/we undertake and confirm that our firm/partnership firm has not been blacklisted by any state/Central Departments/PSUs/Autonomous bodies during the last 7 years of its operations. Further that, if such information comes to the notice of the department then I/we shall be debarred for bidding in IIT Hyderabad in future forever. Also, if such information comes to the notice of IIT Hyderabad on any day before date of start of work, the Engineer-in-charge shall be free to cancel the agreement and to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy of this notarized affidavit to be uploaded at the time of submission of bid)

NOTE: Affidavit to be furnished on a 'non-Judicial' stamp paper worth Rs.100/-

Signature of Bidder(s) or an authorized Officer of the firm with stamp

Signature of Notary with seal

Checklist of documents to be submitted along with Technical Bid

Sl. No.	Doc Ref	Description of the Document	Enclosed Yes/No	Remarks
	Applicant shall submit the following documents for technical scrutiny			
1	Registration of Firm (ROF)	Copy of valid Registration of Firm (ROF)		
2	PAN details	Copy of PAN card		
3	GST registration details	Copy of GST Registration certificate & GSTIN should accompany the Technical Bid		
4	Details of similar woks executed.	Not less than Rs. 42,58,540/- of estimated cost (Three similar works)		
		Not less than Rs. 63,87,810/- of estimated cost (Two similar works)		
		Not less than Rs. 85,17,080/- of estimated cost (One Similar work)		
5	As per Para No. 1.4 of NIT	Cost of EMD		
6	As per Sl. No.2 of NIT	Copy of Certificate from CA for Average Annual Financial Turnover for last 03 financial years		
7	As per Sl.No.2.1 of NIT	Profit and loss account statement with balance sheets for last 05 financial years		
8	As per Sl.No.23 of NIT	Undertaking for GST registration in the state in which the work is to be taken up		
9	As per Sl.No.24 of NIT	Undertaking pursuant to Section 206AB (as applicable) of the Income Tax Act, 1961 (Proforma enclosed as Annexure-A)		
10	As per Sl. No. 4 of NIT	Copy of Banker's certificate or Net worth certificate		
11	As per Sl. No. 5 of NIT	Copy of Indemnity bond		
12	As per Sl.No.6 of NIT	Copy of Authorization certificate from OEM of DG set as per Annexure III		
13	As per Sl.No.6 of NIT	Copy of Authorization certificate from OEM of UPS as per Annexure III		
14	As per Sl.No.7 of NIT	Copy of EPF enlistment proof		
15	As per Sl.No.8 of NIT	Copy of Affidavit as per Form J		

Annexure – A

On Contractor/ Agency's Letter Head

Undertaking pursuant to Section 206AB (as applicable) of the Income Tax Act, 1961

To,
The Registrar
IIT Hyderabad
Kandi, Sangareddy- 502284.

Dear Sir/Madam,

Subject: Declaration confirming filing of Income Tax Return for immediate two preceding years.

I, Ms./Mrs./Mr. _____in capacity of Authorized Signatory of _____ having PAN _____ and___registered office at _____ do hereby declare that _____ has filed Income Tax Returns for immediately last 2 preceding Financial Years as mentioned below per due dates under Section 139 (1) of the Income Tax Act, 1961 ('the Act') and details of which are as given under:

Financial Year for which Income Tax Return was due as per Section 139(1)	**Acknowledgement no. of ITR filed under Section 139(1)**	**Date of Filing**
2021-22 *(if applicable on date of this declaration)*		
2020-21		
2019-20		

Further, I confirm that _____ has lined the above PAN with Aadhaar number as on this date.

I also undertake that _____ hereby indemnify ***Indian Institute of Technology Hyderabad*** for any loss/liability (including any Tax, interest, penalty, etc.) that may arise due to incorrect reporting of above information.

For _____

Signature: _____

Name of person:

Designation:

Place:

Date:

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of quantities (Enclosed): Volume -2 (Price Bid)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor

Sl. No.	Description of item	Quantity	Rates in figure & words at which the material will be charged to the Contractor	Place of issue
..... **NIL**				

SCHEDULE 'C'

Tools and plants to be hired to the contractor.

Sl. No.	Description	Hire Charges per day	Place of issue
..... **NIL**			

SCHEDULE 'D'

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

--- NIL ---

SCHEDULE 'E'

Reference to General Condition of Contract.: *Posted in the website of the Institute.*

Name of the work	:	**Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.**
Estimated cost of work	:	***Rs . 1,06,46,350/-***
Earnest money	:	***Rs. 2,12,950/-***
Performance Guarantee	:	***3.0%*** *of the accepted tendered value*
Security Deposit	:	**2.5%** *of the tendered value*

SCHEDULE 'F'

GENERAL RULES AND DIRECTIONS:

Officer inviting tender:	:	***Executive Engineer-Electrical, IITH***
Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses12.2 & 12.3	:	***Electro-Mechanical works…100%***

Definitions:

2(v) Engineer -in- Charge	:	***Executive Engineer-Electrical, Indian Institute of Technology, Hyderabad.***
2(viii) Accepting Authority	:	***Superintending Engineer, Indian Institute of Technology, Hyderabad.***
2(x) Percentage on cost materials and Labour to cover all overheads and profit	:	*15% (Fifteen) per cent.*
2(xi) Standard Schedule of Rate	:	*CPWD, Delhi Schedule of Rates (DSR) 2022 E &M, with up to date correction slips.*
Standard Contract Form	:	*IITH General Conditions of Contract for Construction Works*

Clause 1

i) Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance, in days	:	*15 (Fifteen) Days*
ii)Maximum allowable extension beyond the period provided in (i) above	:	*7 (Seven) Days with late fee @0.1% of PG Amount*

Clause 1A

Whether Clause 1A is applicable	:	Yes
Clause 2 Authority for fixing Compensation under Clause 2	:	*Superintending Engineer, Indian Institute of Technology, Hyderabad*

Clause 3 (VII): If the contractor had secured the contract with Government as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of Integrity Agreement-will be made ineligible.

Clause 5:

Number of days from the date of issue of letter of acceptance for reckoning date of start	:	*15 Days from the date of issue of LOA or handing over of site, whichever is later*
Milestones	:	Not Applicable
Time allowed for execution of work	:	*120 Days*
Authority to give fair and reasonable Extension of time for completion of work (Web based hindrance register)	:	*Superintending Engineer, IITH*
Rescheduling of mile stones	:	*Superintending Engineer, IITH*
Clause 6:- Measurement Book Clause applicable, 6	:	*(i) For works having estimated cost more than Rs 15 Lakh – Clause 6* (ii) *For works having estimated cost Rs. 15 Lakh or less – Contractor's option of Clause 6 or to be exercised at the time of Tender Submission*

Clause 7:

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	:	*Rs. 10 Lakhs/-*
Clause 7A: Whether Clause 7A is applicable	:	*Yes.* *No running account bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-charge.*

Clause 10A:

Materials to be provided by the Contractor	:	*Applicable as given in GCC*

Clause 10B (i)- Secured advance on Non perishable Materials:

Whether Clause 10 B (i) shall be applicable	:	*Not applicable*

Clause 10C:

Component of labour expressed as percent of value of work	:	*NA*

Clause 10CA	:	*Not Applicable*
Clause 10CC	:	*Not Applicable*
Clause 10D	:	*Applicable*

Clause 11:

Specification to be followed for execution of work	:	**For ELECTRICAL AND MECHANICAL WORKS** 1. CPWD General Specifications for Electrical works: Part I Internal 2013 Part II External 1994 Part IV Substations 2013 Part VII DG Sets 2013 up to date amendments. 2. CPWD General specifications for HVAC 2017 with up-to-date amendments. 3. Particular specifications given in the tender.

Clause 12:

12.2 & 12.3: Deviation limit beyond which Clause 12.2 &12.3 shall apply for building work	:	*100% (One hundred per cent)*
12.5 : Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work	:	*100% (One hundred per cent)*

Clause 14: Whether Clause 14 is applicable	:	*Yes*
Clause 16 Action in case work not done as per specifications of tender	:	*Applicable as given in GCC*
Clause 18: List of mandatory machinery, tools & plants to be deployed by the contractor at site	:	*As required for the work.*

Clause 25:
Settlement of disputes by Conciliation and Arbitration:

Conciliator	:	*Dean (Planning)*
Authority to appoint arbitrator	:	*Director, IIT Hyderabad*
Place of arbitration	:	*Hyderabad*
Venue of arbitration	:	*IIT Hyderabad*
Type of Arbitration Tribunal	:	Sole Arbitrator

Note: Provisions of Arbitration and Conciliation Act 1996 with latest amendments in force shall be applicable.

Clause 32: *As required for the work as approved by EIC*

Clause 38

(i): Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates	:	*Not applicable*

Special Conditions of Contract

1. Before tendering, the Agency shall inspect the site of work and shall fully acquaint himself about the conditions prevailing at site, availability of materials, availability of land and suitable location for construction of godowns, stores and camp, transport facilities, the extent of lead and lifts involved in the work (over the entire duration of contract) including local conditions, as required for satisfactory execution of the work and nothing extra whatsoever shall be paid on this account.

2. The Agency shall at his own expense and risk arrange land for accommodation of labour, setting up of office, the storage of materials, erection of temporary work- shops, and construction of approach roads to the site of the work including land required for carrying out of all jobs connected with the completion of the work. In any case. **IIT Hyderabad (Institute) shall not permit setting up of labour camps within its premises**. If during construction it becomes necessary to remove or shift the stored materials shed workshop, access roads, etc. to facilitate execution of any other work by any other agency, the contractor shall do as directed by the Engineer-in-charge and no claim whatsoever, shall be entertained on this account.

3. It shall be deemed that the contractor shall have satisfied himself as to the nature and location of the work, transport facilities, availability of land for setting up of camp etc. The department will bear no responsibility for lack of such knowledge and the consequences thereof.

4. The Agency shall have to make approaches to the site, if so required and keep them in good condition for transportation of labour and materials as well as inspection of works by the Engineer-in-charge. Nothing extra shall be paid on this account.

5. The Agency shall at his own cost submit samples of all materials sufficiently in advance and obtain approval of the Engineer-in-charge. Subsequently, the materials to be used in the actual execution of the work shall strictly conform to the quality of samples approved by the Engineer- in-charge and nothing extra shall be paid on this account. The acceptance of any sample or material on inspection shall not be a bar to its subsequent rejection, if found defective.

6. The contractor shall at his cost, make all arrangements and shall provide necessary facilities as the Engineer-in-charge may require for collecting, preparing, packing forwarding and transportation of the required number of samples for tests for analysis at such time and to such places as directed by the Engineer-in-charge, and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The cost of tests shall be borne by the contractor.

7. Materials used on work without prior inspection and testing (where testing is necessary) and without approval of Engineer-in-charge are liable to be considered unauthorized, defective and not acceptable. The Engineer-in-charge shall have full powers to require removal of any or all of the materials brought to site by contractor which are not in accordance with the contract, Specifications or do not conform in character or quality to the samples approved by the Engineer-in-charge. In case of default on the part of the contractor in removing rejected materials, the Engineer-in- charge shall be at liberty to have them removed at the risk and cost of the contractor.

8. The work shall be carried out in such a manner so as not to interfere/or effect or disturb other works being executed by other agencies, if any.

9. Any damages done by the contractor to any existing work or work being executed by other agencies shall be made good by him at his own cost.

10. The work shall be carried out in the manner complying in all respects with the requirement of relevant rules and regulations of the local bodies under the jurisdiction of which the work is to be executed and nothing extra shall be paid on this account.

11. The contractor shall maintain in good condition all work executed till the completion of the entire work entrusted to the contractor under this contract and nothing extra shall be paid on this account.

12. No payment will be made to the contractor for damage caused by rain, floods and other natural calamities whatsoever during the execution of the works and any damage to the work on this account shall have to be made good by the contractor at his own cost and nothing whatsoever' shall be paid on this account.

13. The Item Rates or ~~Percentage Rates~~ for all items of work, unless clearly specified otherwise shall include the cost of all labour for materials, de-watering and other inputs involved in the execution of the items.

14. No claim whatsoever for idle labour, additional establishments, costs of hire and labour charges for tools and plants etc. would be entertained under any circumstances.

15. For the safety of all labour directly or indirectly employed in the work for the performance of the contractor's part of this agreement, the contractors shall, in addition to the provisions of Safety code and directions of the Engineer-in-charge make all arrangements to provide facility as per the provisions of Indian Standard Specifications (Codes) listed below and nothing extra shall be paid on this account.

    (a) IS 3696 Part I Safety Code for scaffolds and ladders
    (b) IS 3696 Part II Safety Code for scaffolds and ladders Part II ladders
    (c) IS 764 Safety Code for excavation work
    (d) IS 4081 Safety Code for Blasting and Drilling operations,
    (e) IS4138 Safety Code for working in compressed air.
    (f) IS 7293 Safety Code for working with construction machinery
    (g) IS 7969 Safety Code for storage and handling of building materials
    (h) IS 5216:1982 code of safety procedures and practices in electrical works

16. The contractor shall take all precautions to avoid all accidents by exhibiting necessary caution boards and by providing red flags, red lights and barriers. The con- tractor shall be responsible for any accident at the site of work and consequences thereof.

17. **Water & Power :** The contractor shall make his own arrangements for the water and power required for discharging his obligations under the scope of this tender. In case the Institute supplies water and or power, the contractor shall be liable to pay the charges on actual consumption basis at the same prevailing rates that the local authorities charge the Institute.

18. The ESI and EPF Contribution on the part of the employer in respect of the contract shall be paid by the contractor.

19. The contractor shall obtain a valid licence under the contract labour (R A) Act, 1970 and the contract labour (Regulation and Abolition) Central Rules, 1971 before the commencement of the work, and continue to have a valid licence until the completion of the work. The contractor shall also comply with provision of the Inter- State Migrant Women (Regulation of E

1979.

20. All tools, tackles, safety equipment and labours required for maintenance and testing works / AMC at all levels and heights shall have to be provided by the tenderer at no extra cost.

21. Spare parts used by vendor should conform to IS specifications as applicable.

22. Any damaged due to mishandling by the person deputed by the vendor shall have to be restored back to its original condition by the vendor at their own cost.

23. **Inspection before Dispatch:** All routine tests shall be conducted before dispatch of all equipments/items specified in the tender as per schedule of quantities. No equipment shall be dispatched out from the manufactures premises before such tests are conducted and test result recorded. These test certificates shall be given along the supply of equipment. The Engineer- in-charge shall if he so desires inspect and witness the pre-delivery tests for DG set and UPS at the Manufacturer premises. The main contractor at his own cost shall have to organize the FAT inspection for EIC or his authorized representatives by intimating 30days in advance without any additional cost implication to IITH. However, the inspection shall be done purely at the discretion of the Engineer-In-charge but ROUTINE TEST & TYPE TEST certificates shall have to be submitted as applicable for all the equipments supplied at site.

    Prior to dispatch, all equipment's shall be adequately protected & insured for the whole period of transit, storage and erection against corrosion and incidental damages etc. from the effect of vermin, sunlight, rain, heat, humid climate and accidents etc.

24. **Payment of Running bills**

    The running bills shall be submitted by the contractor as per the progress of work done at site. However, the following will be the basis of payment for the items claimed under running bills:

a) Gross Payment to be made on supply of material at site: 80% of quoted rate.
b) Gross Payment to be made on installation of material at site: 5% of quoted rate.
c) Gross Payment to be made on satisfactory Testing & Commissioning of material at site: 15% of quoted rate.

    After receipt of running bill at IITH, the contractor shall get the executed work and claimed quantities in bill checked and verified from the Engineer-In-charge or his authorized Engineer and after satisfactory verification of work executed at site, the payment to the contractor shall be released.

25. **Defect Liability Period: The Defect liability period (DLP)/Warranty period of work done by the contractor is 24 months from the date of completion of work as certified by the Engineer-In-Charge.**

    The DLP shall be 24 months from the date of Handing over of the equipments after successful commissioning and handing over the same to IITH. If the contractor or his working people or servants shall break, deface, injure or destroy any part of equipment in which they may be working, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within thirty six months after a certificate final or otherwise of its completion shall have been given by the Engineer In Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing

on that behalf make the same good at his own expense or in default the Engineer In charge cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall not be refunded before the expiry of thirty-six months after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

Scope of work and Technical Specifications

History:

The Data center at IITH is operational since 2015 at Kandi campus and this data center is a facility that centralizes the organization's IT operations and equipment for the purposes of storing, processing and disseminating data and applications. Because they house an organization's most critical and proprietary assets, data centers are vital to the continuity of daily operations.

The existing Data center is operational with existing 01Nos.x 160 KVA UPS, 02Nos.x40kVA UPS and existing 1Nos. x 250 kVA DG set, 2Nos. X 100kVA DG set with DG synchronization panel as a power backup source to the Data center in case of any grid power failure from IITH substations.

In this current tender scope of work, the IITH intends to renovate the existing Data Centre in terms of Power Distribution by ensuring redundancy on both UPS back up as well as DG back up side. The contractor shall dismantle and remove old existing 02Nos.x40kVA UPS from the Data Centre and install the new 01Nos.x160kVA UPS in parallel with the existing 160kVA UPS. The new 160kVA UPS to be supplied by the contractor shall be of same make and model as of existing 160kVA UPS to ensure parallel and in sync operation of both 160kVA UPS. The new 160kVA UPS to be installed in the same Electrical room as for the existing 160kVA UPS. Also the Input and Output UPS Power distribution cabling, body and neutral earthing etc. need to be executed by the contractor as per the schedule of quantities specified.

Also the IITH intends to dismantle and remove old existing 02Nos.x100kVA DG sets at Data centre and install the new 01Nos.x250KVA DG set in parallel with the existing 250KVA DG set. The new 250KVA DG set need to be synchronized with the existing 250KVA DG set through the existing DG synchronization panel available in the Electrical room associated to the Data Centre. The new 250kVA DG set need to be installed adjacent to the existing 250kVA DG set in the same location. Also all the Output Power and control cabling, body and neutral earthing etc. need to be executed by the contractor as per the schedule of quantities specified.

The details of existing UPS and DG sets installed at IITH Data Centre are given as below:

Equipment name	**Make and Model**	**Rating (in KVA)**	**Quantity (in Nos.)**	**Remarks**
UPS	Vertiv	40	02	To be dismantled and removed
UPS	Vertiv/ EXM2 series	160	01	To be used in parallel with new proposed 160kVA UPS
DG set	Cummins	100	02	To be dismantled and removed
DG set	KOEL	250	01	To be used in sync with new proposed 250kVA DG set

Apart from above, the IITH also intends to install VRV air-conditioning system of specified capacity in the existing Electrical and UPS room associated with the Data Centre to maintain the room temperature of 25±2deg.C.

The contractor shall also supply and install the Fire extinguishing system in the UPS and Electrical room as specified in the schedule of quantities.

The contractor shall also remove all the dismantled materials/equipments from the site and shift it to the location within IITH campus as per the directions of Engineer-in-Charge. The contractor shall also execute the dressing work of all cables, equipments etc. In a neat manner as per the directions of Engineer-in-Charge.

The work shall be carried out as per following Specifications and relevant IS codes. In case of discrepancy between technical specification and BOQ, the BOQ prevails.

The following specifications shall be invariably followed for this work:

(A) For ELECTRICAL WORKS:

CPWD General Specifications for Electrical works:

i. **Part I -Internal 2013**
ii. **Part II- External 1994**
iii. **Part IV Substations 2013**
iv. **Part VII DG sets 2013**

(B) CPWD General specifications for HVAC 2017 with up-to-date amendments.

(C) Particular specifications given in the tender.

1.1 Detailed specification for Diesel Generator set:

The DG Sets would normally be controlled from DG AMF Cum Synchronizing & Distribution Panel. The necessary control devices/contacts for these external connections shall be wired out to the DG control panel terminal blocks.

1.1.1 Diesel Engine:

The diesel engine should be vertical cylinder type having 6 cylinders totally enclosed, compression ignition, water cooled (radiator cooled), turbo charged cooled suitable for Power generation application to drive the 250KVA alternator at 1500 rpm under NTP condition confirming to BS 649, complete with all interconnecting piping and the following standard accessories.

a) Dynamically Balanced fly wheel.
b) Necessary flexible coupling and guard for alternator and engine (applicable only for double bearing alternator).
c) Air cleaner (dry/oil bath type) as per manufacturer standard.
d) Radiator – heavy duty type
e) Cooling fan
f) Water circulating pump
g) Corrosion resistor
h) PT fuel pump
i) An electronic governor to maintain engine speed at all conditions of load. (EGC)
j) Fuel filter
k) Fuel shut down solenoid (24Vdc, stop solenoid)
l) Lubricating oil filter
m) Oil cooler
n) By pass filter
o) Dry exhaust manifold with suitable exhaust residential grade silencer to reduce the noise level.
p) Suitable self-starter for 12 V/24 V DC.

q) Battery charging alternator unit and voltage regulator, suitable for starting batteries, battery racks with interconnecting leads and terminals.

Engine instrument panel with following:
i) Start/stop key switch.

ii) Lube oil pressure indication.

iii) Water temperature indication.

iv) RPM indication.

v) Engine Hours indications.

vi) Engine Hours indications.

vii) Low lube Oil trip indication

viii) High water temperature indication.

ix) Over speed indication.

x) The engine should have following:

xi) Emergency Shutdown Push Button

1.1.2 Requirement for the diesel engine:

The diesel engine shall be vertical cylinder, single acting, and mechanical injection type and furnished with all the required equipment as per standard practice. The engine should develop rated horse power to drive alternator.

The required auxiliaries, guarantee of fuel consumption for rated output, provision or parallel operation, governor performance and torsional vibration shall be in accordance with BS: 649. The engine shall conform to IS: 10000/ISO 3046/BS; 649/BS 5514 amended up to date.

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1.1.3 Engine governing system:

Electronic governor of class A1, as per ISO 3046/BS 5514 with actuator shall be provided as per standard design of manufacturer. Governor shall be a self-contained unit capable of monitoring speed. An over speed trip mechanism shall be provided to automatically shut off the fuel supply in case of set speed reading about 110% of rated speed.

1.1.4 Frequency Variation:

The engine speed shall be so maintained that frequency variation at constant load including no load shall remain within a band of 1% of rated frequency.

1.1.5 Fuel system:

Fuel (Diesel) system to the engine shall be supplied from a fuel tank. The supplier should provide a fuel tank that can run the DG Set for at least 12 Hrs. The supplier should provide mechanical fuel level indicator with 'Low' and 'High' markings.

1.1.6 Lube oil system:

The automatic pressure lubrication shall be provided by an engine driven pump. This system should be complete with an oil cooler and 100% capacity mesh filters.

1.1.7 Engine starting system:

Starting of the diesel engine shall be of electric starting. This shall comprise of necessary set of heavy duty Lead acid batteries 12V/24V DC (as per manufacturer standard), and suitable starter motors and axial type gear to match with the toothed ring on the fly wheel. A timer in the AMF/Synchronization panel to protect the starter motor from excessively long cranking runs shall be suitably integrated with the protection system and shall be included within the scope of the work. Battery capacity shall be suitable for meeting the needs of starting system (as three attempt starting), as well as the requirements of control panel, indications and auxiliaries such as priming pump as applicable etc. The scope shall cover all cabling, terminals, including initial charging etc. The system shall be capable of starting the DG set within 30-45 seconds.

1.1.8 Batteries:

The batteries shall be sized taking in to account the starting load requirement of the DG set. 2Nos. of 12V, Lead acid batteries, of suitable capacity to start the engine by 24V DC electrical starting Motor without struggling, and with suitable capacity of battery cable. The batteries must be capable to try 3 unsuccessful starts continuously. The batteries have to be placed on a suitable well painted steel stand. The compatible battery charger shall be provided within the DG set for charging of batteries as per OEM guidelines.

1.1.9 Piping work:

All pipelines, fittings and accessories requirement inside the enclosure and outside for exhaust piping shall be provided by the contractor. This shall include necessary flexible pieces in the exhaust, fuel, lube oil and water lines as are necessary in view of the vibration isolation requirement in the installation. Piping of adequate size shall be used for lube oil of the material as per manufacturer standard. However, only M.S. pipes for the exhaust and fuel oil lines shall be used. The pipe work shall be inclusive of all fittings and accessories required such as bends, reducers, elbows, flanges, flexible connection, necessary hardware etc. The installation shall cover clamps, supports, hangers etc. as are necessary for completing the work.

1.1.10 Common bed plate:

Engine and alternator shall be coupled as per manufacturer standard design and both units shall be mounted on a common bed plate together with all auxiliaries to ensure perfect alignment of engine and alternator with minimum vibration. The bed plate shall be suitable for installation on suitable anti-vibration mounting system.

1.1.11 Air intake system:

Air intake system should have requisite air filters and complete interconnecting piping, supports etc.

1.1.12 Exhaust system:

Engine exhaust system shall consist of exhaust gas driven turbo charger with lagged piping, interconnecting cylinder head outlets with the turbo charger inlet. Exhaust gas from the turbo charger shall be let out through exhaust gas silencer. The exhaust gas silencer, necessary pipes etc., shall be provided by the contractor. Exhaust piping shall be suitably cladded with aluminium sheets, mineral wool etc. The silencer should be of residential type. Flexible connection (expansion joints) shall be provided in the exhaust piping to avoid transmission of vibration from engine to the structure (acoustic and weather proof enclosure etc.). Also the exhaust line with suitable bends, collars, flanges, angle supports and other accessories should be provided. Provide necessary arrangements to avoid entry of rain water, falling dust etc. at the top of the exhaust pipe. The exhaust piping system should be designed and laid up to a height of 3 Meters above the acoustic enclosure or as directed by the Engineering In Charge (EIC) to suit the site and environmental condition as per the controller pollution board, standards.

1.1.13 Exhaust Piping:

All M.S. Pipes for exhaust lines shall be conforming to relevant IS. The runs forming part of factory assembly on the engine flexible connections upto exhaust silencer shall be exclusive of exhaust piping item. The work includes necessary cladding of exhaust pipe work using 50mm thick glass wool/mineral wool/rock wool, density not less than 46 kg/m^2 and Aluminium cladding (0.80mm thick) for the complete portion. The exhaust pipe work includes necessary supports, foundation etc. to avoid any load & stress on turbo charger/ exhaust piping.

a) Exhaust system should create minimum back pressure.

b) Number of bends should be kept minimum and smooth bends should be used to minimize back pressure.

c) Exhaust flexible shall have it's free length when it is installed. For bigger engines, two flexible bellows can be used.

d) 'Class B" MS pipes and long bend/elbows should be used.

f) The exhaust outlet should be in the direction of prevailing winds and should not allow exhaust gases to enter air inlet/windows etc.

g) When tail end is horizontal, 45 Degree downward cut should be given at the pipe to avoid rain water entry into exhaust piping.

h) When tail end is vertical, there should be rain trap to avoid rain water entry. If rain cap is used, the distance between exhaust pipe and rain cap should be higher than diameter of pipe. Horizontal run of exhaust piping should slope downwards away from engine to the condensate trap. Silencer should be installed with drain plug at bottom.

1.1.14 Cooling System:

a) System should be designed for ambient temperature of 50 Deg. C.

b) Coolant should be used mixed with additive (in suitable proportion) as per recommendation of OEM/Manufacturer for various engine models.
c) Radiator fan flow should be free from any obstruction.

1.2 Alternator:

The Alternator shall be screen protected, drip proof, continuously rated to give an output of 250kVA at 0.8 pf at 415V, 50Hz, 1500rpm, 3 - phase, 4wire. The alternator should be provided with automatic voltage regulator with voltage regulation of ± 0.5% and is designed, tested for confirming to IS 4772/1992 or IEC 34.

a) KVA rating: 250

b) Terminal voltage: 415V

c) Power factor: 0.8 (lag)

d) No. of phases: 3

e) No. of wires: 4

f) Voltage regulation: ± 0.5%

g) Frequency: 50Hz

h) Enclosure: SPDP

i) Degree of protection: IP-23

j) Ventilation: Self ventilated air cooled

k) Ambient Temperature: 50º C Maximum

l) Insulation Class: H

m) Temperature Rise: Within class H limits at rated load

n) Voltage Regulation: +/- 1%

o) Voltage variation: +/- 5%

p) Overload duration/capacity: 10% for one hour in every12hours of continuous use.

q) Frequency variation: As defined by the Engine Governor (+/- 1%)

r) Excitation: Self /separately excited (Self excitation

s) Type of AVR: Electronic

t) Type of Bearing and Lubrication arrangement: Anti-friction bearing Grease

u) Standard: IS-4722 & IEC: 34 as amended upto date.

G.A. drawing of the complete assembly shall be submitted for approval before commencement of work.

1.3 Installation location

The DG set shall be installed outdoor in acoustic enclosure (specification for which has been provided in the document) at IIT Hyderabad – 502284.

1.4 ACOUSTIC ENCLOSURE

a) Sound proofing of enclosure should be done with quality rock wool/mineral wool confirming to IS-8183 of 64 Kg/M3density.
b) The rock wool /Glass wool should further be covered with fibre glass cloth/fiber tissue paper fire resistive and perforated powder coated sheet of 0.6 mm

c) Residential silencer shall be provided within the DG to control the exhaust noise.
d) Interconnection between silencer and engine should be through stainless steel flexible hose/pipe.
e) Attenuators should be provided to control sound at air entry to the container and exit from the container.

1.5 DG SET SYNCHRONIZATION:

The new 250KVA DG set need to be synchronized with the existing 250KVA DG set through the existing DG synchronization panel available in the Electrical room associated to the Data Centre. However apart from existing DG synchronization panel available at IITH site whatever hardware/software/control wiring etc. required for the seamless synchronization of both old and new 250KVA DG sets shall be considered as part of scope of work of contractor without any additional cost implication to IITH. The new 250kVA DG set need to be installed adjacent to the existing 250kVA DG set in the same location. Also all the Output Power and control cabling, body and neutral earthing etc. need to be executed by the contractor as per the schedule of quantities specified.

1.6 TESTS AND INSPECTION:

The Testing and Inspection of DG set shall be carried out as per CPWD General specifications for Electrical works Part VII DG sets 2013. All the HSD and load bank required for the satisfactory testing and commissioning of DG set shall be arranged by the contractor without any additional cost implication to IITH.

TECHNICAL SPECIFICATIONS FOR UPS SYSTEM

The UPS system shall comprise of the following:

(a) Rectifier
(b) Inverter
(c) Static Switch
(d) Display Panel
(e) Control Logic
(f) Automatic By-pass
(g) SMF Battery Bank & rack

SCOPE OF WORK

The scope of work involves complete design, system engineering, supply, installation, testing and commissioning of fully microprocessor-based UPS system.

a) The supply and installation are to be as per schedule of quantity to meet the system design and performance requirements.
(b) To terminate the cables and make connectivity as per the system design and site requirement.
(c) Testing and commissioning of the system
(d) Training and documentation
(e) Maintain the system during three year warranty period commencing from the date of commissioning and handing over of the UPS system.

TECHNICAL SPECIFICATIONS

1. Supply, Installation, testing and Commissioning of 01Nos.x160kVA UPS along for both Input & Output system shall be 415 V,3 phase 4 wire plus ground with internal isolation transformer and all necessary paraphernalia required for commissioning.

2. Design of UPS should be Insulated-gate bipolar transistor (IGBT) rectifier and 3/ 4 level 4 quadrant IGBT inverter with double conversion and capable of operating in ECO mode as per Class-1 classification of IEC 62040-3.

3. The UPS should have a phase sequence correction kit without switching in battery mode as a default feature.

4. Steady state voltage regulations will be within 1% of nominal output voltage, Linear load harmonics distortion should be less than 3% and nonlinear load harmonics distortion should be less than 5%.

5. UPS should be capable of 100% unbalanced load. Efficiency of UPS should not be less than 95% at full load condition in double conversion mode.

6. Noise generated by UPS under normal steady state condition should not be more than 85 DB as per ISO 7779.

7. UPS display should show the battery monitoring, UPS mode, Alarm (Audio and visible), Events etc., but not limited to the mentioned.

8. The UPS communication capability should be able to integrate into any industry standard Building Management System (BMS).

9. Adequate protections for UPS for rectifier, bypass, battery, battery against overload, short circuit, battery over charging, battery over discharging, transients, surges (as per IEEE 587) etc. needs to be considered as per IEC 62040-1.

10. The UPS must have paralleling capability. Paralleling kit is required to be supplied by the contractor.

11. A Battery system shall be furnished for the UPS with sufficient backup capacity to maintain UPS output at the Full load for a duration of minimum 15 minutes. Battery Backup Calculation to be provided. The type of battery shall be 12V Sealed Maintenance-free (SMF) type.

12. Battery protection shall be provided by thermal-magnetic molded-case circuit breakers in each battery rack. Each battery string shall have an individual DC battery breaker.

13. Copper cables between the batteries, and between the UPS & batteries shall be considered part of the scope of work without any additional cost implication to IITH.

14. The UPS should have a documented programmable network API/Protocol over TCP/IP network port for monitoring and controlling from our custom open-source based data center infrastructure management (DCIM) system. Valid readings of Energy (KWH), Power (KW), remote power on/off/status must be retrievable/controllable programmatically for load and PUE calculation.Necessary lifetime license for mentioned features must be supplied.

Load Test

Overload capability:

<105%, continues;
105% ~ 110%, 60min;
110 ~ 125% of rated load, 10min;
125 ~ 150% of rated load, 1min;
>150%, 200ms

Remote Communications

The UPS will be able to communicate with the central control system via:

- a programmable data I/O card with voltage-free contacts for input data (at least 3 contacts) and output data (at least 3 contacts);
- at least 3 serial comms ports, including one RS232, one RS485 and one Ethernet;
- the following communication protocols must be supported:
  - SNMP;
  - MODBUS over TCP/IP;
  - HTTP;
  - SMTP;

NOTE: The UPS communication capability should be able to integrate into any Industry standard Building Management System(BMS) without any additional cost implication to IITH.

A predictive/statistical algorithm and interpretation of logged data (number, duration and type of events) regarding:

- out of tolerance Input voltages;
- overloads;
- battery mode operation;
- switching to standby power supply;
- over-temperatures.

The UPS must predict potential criticalities for the UPS itself, due to ambient conditions, in advance and alert the maintenance service / monitoring system.

TESTS AND SERVICE TRIALS

The Client/Engineer-Incharge reserves the right to run service trials/Performance testing of the UPS to be supplied, in the manufacturing plant/Testing facility of the UPS manufacturer, in accordance with the methods listed in EN 62040-3 before dispatch of the UPS. In addition to this, the site testing of the UPS shall also be arranged by the contractor after installation of the system.

The Engineer-In charge shall be informed of the date of the trials at least thirty days in advance. All tests shall be conducted with appropriate instrumentation with valid calibration certificates.

The service trials in the manufacturing plant or UPS OEM's own testing facility of the UPS to be supplied for following:

a. Online mode efficiency test on 100%, 75% and 25% load conditions.
b. UPS going to battery mode and back to mains mode by switching on and off mains power.
c. UPS going from inverter to static bypass and vice versa.
d. Check for UPS running on maintenance bypass mode.
e. Function of UPS display.

The tests to be run by the UPS vendor at site, includes the following steps:

- Documentation check
- Design, fabrication and installation check
- Interconnections
- Instrumentation check
- Description of display panel
- Battery and charger performance
- Inverter overload (with resistive load)
- Online double conversion mode efficiency test
- Output KVA & KW test.

All tests must be conducted with appropriate instrumentation with valid calibration certificates. The contractor shall arrange the full load required for onsite testing and commissioning of UPS at his own cost.

DELIVERY, STORAGE AND HANDLING

I. Delivery

All the materials shall be delivered to the project site in suppliers or manufacturers original wrappings and containers.

II. Storage and Handling

All the materials shall be stored in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures and humidity.

i. Ambient Storage Temperature: -15 °C to 40 °C or better
ii. Ambient Storage Temperature without batteries: -30 °C to 70 °C or better

III. INSTALLATION

Following supply and installation of the equipment, commissioning shall be carried out by Engineers in the employ of the UPS manufacturer or authorized by them.

- System connections check (positioning and accessibility of UPS, mechanical inspection, ambient conditions, connections and protection equipment, configurations);
- Check availability of all necessary documentation.
- Service trials.
- Validation of measurements made during factory inspection.
- Test with physical external load bank (temporary dummy load bank) at site for online mode efficiency test at site.
- Installation and verification of remote data transmission to control station.

The Engineer must submit a full report and installation certificate on completion of commissioning.

IV. General

Following supply and installation of the equipment, commissioning shall be carried out by technicians in the employ of the UPS manufacturer who shall perform the following checks.

1. Installation Environment Inspection:
    a) verify environment compliancy with manufacturer operative and installation manual,
    b) verify positioning and accessibility of UPS,
    c) check availability of all necessary documentation.

2. Mechanical and Visual Inspections:
    a) Visual inspection of the system for any sign of possible transport damage,
    b) system connections check,
    c) protection equipment check,
    d) Inspect battery module unit.

3. Electrical Functional Check:

a) verify correct input and bypass voltage,
b) Verify correct phase rotation,
c) validation of measurements taken during tests on the manufacturer's premises,
d) Ventilation check,
e) Alarms and security parameters check:

4. System Working Mode Test,

a) Verify on-line operation,
b) Verify on battery operation,
c) Verify bypass switch operation.

5. Battery Test:

a) Autonomy test with effective load,
b) Voltage check on battery blocks, if accessible,
c) Battery room temperature check.

Result

The technician from the UPS Manufacturer shall submit a full report and installation certificate on completion of commissioning.

V. Training

As part of the commissioning procedures, the manufacturer shall train the owner's representatives in the operation of the system with regard to:

a) principles of UPS operation and technology,
b) user interface for entering commands,
c) start, power-up, shutdown, bypass and diagnostic procedures,
d) use of alarm warnings and messages,
e) battery maintenance

Technical Specifications for Variable Refrigerant Volume (VRV) Technology-Based Air-Conditioning System

VRV System

The AC system incorporates variable refrigerant Volume system (VRV) with the outdoor condensing unit located at designated locations and the low side of the system includes cassettes and Hi-wall split units. The Variable Refrigerant Volume (VRV) System should be air cooled as specified in the BOQ, cassette and split type air conditioning system consisting of singular/group of condensing units connected to multiple indoor units, each having the capability of individual set point control. The system operation will have microprocessor-based control system. The system should have the ability to connect each condensing unit to required indoor units of different types and capacities on one refrigerant circuit. It should be possible to obtain 10% to 100% step less capacity control for enhanced Power saving. The Indoor units should be provided with Cordless Remote Control as a standard accessory. The outdoor units for all the system shall be air cooled type as specified in BOQ and mounted on the terrace open to sky area in the designated floor of the building. Indoor units in various areas shall be as per enclosed drawings/Bill of Quantities. All the VRV air conditioners shall be fully factory assembled, wired, internally piped & tested. The outdoor unit shall be pre charged with first charge of R410A refrigerant. Additional charge shall be added as per refrigerant piping at site. All the units shall be suitable for operation with 415V±10%, 50Hz±3%, 3-phase supply for outdoor units &220V±10%, 50Hz±3%, 1-Phase supply for indoor units.

The VRV systems shall provide stable, trouble free & safe operation, with flexibility of operating desired indoor units. The outdoor units must be capable of delivering exact capacity proportional to the number of indoor units switched on & the heat load in the airconditioned area. The proportional operation shall be achieved by varying speed of the compressor in the outdoor units. It should be possible to remotely monitor of indoor units from PC. Necessary software system shall be provided by the Contractor at no extra cost.

The operation of the VRV system shall be through independent wired/wireless remote controllers as specified. The system should be designed to work in ambient conditions of Ahmedabad (DBT ranging from 44 deg C to 5 deg C & RH ranging from 15% to 95%) to provide an indoor air conditioning temperature of 25±2 deg C and RH level below 60%.

Refrigerant

The Entire Condensing unit and Evaporating unit should be Factory assembled and tested. The units should come with an initial charge of refrigerant R410A. Any additional refrigerant is to be added at site. Details of additional refrigerant charged per circuit shall be furnished in the commissioning certificate to be submitted by OEM after completion of work.

Refrigerant piping distance limits

The system should be capable of working with refrigerant piping up to 225 m between the condensing unit and fan coil units with 50m level difference without any oil traps or double risers. The Oil Equalizing line should be inside the Condensing unit, to avoid inverted oil traps at site. Allowable level difference between various indoor units connected to one outdoor unit shall be up to 15 m.

Condensing Units

They shall be fully weather proofed, factory assembled and pre-wired with all necessary electronic and refrigerant controls. The casing shall be from mild steel panels coated with a baked enamel finish. Provide the condenser coil fins with a corrosion resistant finish. The design shall be modular type allowing for side-by-side installation of the condensing unit.

Fan Motor Speed Control:

The condensing unit fan motors to have at least two speed operations to maintain constant head pressure control in all ambient temperatures and modes of operation. 86 All the compressors of the outdoor units must be hermetically sealed scroll type. The compressor shall be of the high efficiency complaint scroll design with an EER of not less than 12BTU/H/watt with COP of not less than 3.8 for air cooled at ARI rating conditions. Each compressor shall have in-built overloads, HP and LP controllers and mounted on vibration isolators. Each group of outdoor units must have combination of at least one Inverter Scroll Compressor/digital scroll compressor & Fixed Speed Scroll Compressor, suitable to operate at heat load proportional to indoor requirement. In case of single module condensing unit should be with one inverter-based variable speed/digital scroll type only and shall be of maximum 16HP "Coated PE Fins (with special acryl pre-treatment)" for Al fins of Condenser Coils is mandatory for increased durability to salt corrosion. Back up operation, in case of failure of one of the compressors of outdoor unit, for single module outdoor units or failure of one of the modules in case of multiple module outdoor units shall be possible. The VRV outdoor unit shall always be supplying at least 33% of back up operation, of the full load capacity. The outdoor unit shall employ system of equal runtime for all the compressors, inverter, or on/off type, within each outdoor unit of Multi Module. Air cooled condenser shall have Axial Flow, upward throw fan, directly coupled to fan motors with minimum IP55 protection. The entire operation of outdoor units shall be through independent remotes of indoor units. No separate Start/Stop function shall be required. Starter for the Outdoor Unit compressor shall "Direct online" type. Inverter compressor of the unit shall start first &at the minimum frequency, to reduce the inrush current during starting. Refrigerant control in the outdoor unit shall be through Electronic Expansion Valve. Complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested.

Outdoor units shall be complete with following safety devices:

- High pressure switch
- Fan driver overload protector
- Over current relay
- Inverter Overload Protector
- Fusible Plug
- Crank case heater

Unit shall be supplied with

- Installation manual
- Operation Manual
- Connection Pipes
- Clamps

Compressor

The compressor shall be highly efficient hermetic scroll inverter type compressors. The Variable speed/digital scroll or a combination of compressors shall have electronic controls, capable of loading and unloading to follow the variations on cooling using the latest axial compliant sealing technology. The microprocessor panel should incorporate control for precise m

Heat Exchangers

The heat exchanger shall be constructed from seamless copper tubes mechanically bonded to aluminium fins to form across fin coil. The aluminium fins shall be treated with an anticorrosion film.

Refrigerant Circuit of Outdoor Unit

The refrigerant circuit shall be complete with condensing unit with refrigeration compressors, motors, fans, condenser coils, electronic expansion valve, solenoid valves, 4way valve, distribution headers, capillaries, filters, shut down valves, service ports, receivers and accumulators and all other components which are essential for safe and satisfactory operation. The operation of the VRV system shall be through independent wired remote controllers (no wireless controller to be used) as specified. The entire system shall be controlled by a system controller. The system controller shall be able to control start / stop on time schedule and also provide common fault from the system.

Refrigerant Pipe work

The scope of Refrigerant Piping work shall include supply, installation, testing and commissioning of all interconnecting pipe work between the condensing unit and the Indoor units. The piping shall be refrigerant quality seamless copper tube with brazed connections and with the appropriate distribution joints and headers. The Refrigerant line sizing should be designed to achieve minimum pressure drop and eliminate any sort of oil return problem. The pipe size should be such that the evaporator units does not face backpressure due to the functioning of the evaporator next to it. Continuous joint less pipes must be used for all concealed/ buried/ inaccessible piping. The piping should be routed at site in such a manner, that brazed joints in the refrigerant piping are kept to a minimum. Pipe jointing shall be done using special fittings. Refnet joints supplied by VRV manufacturer shall be provided wherever required. Piping shall be suitable for the high pressure of R410a and piping thickness shall be increased accordingly. The refrigerant piping should be insulated with Nitrile Rubber insulation of thickness recommended by OEM and approved by Bank's Engineer. For outdoor piping, the pipes, after insulation, should be covered with Woven Glass Cloth 125 gsm finished and coated with star bond CR 30-36 thermal insulation, as per relevant code. Brazing shall be carried out to the requirements of relevant code of practice using silver soldered brazing rods and shall comply with manufacturer's recommendations. Compression fittings will not be accepted on refrigerant pipe work.

Joint Orientation

The Distribution refrigeration pipe joints and headers shall be located in an appropriate orientation to enable correct distribution of refrigerant. The Distribution Joints should be factory insulated with pre-formed sections of EPDM/ Equivalent.

Pressure Testing

The piping shall be vacuum dehydrated immediately after installation of pipe work and prior to sealing of insulation joints and startup of equipment & pressure tested with 89 nitrogen gas to twice the working pressure held for a minimum of 24 hours & checked for leaks and repaired if necessary. Following this, the pipe work to be vacuum dehydrated to (-755mmHg) and held for one to four hours depending on the pipe length. All leaks and defects in joints revealed during the testing shall be rectified to the satisfaction of the Engineer-in-Charge.

Fixing pipe works

Pipe supports shall be fixed at maximum of 2 meter with suitable saddling arrangement. Exposed Refrigerant pipes on the terrace shall be covered with openable GI Cable trays.

Specifications for Indoor units

The indoor unit shall be factory assembled, wired and tested. Contained within the unit shall be all factory wiring and internal piping, control circuit board and fan motor. The unit in conjunction with remote or wired wall mounted controller - shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Indoor unit and refrigerant pipes shall be purged with dry nitrogen before shipment from the factory.

These units shall be comprising of cooling coil with finned copper tubes bonded with aluminium fins (Evaporator), Low noise design Centrifugal Fan unit with motor &direct drive/ belt drive package; fan unit shall have proper insulated and leak proof condensate base connected to drain piping with suitable trap and laid up to nearest drain point designed to ensure zero leakage; the fan assembly shall be dynamically balanced for low vibration and low noise type design.

Electronic Expansion Valve:

Each indoor unit must have electronic expansion valve operated by microprocessor thermostat-based temperature control to deliver cooling/ heating as per the heat load of the room.

Speed control by remote controller:-

The indoor fans should be operable in three (3) speeds (low, medium and high).Units shall be remote control operated as per the ratings and quantities provided in the BOQ.

Condensate Drain:
The Drain connection of each indoor unit to the main header should be of 25mm Dia. The Header Pipe should be of at least 40mm Dia. The drainpipe should be of hard 6 kg/cm2 CPVC. The drain piping should be insulated with 9mm thick tubular Nitrite Rubber Electrometric insulation. Complete drain piping shall be made leak proof 90 and watertight by means of precise installation and the use of leak proof sealant/ adhesives.

Power Supply:-
Electrical power to the Indoor Units shall be 230 V / single phase/50Hz.

Types of Indoor Units: -
Types of indoor units proposed are as under:

- **Hi-Wall split type**

Wall mounted units must be compact & stylish design matching room interiors. The unit must have provision of adding drain pump kit if required & specified. The 91 drain pump must be suitable to lift drain up to 750 mm from the bottom of the unit. Unit must be insulated with sound absorbing thermal insulation material, Polystyrene/ Polyethylene foam. The unit shall be supplied with remote controller, direct drive, minimum 3 (three) speed turbo fan, motorized vanes. It shall have an LED display with Status and

Temperature display and operable on Remote The unit shall be supplied with Resin Net filter with Mold Resistance. The filter shall be easy to remove, clean & reinstall. The unit grille must be washable with soap solution. It shall be possible to fit drainpipe from either side of the unit (Left or right). The unit will be connected in series to a suitable outdoor unit & it must be possible to operate the unit independently, through corded/cordless remote specified in the bill of quantities. The entire system shall be controlled by a system controller and shall be integrable with a third-party intelligent building management system. The system controller shall be able to control start/stop on time schedule and also provide common fault from the system. The BMS will be provided separately as specified in the BOQ. The unit shall be supplied with following from the factory Installations: - insulated drain pan below coil, drain hose, clamp metal, washer fixing plate, sealing pads, screws, clamps, washer for hanging bracket & insulation for fitting, Paper pattern for installation Insulation tape/Clamps/Screws 9.9

Specifications for Control System for VRV system

a. Wireless Remote Controller for indoor unit

Wireless remote controller shall be supplied as specified in the "Bill of Quantities" The controller must have large crystal display screen, which displays complete operating status. The digital display must allow setting of temperature with 1DegC interval. Remote shall be able to individually program by timer the respective times for operation start and stop for a period of1week.

Remote shall have 24hrs Clock function.

Programming can be enabled or disabled. Provide scheduling of start/stop and temperature limit –5 settings per day.

Remote must be equipped with thermostat sensor in the remote controller that will make possible more comfortable room temperature control

The remote shall be able to monitor room temperature & preset temperature by microcomputer & can select cool/ heat operation mode automatically.

The remote must constantly monitor malfunctions in the system &must be equipped with a self-diagnosis function" that lets known by a message immediately when a malfunction occurs.

b. Intelligent Central Remote Controller

Intelligent control system controller shall be supplied as specified in the "Bill of Quantities". The System supplied must integrate with the VRV system.

The VRV system supplied must be provided with a control system, from the OEM of VRV equipment. The required hardware must be selected, suitable for up to minimum 100 indoor units.

Complete operation & monitoring of VRV air conditioning system shall be possible through the control system. The controller must have large LCD display which displays complete operating status.

Following functions shall be possible: -

- Zone control
- Malfunction code display
- All the functions available with wired/ wireless remote controller.
- It should be possible to wire the remote to 500m.
- scheduling of indoor units, 24hrs. Clock & programming.
- Remote start/stop of indoor units

- Energy saving function.
- Monitor and report from remote side.
- Interface for connecting works at Client's option
- Language-English
- Weekly schedule
- History of 500 actions, events, faults, errors and alarms.
- Simple Inter lock Function
- Fire Alarm System interface
- Interface for ensuring remote operation of VRV system from a maximum of 3 PCs

Following major functions shall be provided:

Monitoring	Air conditioning status monitoring Indoor unit error monitoring Indoor air inlet temperature monitoring Filter choke sign monitoring
Control, Operation & Setting	Start/ Stop control, Temperature adjustment mode setting Remote control setting, Temperature setting, Filter sign reset
Display	Air conditioner operation setting & status. Set temperature, Indoor unit error Indoor air inlet temperature, Filter sign
Measurement	Accurate operation time, Number of switching times Power consumption with kWh meter Room temperature , Outdoor temperature
Alarm	Fire Alarm interface

Necessary data cabling and connections shall be provided for remote monitoring and control of the complete VRV System. Remote monitoring of the complete HVAC system shall be possible. System shall be capable to take external signal like Security/Fire for forced shutoff.

APPROVED MAKES LIST

LIST OF MAKES		
Sl. No.	**Name of the Equipment/Item**	**Approved Makes**
1	LT Cables (ISI marked)	RPG/Universal/Polycab/Finolex/Havells
2	Control Cable (ISI Approved)	RPG/Universal/Polycab/Finolex/Gemscab/Havells
3	Cable Lugs	Comet/ Cosmos/ Dowell's (Biller India) / Jainson
4	Cable Glands (Double compression)	Comet /Cosmos/ Dowell's /Jainson
5	MCCBs	Schneider / Siemens/ L&T/ ABB/Legrand
6	L.T.Panel Boards	CPRI Approved System Integrators
7	Auxiliary Contactors/Timer/ Starters	L&T/ Siemens/ABB / Schneider/GE Power
8	Protective Relays (Numeric Type)	Areva/ABB/Siemens/ L&T/Schneider/ Alstom
9	KWH Meters (Digital Type) /Ammeter / Voltmeter	Conserv /Secure/L&T/ HPL
10	Indication Lamps/Push Button	L&T/BCH/GE/Siemens/C&S
11	Cable Trays and accessories	Asian Anclllary Corporation/ Globe/Indiana/Profab Engineer/ Slottc/BSPL
12	CT(Cast Resin Epoxy Coated) /PT	AE/ Gilbert & Maxwell /Precise/ Pragati/ Kappal
13	Diesel Engine	Cummins/ Caterpillar/ MTU/Kirloskar / Volvo
14	Alternator	Kirloskar/Stamford/Crompton/ Leroy Somer
15	Anti Vibration Mountings	Gerb / Resistoflex / Kanwar / Dunlop
16	Pressure/ TemPerature Gauges	H Guru/Feibig
17	M.S. Pipes	Tata / Jindal Hisar / Prakash/ Surya
18	DG Set Sunchronization Controller	Cummins/Woodwards or equivalent
19	UPS system	Vertiv EXM2 series or Equivalent
20	VRV System	Daikin/Mitsubishi/LG

NOTE: Any other item required for the successful execution of work and whose make is not listed above shall be got approved from the Engineer-in-Charge prior to the procurement at site by the contractor.

ANNEXURES

Annexure-I

Form of Performance Security (Guarantee) Bank Guarantee Bond (Format – I)

In consideration of the President of India (hereinafter called "The Government") having offered to accept the terms and conditions of the proposed agreement between……..and ……. (hereinafter called "the said Contractor(s)") for the work…… (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs. …….. (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 the Government an amount not exceeding Rs. …….. (Rupees…….. Only) on demand by the Government.

2. We, ……..(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Government stating that the amount claimed as 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 Rs. …….. (Rupees ……..only)

3. We, the said bank further undertake to pay the Government 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 thereunder and the Contractor(s) shall have no claim against us for making such payment.

4. We, …….. (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government 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 Government 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 the Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation 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 Government against the said contractor(s) and to forbear 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 Government or any indulgence by the Government 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 Government in writing.

8. This guarantee shall be valid up to ……unless extended on demand by the Government. Not withstanding anything mentioned above, our liability against this guarantee is restricted to Rs. …….. (Rupees ……..) and unless a claim in writing is lodged with u

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)

ANNEXURE-II

INDEMNITY BOND (VIOLATION OF LAWS, NORMS, ACCIDENTS, DAMAGES ETC)
(On Non-Judicial Stamp Paper of Rs.100/-only)

Name of the work: Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.

KNOW all men by these presents that I/We _____ (Name of Contractor with address) do hereby execute Indemnity Bond in favour of Indian Institute of Technology (IIT) Hyderabad having their office at Kandi, Sangareddy-502284, Telangana, India and for the project …….. IIT Hyderabad under consideration.

On this day of ……..2023

THIS DEED WITNESSETH AS FOLLOWS:

I/We, (Name of Contractor) hereby do indemnify and save harmless IITH having their office at Kandi-502284, Sangareddy, Telangana, India from the following: -

1. Any third party claims, civil or criminal complaints/liabilities/material/life loss during site mishaps and other accidents such as snake bites etc or disputes and/or damages occurring or arising out of any mishaps at the site due to faulty work, negligence, faulty construction and/or for violating any law, rules and regulations in force, for the time being while executing/executed civil works by me/us.

2. Any damages, loss or expenses due to or resulting from any negligence or breach of duty on the part of me/us or any sub-Contractor/s if any, servants or agents.

3. Any claims by an employee of mine/ours or of sub-Contractors if any, under the workman compensation act and employers' Liability act, 1939 or any other law rules and regulations in force for the time being and any acts replacing and/or amending the same or any of the same as may be in force at the time and under any law in respect of injuries to persons or property arising out of and in the course of execution of the Contract work and/or arising out of and in the course of employment of any workman/employee.

4. Any act or omission of mine/ours or sub-Contractor/s if any, our/their servants or agent which may involve any loss, damage, liability, civil or criminal action.

IN WITNESS WHEREOF THE HAS SET HIS/THEIR HANDS ON THIS DAY OF SIGNED AND DELIVERED BY THE AFORESAID IN THE PRESENCE OF WITNESSES:

1.
2.

ANNEXURE-III

Proforma for Authorization certificate from OEM

REF.No._____ Dated _____

To,
The Executive Engineer-Electrical,
Indian Institute of Technology (IIT) Hyderabad
Kandi-502284, Sangareddy, Telangana, India

Dear Sir,

We _____ who are established and reputable manufacturers/Technology Providers of _____having factory/ factories at_____ (*address of factory)* do hereby authorize M/s _____ *(Name and address of bidder)* to submit a bid, negotiate and receive the order from you against your Tender enquiry no. IITH/CMD/ELE/NIT/2022-23/12 for the

Supply, Installation, Testing and Commissioning (SITC) of Electro-Mechanical works for Renovation and Power Redundancy at Institute Data Center, Academic Block-A, IIT Hyderabad, Kandi.

We ensure that we shall support/ facilitate the M/s _____on regular basis with technology / product updates for up-gradation / maintenance / repairing / servicing of the _____ at IIT Hyderabad during the contract period of 04 months plus the defect liability period of 36months (if awarded) as per the terms and conditions mentioned in this tender document.

We hereby extend our full guarantee for the services offered by the above firm.

Yours faithfully,

(Name of authorised signatory with signature)

(Name of manufacturer with stamp)

Note: This letter of authority should be on the **letter-head of the OEM** and should be signed by an authorised person. It should be enclosed by the Bidder with the tender documents.

ANNEXURE-IV

ACCEPTANCE OF TENDER TERMS

(To be given on Company Letter Head)

Date:

To
The Executive Engineer-Electrical
Indian Institute of Technology Hyderabad
Kandi – 502 284.Telangana, India

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: _____

Name of Tender / Work: -

Dear Sir,

1. I/ We have downloaded / obtained the tender document(s) for the above mentioned 'Tender' from the web site(s) namely _____as per your advertisement, given in the above-mentioned website(s).

2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents (including all documents like annexure(s), schedule(s), etc.,), which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organisation too have also been taken into consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the tender conditions of above-mentioned tender document(s) / corrigendum(s) in its totality / entirety.

5. I / We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organisation shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

FORM – A

FORM OF BANKERS" CERTIFICATE" FROM A SCHEDULED BANK

To

The Executive Engineer -Electrical
Construction and Maintenance Division,
IIT Hyderabad.

This is to certify that to the best of our knowledge and information that Ms./Shri…… …… having marginally noted address, a customer of our bank are/is respectable and can be treated as good for any engagement up to a limit of Rs……(Rupees……).

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature with seal of Branch Manager)

For the Bank NOTE: (1) In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

2. The bankers certificate should be on letter head of the bank

FORM - B

FORM FOR CERTIFICATE OF NET WORTH FROM CHARTERED ACCOUNTANT

It is to certify that as per the audited balance sheet and profit & loss account during the financial year 2021-22, the Net Worth of M/s _____(Name & Registered Address of contractor/ Individual/firm/company), as on _____(the relevant date) is Rs._____ after considering all liabilities. It is further certified that the Net worth of the company has not eroded by more than 30% in the last three years ending on (31st March 2022).

Signature of Chartered Accountant

Name of Chartered Accountant

Membership No. of ICAI

Date and Seal