IIT Kharagpur
PLATINUM JUBILEE

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
KHARAGPUR, WEST BENGAL 721302

TENDER DOCUMENT

for

Operation and Comprehensive Maintenance of following HVAC system- Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology-Kharagpur Campus for 5 calendar years

NIT NO. IW/RAC/OPERATION&CAMC/COMBINED/2026-2027/1
Dated-07.05.2026

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Contents

Note:-

1. If the day falls on any Holiday, the date of any of the events mentioned above shall be on the next working day. In case the due date for opening tender happens to be a holiday, the same will be opened on the next working day. The timing however remains unchanged. Please note that the Institute remains closed on Saturday, Sunday and Institute holiday.
2. It is the responsibility of the Bidder to ensure that their bids whether sent by post or by courier or dropped by person should reach within the stipulated date & time.
3. The quotation received after the last date and prescribed time would summarily be rejected. Quotations having incomplete information are also liable to berejected.
4. The addendum/ corrigendum if any shall only be published on Institute's website and CPP Portal.

1. NOTICE INVITING TENDER

1.1. INTRODUCTION

Indian Institute of Technology (IIT) Kharagpur, hereinafter called IITKGP, invites online tenders from the eligible contractors for **Tender for Operation and Comprehensive Maintenance of following HVAC system- Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years.** Particulars of the project are as following.

1.2. PARTICULARS

1. NIT Number	**IW/RAC/OPERATION&CAMC/COMBINED/2026-2027/1**
2. Type of Tender	Operation and CAMC.
3.Name of Work	**Operation and Comprehensive Maintenance of following HVAC system-Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years**
4.Location of Work	**1.Dr SPMS Hospital, Balarampur, IIT Kharagpur** **2.1000 TR- Ramanujam Complex, IIT Kharagpur** **3.JC Ghosh and PC Roy Sc Block, IIT Kharagpur**
5.Estimated Cost(including 18% GST)	**₹ 6,05,03,810.00/-(Rupees Six Crore Five Lakhs Three Thousand and Eight Hundred Ten only)**
6.Earnest Money Deposit	**Rs. 12,10,080.00(Rupees** Twelve Lakhs Ten Thousand and Eighty only)**[Payment of EMD is mandatory for all bidders, including the bidders registered under MSE category except Startup, who are recognized as Startup by DPIIT.]**
7.Time Limit for Execution	Five Calendar years from Date of Start.
8.Tender Basis / Mode	Technical Bid & Financial Bid
9. Mode of Payment to IITKGP (EMD)	i) Original Demand Draft/Pay Order must be submitted along with the Technical Bid physically in a separate envelope super scribed with the tender details at the "RAC Unit, 1St Floor, Old Building, IIT Kharagpur, Kharagpur WB 721302 & Scanned copy of Demand Draft/Pay Order has to be uploaded on https://eprocure.gov.in/eprocure/app ii) Demand Draft/Pay order to be drawn in favour of IIT KHARAGPUR payable at Kharagpur. iii) EMD shall be valid for 60 Days from date of opening of technical bid.
10. Date, Time & Venue of Pre-bid Meeting	**15th May,2026 at 10:30 AM in the Meeting Room of RAC Unit located in the Old building , IIT Kharagpur**
11. Closing Date & Time for Receipt of bids	**30th May,2026 to 15:30hrs**
12. Date& Time for Opening of Technical Bid	**1st June ,2026 at 16:30hrs**
13. Date& Time for Opening of Price Bid	Shall be intimated to the eligible bidders subsequently through CPP portal.
14. Engineer-in-charge and contact details.	Mr. S. Banerjee, Executive Engineer(RAC) Tel: 03222-282724Email: **sbanerjee@adm.iitkgp.ac.in**
15. Address for tender issue, submission and opening	Office of RAC Unit,1st Floor, Old Building, IIT Kharagpur, Kharagpur WB 721302
16.Website for full and updated information	***https://www.iitkgp.ac.in/tenders*** ***https://eprocure.gov.in/eprocure/app***
17. Website for tender submission & processing	***https://eprocure.gov.in/eprocure/app***

18. Hard copy submission of Technical Bid documents	Hard copy of the Technical Bid documents to be submitted at Office of RAC Unit,1st Floor, Old Building, IIT Kharagpur, Kharagpur WB 721302" within 07 days from the closing date and time for receipt of bids.**(EMD will be submitted along with the Technical Bids)**
19. Defect Liability Period	01(One) Year from the Actual Date of Completion

~~1.4.~~1.3. ELIGIBILITY CRITERIA

~~1.4.1.~~1.3.1. The bidder must be registered in appropriate class of works with Government organization like CPWD/ PWD/ MES/ PSUs or those having experience in similar nature of works awarded by Government / Semi Government Organizations/ Government Funded Autonomous Organization/any other Reputed Organizations. Joint Ventureis not allowed.

~~1.4.2.~~1.3.2. The bidder must have done at least 1 (ONE) similar work of value of 80% of the estimated cost **or**2 (TWO) similar works for projects **each** of value 50% of the estimated cost**or**3(THREE) similar work for projects **each** of value 40% of the estimated cost with Government/ Semi-government/PSU/ Government Funded Autonomous Organization/ any other Reputed Organizations during last **7 (seven) years** preceding last date of the month of tender submission.

Note:

(i) The estimated cost is**₹ 6,05,03,810.00/-((Rupees Six Crore Five Lakhs Three Thousand Eight Hundred Ten Only)**.

(ii) 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 receipt of applications for tender.

Similar works shall mean: ***Operation and comprehensive Maintenance of Complete Central AC comprising of different types of Chiller, Compressor, Pump, Cooling tower, AHU, Fan Coil Unit etc.(Minimum one no. of 300TRX10 nos. chillers with 3000 TR low side installation or more capacities of water cooled screw/centrifugal chiller).***

(iii) Agency should have valid Registration on the Date of issue of Tender as a manufacturer of AC Chiller units and having the similar experience for carrying out the similar nature of work directly by the bidder in last ten years in india.

(iv) The bidder must be an Indian registered, licensed HVAC chiller manufacturing company established at least before 10 years ending on 31.03.2026 having Service set up and Spare Parts Warehouse within the 120 KM radius of Kharagpur, West Bengal for last 10 years to always ensure the best understanding of any issue related to Chiller and associated equipment's; earliest troubleshooting/resolution of the issue by constant & immediate supply ofspare parts. Necessary documents need to be submitted at the time of Bidding as proof of the above.

(v) Undertaking from the OEA (Original Equipment Assembler) of said HVAC Installation i.e. M/s Voltas Limited be submitted to ensure the smooth day to day Operation and uninterrupted Comprehensive maintenance service at all the times.

(vi) The Bidder should have registered Sales & Service office in Kolkata with adequate manpower (more than 20 engineers team who are on roll of the bidder). List of tools and tackles and resume of the workmen may be provided in the technical BID. Firm should have full-fledged service set up in Kolkata along with trained team of technical staff (Detailed Organization Chart Needs to be submitted) & Should have own warehouse in West Bengal, to ensure constant & immediate supply of spare parts at all times. Organization chart of the service set up should be furnished duly signed by authorized signatory.

(vii) Electrical work shall be executed by selected bidder through agency holding electrical license and electrical supervisor license valid on date of execution.

~~1.4.3.~~1.3.3. The bidder must be registered with appropriate government authority as a bonafide business entity and must have GST registration certificate and Permanent Account Number of income tax.

~~1.4.4.~~1.3.4. The registrations and licenses should be valid during the execution phase.

~~1.4.5.~~1.3.5. The Average annual turnover of the bidder as per ITCC or profit & loss statement shall not be less than 30% of the estimated cost of project, not having incurred loss in more than two years, during last 5 years ending 31 Mar 2025. The documents submitted should be duly certified and audited by Chartered Accountant with UDIN No. Summary statement in support of the above shall be submitted as per ANNEXURE-III.

Sd/-

Superintending Engineer (E&M)

On behalf of the **Director, Indian Institute of Technology Kharagpur**

Copy to:

1) Dean Infrastructure, EEC
2) Asso. Dean Infrastructure, EEC
3) Sec. to Deputy Director
4) Sec. to Dean Admin.
5) Executive Engineer(RAC)
6) Sr. Asst. Engineer/Assistant Engineer/ Junior Engineer (RAC)
7) Notice Board
8) Tender Notice uploaded to CPPP portal & Institute Website
9) Office file

2.INFORMATION TO BIDDERS

2.1 SCOPE OF WORK

2.1.1 The IITKGP intends for Operation and Comprehensive Maintenance of following HVAC plants Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 years.

2.1.2 The vendor shall work out execution sequence and methodology with the approval of Engineer-in-Charge so as to complete the project within the envisaged time and the estimated cost, duly handling the constraint mentioned above.

2.2 GENERAL INSTRUCTIONS TO THE BIDDER:

2.2.1 Bidding documents are to be obtained electronically through websites:i)**https://www.iitkgp.ac.in/tenders;** ii)**https://eprocure.gov.in/eprocure/app**.

2.2.2 This bid document shall be read in conjunction with GCC (General Conditions of Contract) available on **https://www.iitkgp.ac.in/assets/pdf/tenders/GCC_RAC.pdf**.An undertaking is enclosed as **Annexure II** regarding this must besigned and accepted by the bidder, while submitting the tender/bid.

2.2.3 The bidder shall visit and inspect the site and obtain all information on his own responsibility and at own cost, which may be necessary for the purpose of quoting and submitting the tender. No excuse or ignorance as to site conditions and local information shall be accepted after awarding of the contract. Access to the site will be granted by the Engineer-in-charge on all working days within working hours.

2.2.4 All clarifications about the tender and the applicable terms and conditions of the contract and/or General Conditions of contract and/or applicable laws shall be sought by bidder on or before pre-bid meeting. The bidders may make suggestions which shall be considered during the Pre Bid Meeting. Intending bidder(s) may also send their queries or suggestion, if any, through e-mail to the Engineer-in-chargeonsbanerjee@adm.iitkgp.ac.in on or before **pre-bid meeting**. No queries shall be entertained after notification of replies to noteworthy queries received till the date of pre-bid meeting.

2.2.5 Completion certificate issued by Competent Authority will only be considered as credential. If the Completion certificate issued by Competent Authority does not reflect the type of work, then Final bill / Schedule of Quantity of the qualifying works also to be attached along with the Completion certificates. Certificate from private individuals / organizations for whom such works have been executed shall not be accepted. The value of completed/executed work, net of any penalties shall be deemed satisfactory completion value for evaluation.

2.2.6 The bidding document (consisting of specifications, the schedule of quantities of various types of items to be executed, the set of terms and conditions of the contract and other documents / drawings, if any), Addendum/Corrigenda, Clarifications to Pre-bid queries can be downloaded from the websites: i)***https://www.iitkgp.ac.in/tenders***; *ii)****https://eprocure.gov.in/eprocure/app.*** Corrigenda, if any shall be published only on these websites *at any time before the closing time of tender.* The institute shall not be responsible for any delay / difficulties / inaccessibility of downloading facility for any reason whatsoever. *The tenderers who have downloaded the tender documents from website must visit the website and ensure that such addendum(s)/corrigendum(s) (if any) is also downloaded by them. This shall be the responsibility of the prospective registered bidders to check the web site for any such corrigendum/addendum before closing time of tender and ensure that bid submitted by them are in accordance with all the corrigenda/addenda.*

2.2.7 All costs, charges & expenses that may be incurred in connection with the preparation of his tender shall be borne by him and the Institute accepts no liability whatsoever therefore.

2.2.8 Exemption to IITKGP against any tax/ duty/ fee/ surcharge/ charge/ cost, if any, found applicable or sought later from IITKGP after award shall be passed on to IITKGP by the contractor without dispute.

2.2.9 IITKGP reserves the right to reject any or all of the bids without assigning any reason.

2.2.10 **Bid Validity:** Bid shall remain valid for 120 days from the actual date of opening of the technical bid.

2.2.11 **Firm Price:** Bidder's quoted Rates/Prices for executing the activities under the Contract shall remain firm till completion of the entire work in the original period (and extended period, if any) & shall not attract any escalation under any circumstances whatsoever.

2.2.12 Rates quoted by the bidders (in the uploaded Excel Template having form of contract as available shall be inclusive of GST (Goods and Services Tax - Central, State and Interstate) and all applicable taxes. Income Tax and all other statutory deductions like labour cess etc. will be deducted from the bill as per prevailing rules.

2.2.13 **Earnest Money Deposit(EMD):** The bidder shall mandatorily furnish the Earnest Money Deposit (EMD) of the requisite amount, in the prescribed mode, or documentary proof evidencing such payment, along with the Technical Bid, failing which the bid shall be liable to be rejected. However, bidders seeking exemption under the Startup category must submit a valid Certificate of Recognition issued by DPIIT, Government of India, to avail such benefits, subject to compliance with the applicable rules and provisions.

2.2.14 **Refund / Conversion of Earnest Money Deposit**: The Earnest Money received shall be refunded to the unsuccessful bidders without any interest upon executing the Contract Agreement by successful bidder. The Earnest Money Deposit of successful bidder shall be retained and converted into part of Security Deposit.

2.2.15 **Forfeiture of Earnest Money Deposit:** Earnest Money Deposit will be forfeited in any of the following cases:

2.2.15.1 The bidder withdraws / modifies his tender during the period of Bid Validity.

2.2.15.2 The bidder, in case of tie between lowest bids, refuse to submit revised offer.

2.2.15.3 The bidder does not accept the correction of arithmetical errors of his tender.

2.2.15.4 The bidder fails to deposit Performance Guarantee and information as per format given in GCC within the stipulated time period before award of the work.

2.2.16 The provisions of Public Procurement (Preference to Make in India), Order 2017 and subsequent amendments issued from time to time by Department for Promotion of Industry & Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India shall be applicable. Undertaking/ Declaration of Local Contents as per **Annexure-A** and also undertaking regarding restrictions on procurement from a bidder of a country which shares a land border with India as per **Annexure-B** shall be submitted along with the Tender.

2.2.17 A bid submitted with false information will not only be rejected but also the OEM/ vendor will be debarred from participation in future tendering process.

2.2.18 In case of any dispute, the reasoned and justified decision of the Competent Authority of this Institute shall be final and binding on the bidders.

2.2.19 In the event of any dispute between the management and the Contractor relating to those Contracts where Integrity Pact is applicable, in case both the parties are agreeable, they may try to settle dispute through mediation before the panel of IEMs in a time bound manners (para 5.6 of circular no. 04/06/23 of CVC)

2.2.20 If any information furnished by the bidder is found as false / fabricated, then his bid will be rejected and treated as cancelled. Even if such manipulation is detected at any stage after signing of the contract, it would lead to termination of the contract besides forfeiture of Earnest Money Deposit and liabilities towards prosecution. In such cases the bidder will be debarred from participation in future tendering process in IITKGP as per prevailing Government norms. And the Bidder must be submitting the undertaking regarding Blacklisting / Non-Debarment on company / Firm`s letterhead**(ANNEXURE-C).**

2.3 The Successful Bidder shall be issued two separate work orders: one pertaining to Dr. SPMSH Hospital, and the other pertaining to the 1000 TR and J. C. Ghosh and P. C. Roy AC plants.

2.4 SUBMISSION OF TENDER

2.4.1 Help for Contractors, FAQ, Information about DSC and Bidders Manual Kit containing the detailed guidelines for e-Procurement system are also available on Central Public Procurement Portal.[https://eprocure.gov.in/eprocure/app]

2.4.2 It is mandatory for all the bidders to have a valid Class-II/Class-III Digital Signature Certificate (in the name of person having power of attorney to sign the Bid) from any of the licensed Certifying Agency (Bidders can see the list of licensed CA's from the link www.cca.gov.in) to participate in e-Procurement of IIT KHARAGPUR.

2.4.3 It is mandatory for the bidders to get their firm /company registered with IIT Kharagpur as well as with e-procurement portal to have Vendor Code, User ID & Password. You may follow the below mentioned links-

For IIT Kharagpur: https://erp.iitkgp.ac.in/SupplierFacilities/login.htm

For e-procurement portal: *https://eprocure.gov.in/eprocure/app*.

IIT KGP shall not be liable for delay in processing or non-processing of the payment or refund in the absence of Vendor Code registration.

2.4.4 Tender documents will be available online on website https://eprocure.gov.in/eprocure/app which can be downloaded free of cost.

2.4.5 Bidders may download and refer the "Instructions for Online Bid Submission" from (https://eprocure.gov.in/eprocure/app;jsessionid=2A56E178EED5C7D8536175EFBB573C9F.eprocgep2?page=HelpForContractors&service=page).

2.4.6 The tender documents shall be submitted online in the prescribed format given on the websites and technical bids received online shall be opened as per NIT or Corrigendum thereof. No other mode of submission is acceptable. Detailed credentials as per the requirement of eligibility criteria and all tender papers except Bill of Quantities are to be submitted in "Technical Bid".

Rate Quoted to be submitted in the format provided online in the name of "Financial Bid".

Representative of the bidder, who chooses to attend, may attend the online opening of the technical bids on the scheduled date and time of Bid opening. However, such representatives shall be allowed to attend the opening of the Technical Bids, only, if such person presents the letter of authority issued in his name by the bidder on his letter head.

2.4.7 Bidders cannot submit the tender after the due date and time of e-bid submission. Time being displayed on Central Public Procurement Portal https://eprocure.gov.in/eprocure/app ("Server System Clock Time") shall be final and binding on the bidder. e-Bids are required to be submitted by bidders, only as per the Indian Standard Time (IST) and not the time as per their location/country.

2.4.8 The bidders are advised to submit their e-bids well before the e-bid submission due date. IIT KHARAGPUR shall not be responsible for any delay in submission of e-bids for any reason including server and technical problems.

2.4.9 The Technical and Financial Bid shall be digitally signed by the Authorized Signatory of the bidder & submitted "on-line". However, hard copies of the complete 'Technical Bid documents' shall be submitted in a sealed envelope super scribed with **"Hard Copy of Technical Bid/Tender Documents for NIT No: IW/RAC/OPERATION&CAMC/COMBINED/2026-2027/1 Dated-07.05.2026for the work: Operation and Comprehensive Maintenance of following HVAC system-Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years Dated- 07.05.2026.**

No price bid to be submitted offline.

The authorized signatory of the bidder must be in possession of Power of Attorney before submitting the digitally signed bid online. Scanned copies of various documents can be prepared in .pdf file format.

2.4.10 Any tender received without original Earnest Money in the form as specified in tender documents shall not be considered and shall be summarily rejected.

2.4.11 IIT KHARAGPUR reserves the right to cancel the tenders before submission/opening of tenders, postpone the tender submission/opening date and to accept/reject any or all tenders without assigning any reasons thereof. IIT KHARAGPUR's assessment of suitability as per eligibility criteria shall be final and binding.

2.4.12 Tenderers may note that they are liable to be disqualified at any time during tendering process in case any of the information furnished by them is not found to be true. The decision of IIT KHARAGPUR in this regard shall be final and binding.

2.4.13 The EMDs shall be received at the RAC Unit, 1st Floor, Old Bldg., IIT Kharagpur, Kharagpur-721302 **within due date** or Corrigenda otherwise

2.4.14 **EMDs shall be submitted in an envelope super scribed "Operation and Comprehensive Maintenance of following HVAC system -Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years** with the **NIT No. IW/RAC/OPERATION&CAMC/COMBINED/2026-2027/1 Dated-07.05.2026.**

2.5 EVALUATION OF BIDS AND AWARD OF WORK

2.5.1 The Bid of bidder will be opened electronically on the specified date and time of opening at the Office of the RAC Unit, 1st Floor, Old Bldg., IIT Kharagpur, Kharagpur-721302 in the presence of willing bidders or their authorized representatives.

2.5.2 Bids shall, first, be checked for payment of Earnest Money Deposit (if applicable). Only those bids found to have duly paid/ submitted Earnest Money Deposit shall be considered for evaluation. EMD not submitted within due date as per NIT Clause shall be summarily rejected.

2.5.3 **Acceptance of Tender:** The Authority of IIT Kharagpur does not bind itself to accept the lowest priced bid and reserves the right to reject any or entire tender bids received without assigning any reason thereof. The Institute does not bind itself to offer any explanation to those bidders whose technical bids have not been found acceptable by the Technical Evaluation Committee of the Institute.

2.5.4 Past performance of the Vendors will be judged at the time of Technical evaluation.

2.5.5 **Evaluation of Technical Bids:** The bids received will then be assessed on the eligibility criteria mentioned at Para 1.3 of Notice Inviting Tender.

2.5.6 IITKGP retains the right to revert back to individual bidders with further clarifications / queries on the Technical Bid. The bidder has to respond to the queries within the specified time. Bids found not meeting the eligibility criteria shall be considered non-responsive and shall be rejected summarily.

2.5.7 **Date & time for opening of Financial Bid:** The Financial Bid or the Revised Financial Bids as the case may be will be opened on specified date and time, which will be intimated to qualified bidder through CPP Portal.

2.5.8 **Evaluation of Financial Bids:** Unless otherwise stipulated, evaluation of the financial bids shall be on the price criteria only. Financial Bids of all Technically Qualified bids are evaluated and ranked to determine the lowest priced bidder.

2.5.9 The successful bidder shall be issued Letter of Acceptance (LOA) of the bid, and be required to furnish a Performance Guarantee as per General Conditions of Contract, Program Schedule with specific Milestones to be achieved as to complete the work within the stipulated time limit and details of his Technical Staff to be deployed as per **Annexure-I.**

2.5.10 **Letter of Award** shall be issued to the successful bidder. The Work Order will be issued only after receipt of the Performance Guarantee, along with Program Schedule and the details of Technical Staff to be deployed for the work. Delay in actual commencement of the works due to delay in completion of the procedural formalities shall fully rest upon the contractor and no claim of the contractor shall be entertained on this account. The actual handing over of site to the contractor shall be endorsed by the Engineer-in-charge in the Site Order book and the same shall be duly acknowledged and accepted by the contractor.

2.5.11 **Agreement (Contract)** consisting of complete tender document including conditions, bill of quantities, technical proposal and specialized services, drawings, if any, and acceptance thereof together with any correspondence leading thereto, shall be drawn and signed with the awardee after issue of Work Order.

2.5.12 **Date of start** of work shall be reckoned from 7thday from the date of issue of "Letter of Acceptance".

2.5.13 The Institute may accept or reject any or all bids, either fully or partially in line with GFR 2017, the Manual for Procurement of Goods, the Manual for Procurement of Consultancy & Other Services, the Institute Procurement Guidelines and applicable Government Orders and their amendments from time to time, and with the due approval of the Competent Authority. Also, the Institute is not bound to accept the lowest bid and may also change the quantity, upgrade the criteria, or drop any item or part thereof at any stage, if the situation so demands, before issuing the Work Order.

2.6 TECHNICAL STAFF OF CONTRACTOR: -

The contractor shall deploy well-trained, qualified and skilled professionals at site of work to execute only quality work, and responsible for the consequences that would arise on his/her failure to do so. In order to effectively operate, certain instructions on this clause are given below:

The contractor shall provide the details i.e. name(s), qualifications, and address(es) of the qualified Engineer(s) required to be employed by him/her as per terms of the contract.

2.6.1 **The following shall be strictly advised to by the contractor: -**

a. Engineer(s) deployed as per stipulation in the contract looks after only the work under contract and no other work and is available fully during execution of work.

b. Even if contractor (or partner in case of firm/company) is himself/herself an Engineer, it is necessary on part of contractor to employ Engineer(s) and/or/Overseer for the supervision of the work(s) as per stipulation.

c. The Retired Executive Engineer/Assistant Engineer who is holding Diploma is treated at par with Graduate Engineers for the operation of the Clause. Diploma holder with minimum 10-year relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

2.5.2 The contractor shall provide all necessary superintendence during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract. The contractor shall immediately after receiving letter of acceptance of the tender and before commencement of the work, intimate in writing to the Engineer-in-Charge, the name(s), qualifications, experience, age, address(s) and other particulars along with

certificates. of the principal technical representative to be in charge of the work and other technical representative(s) who will be supervising the work as already mentioned above. The Engineer-in-Charge shall within 3 days of receipt of such communication intimate in writing his approval or otherwise of such a representative(s) to the contractor. Any such approval may at any time be withdrawn and in case of such withdrawal, the contractor shall appoint another such representative(s) according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative and other technical representative(s) shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at site before start of work.

2.5.3 All the provisions applicable to the principal technical representative under the Clause will also be applicable to other technical representative(s) The principal technical representative and other technical representative(s) shall be present at the site of work for supervision at all times when any construction activity is in progress and also present himself/themselves, as required, to the Engineer-in-Charge and/or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be actually available at site fully during all stages of execution of work, during recording/checking/test checking of measurements of works and whenever so required by the Engineer-in-Charge and shall also note down instructions conveyed by the Engineer-in-Charge or his designated representative(s) in the site order book and shall affix his/their signature in token of noting down the instructions and in token of acceptance of measurements/checked measurements/ test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-Charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days.

2.5.4 If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative(s) is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (non-refundable) shall be effected from the contractor as specified in **Annexure-I** and the decision of the Engineer-In-Charge as recorded in the site order book and measurement recorded checked/test checked in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable technical Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as suitable other technical representative(s) is/are appointed and the contractor shall be held responsible for the delay so caused to the work. The contractor shall submit a certificate of employment of the technical representative(s) (in the desired format along with every on account bill/ final bill or as directed and shall produce evidence if at any time so required by the Engineer-in-Charge.

2.5.5 Requirement of technical staff for a work is decided and stipulated in NIT and LOA. Decision of the tender accepting authority or the Engineer-in-Charge shall be final and binding on the contractor in this respect. Recovery shall be made from the contractor in the event of not fulfilling this based on the guidelines given at **Annexure-I**.

2.5.6 The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work. The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work. The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer-in-Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

2.5.7 The contractor shall provide following documents in support of the deployment of their technical staff for the specific work:

a. Appointment letter by the contractor to the technical staff.
b. Letter as above, or a supplementary one to above confirming deployment of the technical staff on the specific work.
c. Copy of PAN card or Voter ID card of the technical staff in support of his/ her identity.
d. Copy of Aadhar card of the technical staff in support of his/ her address.
e. Contact details (phone number and email address) of the technical staff.

2.6 SPECIAL CONDITIONS OF CONTRACT:

a. The rate quoted by the contractor is inclusive of EPF/ESI and all other statutory/non-statutory provisions and no additional payment shall be made to the contractor over and above the quoted rates.

b. Contractor shall submit monthly attendance sheet/Form-B/Form-VII for all workers. Contractor shall also submit details of EPF/ESI contributions made to these workers. (if applicable).

c. Payment of quarterly bills shall be made only after verification of EPF/ESI contributions by IIT KGP.

3. UNDERTAKING BY THE BIDDER

U N D E R T A K I N G

I / We have read and examined the Tender document including terms & conditions, specifications, bill of quantities, drawings and designs, general rules & directions, General Conditions of Contract, Special Conditions of Contract and all relevant other documents, publications and rules referred to in the Conditions of Contract and all other contents in the tender documents for the work.

I / We, hereby tender for execution of the work specified for the Indian Institute of Technology Kharagpur within the time specified and in accordance in all respects with the specifications, designs, drawings and instructions in writing.

We agree to keep the tender open for 120 days from the actual date of opening of technical bidand not to make any modifications in its terms and conditions. A sum of **Rs.** _____ has been deposited in cash/ demand draft of a scheduled bank as earnest money. If I / we, fail to furnish the prescribed performance guarantee within prescribed period, I / we agree that the said Director, Indian Institute of Technology Kharagpuror his authorized officer shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I / we fail to commence work as specified, I / we agree that the Director, Indian Institute of Technology Kharagpur shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein.

Further, I / We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

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

Seal & Signature of Contractor

Postal Address

Dated

Witness

Address

Occupation

ANNEXURE-I

TECHNICAL STAFF OF CONTRACTOR

DISCIPLINE	NAME	QUALIFICATION	EXPERIENCE	CONTACT NUMBER
Site Engineer/Quality Engineer				

Seal & Signature of Contractor

*GENERAL GUIDELINES FOR FIXING REQUIREMENT OF TECHNICAL STAFF *

Cost of Work	Requirement of Technical Staff		Minimum Experience	Designation of Technical Staff	Rate at which recovery shall be made in the event of non-fulfilling
	Qualification	Minimum Number of staff			
20 to 50 Cr	Graduate Engineer	1	20 years and having experience of similar nature of work	Project Manager	Rs. 60,000/- per month per person
	Graduate Engineer	1	12 years and having experience of similar nature of work	Deputy Project Manager	Rs. 40,000/- per month per person
	Graduate Engineer or Diploma Engineer	2	5 or 10 years	Project/Site Engineer	Rs. 25,000/- per month per person
	Graduate Engineer or Diploma Engineer	2	2 or 5 years	Project/Planning/Quality /Billing Engineer	Rs. 15,000/- per month per person
10 to 20 Cr	Graduate Engineer	1	10 years and having experience of similar nature of work	Project Manager	Rs. 30,000/- per month per person
	Graduate Engineer	1	5 years	Project/Site Engineer	Rs. 25,000/- per month per person
	Graduate Engineer or Diploma Engineer	2	2 or 5 years	Project/Planning/Quality /Billing Engineer	Rs. 15,000/- per month per person
5 to 10 Cr	Graduate Engineer	1	5 years and having experience of similar nature of work	Project Manager	Rs. 25,000/- per month per person
	Graduate Engineer or Diploma Engineer	2	2 or 5 years	Project/Planning/Quality /Billing Engineer	Rs. 15,000/- per month per person
1.5 to 5 Cr	Graduate Engineer or Diploma Engineer	2	2 or 5 years	Project manager cum Project/Planning/Quality /Billing/ Site Engineer	Rs. 15,000/- per month per person
15 lakhs to 1.5 Cr	Graduate Engineer or Diploma Engineer	1	2 or 5 years	Project manager cum Project/Planning/Quality /Billing/ Site Engineer	Rs. 15,000/- per month per person

a) 'Cost of work,' in table above, means the estimated cost of the work put to tender.
b) Requirement of technical staff and their experience can be varied depending upon nature of work by NIT approving authority with recorded reasons.
c) The contractor shall submit the details of Technical Staff based on the NIT Clause 2.5 and Annexure-I above.
d) In case of contractor executing multiple works, the technical staff required shall be 50% of the sum total of staff in each category required in each contract or the greatest staff strength required in any of his/ her contract whichever is more.

Seal & Signature of Contractor

ANNEXURE - II

UNDERTAKING FOR GCC COMPLIANCE

UNDERTAKING

We hereby undertake that we shall fulfill all the terms & conditions of GCC-IIT Kharagpur within the specified time frame, after the acceptance of our offer in case our offer is accepted; failing which IIT KHARAGPUR may go ahead to take necessary action such as reporting the non-compliance to appropriate Government authorities and barring us from future participation in IIT KHARAGPUR works.

Seal & Signature of Contractor

DATED:

ANNEXURE - III

Profit and Loss Summary statement of Last 5 Financial years
Approved through Chartered Accountants

TO WHOM IT MAY CONCERN

This is to certify that the total turnover and Profit/Loss summary of M/s .....

.....

having its registered office at .....

.....

.....for last five Financial years are as given below: -

Description	Financial years				
	2020-21	2021-22	2022-23	2023-24	2024-25
Annual Turnover from Operations					
Profit (+)/Loss (-) After Tax					

The above mentioned complete data is true to the best of our knowledge and belief and can be verified using the provided UDIN.

(TO BE VERIFIED BY Chartered Accountants)

Date & Seal

UDIN NO. .....

ANNEXURE – A

DECLARATION OF LOCAL CONTENT

(To be given on Company Letter Head)

Tender No:.....Dated: .....

To,

The Superintending Engineer(E&M),

Indian Institute of Technology (IIT), Kharagpur
Kharagpur, West Bengal-721302

Subject: Declaration of Local Content-reg.

1. Country of origin of Goods being offered :.....

2. We hereby declare that items offered has ..... % local content.

(Clarification for Local content calculation as per OM No: P-45021/102/2019-BE-II-Part (1)(E-50310), dated 4th March 2021 of Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Govt. of India.)

3. The details of the location(s) at which local value addition is made are given in the below table;

Sl. No.	Name of the Item	Location(s) of Local Value addition with Pin Code

" Local Content" means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of the imported content in the item (including all customs duties) as a proportion of the total value, in percent.

Important:

"False declaration will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules2017 for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules 2017 along with such other actions as may be permissible under law."

Date:

Yours faithfully,

(Signature of the bidder, with Official Seal

ANNEXURE – B

FOR WORKS CONTRACTS, INCLUDING TURNKEY CONTRACTS

(On Company / firm's Letterhead)

Tender No:.....Dated:.....

CERTIFICATE

I/we have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries and hereby certify that this bidder is not from such a country and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

OR ***(whichever is applicable)***

I/we have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I/we hereby certify that this bidder is from _____ (Name of Country) and has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I/we also certify that this bidder fulfils all the requirements in this regard and is eligible to be considered.

(Copy/ evidence of valid registration by the Competent Authority is to be attached with the bid document)

Signature of the Authorized Person

Date: ----------

Full Name: ----------

Place: ----------

Company Seal: ----------

ANNEXURE – C

UNDERTAKING REGARDING BLACKLISTING / NON – DEBARMENT
(On Company / firm's Letterhead)

I/We hereby confirm and declare that we, M/s _____, is not blacklisted/ Deregistered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services as on date.

"Submission of Forged document or False declaration in any stage of contract will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules2017 for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules 2017 along with such other actions as may be permissible under law."

Signature of the Authorized Person

Date: ----------

Full Name: ----------

Place: ----------

Company Seal: ----------

ANNEXURE-D

DETAILS OF THE BIDDER

1	Name of the Firm	
2	Address for Communication	
3	Email id (shall be working up to end of contract period/DLP)	
4	Particulars of Registration with Government / Semi Government Organizations/ Government Funded Autonomous Organization etc. like CPWD/ PWD/ MES/IIT or PSUs (if available)	
5	Legal Status of the Bidder:- a) A Proprietary Firm b) A Partnership Firm c) A Limited Company d) A Consortium	
6	Name of the Authorized Personnel/Signatory/ Person having Power of Attorney	
7	Mobile No.	
8	Telephone No.	
9	Permanent Account Number (PAN) No.	
10	GST Registration No.	
11	IIT Kgp Vendor Code (if available)	

Signature with seal

Declaration

1. I, ... Son/ Daughter of Shri ..... Proprietor/ Partner/ CEO/ MD/ Director/ Authorized Signatory of M/s. ..... am competent to sign this declaration and execute this tender document.
2. Tender ref. no.: .....dt. ..... I have carefully read and understood all the terms and conditions of the tender and hereby convey my acceptance of the same.
3. The information/ documents furnished along with the above application are true and authentic to the best of my knowledge and belief.
4. I/ we am/are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.
5. Each page of the tender documents and papers submitted by my Company is authenticated, sealed and signed, and I take full responsibility for the entire documents submitted.

Signature of the Authorized Person

Date: .....

Full Name: .....

Place: .....

Company Seal: .....

Annexure-E

4. List of Major Equipment's:

List of major equipment's of **Operation and Comprehensive Maintenance of following HVAC System- Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years** are as follows.

I. The low side equipment's pertaining to the plant is located in **Dr. Syama Prasad Mookerjee Institute of medical Sciences and Research building**. The major equipment's are being highlighted below-

A. Major Equipment's List:

Sr. No.	Equipment Description	Make	UOM	Qty
1	Water cooled Screw Chiller - 300 TR	DB	Nos	5
2	Primary Chilled Water Pump	WILO – Mather &Platt	Nos	5
3	Secondary Chilled Water Pump (with VFD and automatic controller)	WILO - Mather+Platt	Nos	5
4	Condenser Water Pump	WILO - Mather+Platt	Nos	5
5	Induced Draft Cooling Tower - 375 TR	Paharpur	Nos	5
6	Floor mounted AHU - 24,500 cfm (with prefilters+ fine filters)	Zeco	Nos	1
7	Floor mounted AHU - 23,500 cfm (with prefilters+ fine filters)	Zeco	Nos	6
8	Floor mounted AHU - 20,500 cfm (only with prefilters)	Zeco	Nos	1
9	Floor mounted AHU - 18,500 cfm (with prefilters+ fine filters)	Zeco	Nos	2
10	Floor mounted AHU - 17,000 cfm (with prefilters+fine filters)	Zeco	Nos	4
11	Floor mounted AHU - 16,000 cfm (only with prefilters)	Zeco	Nos	2
12	Floor mounted AHU - 15,500 cfm (with prefilters+fine filters)	Zeco	Nos	3
13	Floor mounted AHU - 15,000 cfm (with prefilters+fine filters)	Zeco	Nos	1
14	Floor mounted AHU - 14,500 cfm (only with prefilters)	Zeco	Nos	1
15	Floor mounted AHU - 13,500 cfm (only with prefilters)	Zeco	Nos	2
16	Floor mounted AHU - 13,000 cfm (with prefilters+fine filters)	Zeco	Nos	2
17	Floor mounted AHU - 12,500 (with prefilters+fine filters)	Zeco	Nos	10

18	Floor mounted AHU - 10,500 cfm (only with prefilters)	Zeco	Nos	2
19	Floor mounted AHU - 5,000 (with pre+ fine filters)	Zeco	Nos	3
20	Floor mounted AHU - 3500 cfm (with pre+fine filters)	Zeco	Nos	10
21	Floor mounted AHU - 2500 cfm (with pre+fine filters)	Zeco	Nos	2
22	Ceiling suspended AHU - 1500 cfm (with pre+fine filters)	Zeco	Nos	1
23	Floor mounted AHU - 3,000 cfm with 8 row cooling coil (Hepa filters shall be supplied and installed at terminals by OT Vendor)	Zeco	Nos	12
24	Ceiling suspended HRU - 3000 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	21
25	Ceiling suspended HRU - 2500 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	5
26	Ceiling suspended HRU - 2400 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	3
27	Ceiling suspended HRU - 2100 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	2
28	Ceiling suspended HRU - 1900 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	2
29	Ceiling suspended HRU - 1800 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	2
30	Ceiling suspended HRU - 1700 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	1
31	Ceiling suspended HRU - 1600 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	1
32	Ceiling suspended HRU - 1400 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	2
33	Ceiling suspended HRU - 1100 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	1
34	Ceiling suspended HRU - 700 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	1
35	Ceiling suspended HRU - 500 cfm (plate to plate type Aluminium heat exchanger)	DRI	Nos	4
36	Centrifugal Cabinet Fan - 7000 CFM (Toilet Exhaust)	NICOTRA	Nos	2
37	Centrifugal Cabinet Fan - 5250 CFM (Toilet Exhaust)	NICOTRA	Nos	2
38	Centrifugal Cabinet Fan - 1500 CFM (Toilet Exhaust)	NICOTRA	Nos	2
39	Centrifugal Cabinet Fan - 24000 CFM (Pressurisation Fan)	NICOTRA	Nos	2
40	Centrifugal Cabinet Fan - 21000 CFM (Pressurisation Fan)	NICOTRA	Nos	3
41	Centrifugal Cabinet Fan - 15000 CFM (Pressurisation Fan)	NICOTRA	Nos	1
42	Centrifugal Cabinet Fan - 10000 CFM (Pressurisation Fan)	NICOTRA	Nos	2
43	Centrifugal Cabinet Fan - 7500 CFM (Pressurisation Fan)	NICOTRA	Nos	8
44	Centrifugal Cabinet Fan - 6500 CFM (Pressurisation Fan)	NICOTRA	Nos	2
45	Tube Axial Fan - 24000 CFM (Smoke management Fan)	KRUGER	Nos	4
46	Tube Axial Fan - 21000 CFM (Smoke management Fan)	KRUGER	Nos	4
47	Tube Axial Fan - 18500 CFM (Smoke management Fan)	KRUGER	Nos	8

48	Tube Axial Fan - 3500 CFM (Smoke management Fan)	KRUGER	Nos	8
49	Ducted Inline Fan - (1000 CFM to 100 CFM)	KRUGER	Nos	42
50	Propeller Fan (300/380 mm dia)	Marathan	Nos	49
51	AHU Starter Panel (with VFD)	EAP+ABB	Nos	56
52	HRU Starter Panel	EAP	Nos	45
53	FAN Starter Panel	EAP	Nos	48
54	VAV (0 - 800 CFM)	TROX	Nos	162
55	VAV (801 - 1350 CFM)	TROX	Nos	75
56	VAV (1351 - 2100 CFM)	TROX	Nos	35
57	VAV (2101 - 3200 CFM)	TROX	Nos	18
58	VAV (3201 - 4000 CFM)	TROX	Nos	5
59	Venturi Valve	Phonix Control	Pair	11
60	2 way PICBV (32 - 100 dia)	Danfoss	Nos	56
61	Motorized Butterfly Valve	Belimo	Nos	20

II. List of major equipment's of the**1000TR HVAC SYSTEM IN INDIAN ISTITUTE OF TECHNOLOGY- KHARAGPUR CAMPUS** are as follows. The low side equipment's pertaining to the plant are located in CIC, Ramanujam Complex, Kalidas Auditorium, Gargi and Maitree Auditorium,V-1,V-2,V-3,V-4 Classroom, SMST, J C Bose Annex Building, B.C.Roy Technology Hospital at IIT KHARAGPUR Campus. The major equipment's are being highlighted below-

A. MajorEquipment's at Plant Room:

Sl. No	Major Items.	Qty.	Manufacturer	Capacity	Special features	Location of Installation
1	Water cooled Screw Chiller Model No.WCFX51W2U1C	02 (1W+1S)	DB	462 TR each	Refrigerant-R22	AC Plant Room.
2	Induced Draft FRP Cooling Tower	02 (1W+1S)	Choksi	Rated capacity Motor Capacity-30HP		AC Plant Room.
3	Water circulation Pumps. (1)Condenser Water. (2)Chilled Water.	02 (1W+1S) 02 (1W+1S)		(1)Motor Capacity-50HP (2))Motor Capacity-60HP		AC Plant Room.
4	Piping network of water circulation in various circuits along with their accessories insulation and such as in bends, tees, reducer flanges, valves, strainers outlets etc. complete the system.	Lot				

5	Air Handing ducting with different thickness of insulation, Volume Control dampers, grilles, diffusers, fusible link/ motorized fire dampers etc. to complete the whole HVAC Systems.	Lot				
6	Electric panel boards complete with Voltmeter, Ammeter indication light for selector switch incoming &out going switch, single phase prevent or, CT`s contractor for above all equipment and remote control panel, Instruments panel etc. along with various equipment connected with power cables (different sizes) from main panel boards to sub panel boards and multi core PVC control cabling etc. to complete the systems.	Lot				

B. CIC, Takshashila Building

Details of AHU:

Sl. No	Major Items.	Qty.	Location of Installation
1	AHU	1no	Ground Floor/A
2	AHU	1no	Ground Floor/A
3	AHU	1no	Ground Floor/A
4	AHU	1no	Ground Floor/A
5	AHU	1no	Ground Floor/A
6	AHU	1no	1st floor/A
7	AHU	1no	1st floor/A
8	AHU	1no	1st floor/A
9	AHU	1no	1st floor/A
10	AHU	1no	2 nd Floor/A
11	AHU	1no	2 nd Floor/A
12	AHU	1no	2 nd Floor/A
13	AHU	1no	2 nd Floor/A

C. VIKRAMSHILA COMPLEX

Details of AHU :

Sl. No	Major Items.	Qty.	Location of Installation
1	AHU	1no	V1 Classroom
2	AHU	1no	V2 Classroom
3	AHU	1no	V3 Classroom
4	AHU	1no	V4 Classroom
5	AHU	5no	SMST, Basement

D. Auditoriums

Details of AHU :

Sl. No	Major Items.	Qty.	Location of Installation
1	AHU	2no	Kalidas Auditorium
2	AHU	1no	Gargi Auditorium
3	AHU	1no	Maitrayee Auditorium

E.B.C Roy Technology Hospital

Sl. No	Major Items.	Qty.	Capacity	Location of Installation
1	Micro-processor based air cooled Air Conditioning Unit with HEPA filter and Air handling Unit	1no	15 TR	B.C.R.T.H Operation theater

F. J C BOSE ANNEX BUILDING

Sl. No	Major Items.	Qty.	Capacity	Location of Installation
A. Ceiling Suspended Double Skinned AHU:				
1	8,000CFM AHU with 40mm SP, 6Row Coil.	2 Nos.	22TR	J.C.BOSE ANNEX BUILDING
2	6,000CFM AHU with 40mm SP, 6Row Coil.	1 No.	15TR	J.C.BOSE ANNEX BUILDING

3	5,000CFM AHU with 40mm SP, 6Row Coil.	5 Nos	13TR	J.C.BOSE BUILDING	ANNEX
4	4,000CFM AHU with 40mm SP, 6Row Coil.	3 Nos	10TR	J.C.BOSE BUILDING	ANNEX
5	3,200CFM AHU with 40mm SP, 6Row Coil.	3 Nos	8TR	J.C.BOSE BUILDING	ANNEX
6	2,400CFM AHU with 40mm SP, 6Row Coil.	2 Nos	7TR	J.C.BOSE BUILDING	ANNEX
B. Fan Coil Unit					
1	Fan Coil Unit.	13 Nos	1.5TR	J.C.BOSE BUILDING	ANNEX
2	Fan Coil Unit.	8 Nos	2 TR	J.C.BOSE BUILDING	ANNEX
C. Cassette Unit:					
1	Cassette AC	4 Nos	2TR	J.C.BOSE BUILDING	ANNEX
2	Cassette AC	2 Nos	3TR	J.C.BOSE BUILDING	ANNEX

III. List of major equipment's of the **J.C. GHOSH & P.C.ROY SCIENCE BLOCK HVAC SYSTEM IN INDIAN ISTITUTE OF TECHNOLOGY- KHARAGPUR CAMPUS** are as follows. The low side equipment's pertaining to the plant are located in two block of J C Ghosh and P C Roy building and in Aerospace annex building. The major equipment's are being highlighted below-

A. Major Equipment's at Plant Room:

Sl. No	Major Items.	Qty.	Manufacturer	Capacity	Special features	Location of Installation
1	Water cooled Screw Chiller	03 (2W+1S)	DB	300TR each	Refrigerant-R134a	AC Plant Room.
2	Induced Draft FRP Cooling Tower	03 (2W+1S)	Choksi	350TR Nominal Capacity		AC Plant Room.
3	Water circulation Pumps. (1)Condenser Water. (2)Chilled Water.	 04 (3W+1S) 04 (3W+1S)	Kirlosker.	 (1)270cum/h, H-25mtr (2)175cum/h, H-33.5mtr		AC Plant Room.
4	Wall mounted Exhaust Fan	8 nos	Marathon	450mmdia.10mm SP		AC Plant Room.

5	Piping network of water circulation in various circuits along with their accessories insulation and such as in bends, tees, reducer flanges, valves, strainers outlets etc. complete the system.	Lot				
6	Air Handing ducting with different thickness of insulation, Volume Control dampers, grilles, diffusers, fusible link/ motorized fire dampers etc. to complete the whole HVAC Systems.	Lot				
7	Electric panel boards complete with Voltmeter, Ammeter indication light for selector switch incoming &out going switch, single phase prevent or, CT`s contractor for above all equipment and remote control panel, Instruments panel etc. along with various equipment connected with power cables (different sizes) from main panel boards to sub panel boards and multi core PVC control cabling etc. to complete the systems.	Lot				

B. J C Ghosh and P C Roy Science Block

Details of AHU &CSU :

Sl. No	Major Items.	Qty.	Manufacturer	Capacity (cfm)	Location of Installation
1	AHU	1no	Edgetech	15000	Ground Floor/A
2	AHU	1no	Edgetech	4000	Ground Floor/A
3	AHU	1no	Edgetech	4000	1st floor/A
4	CSU	1no	Edgetech	5000	1st floor/A
5	CSU	1no	Edgetech	4000	1st floor/A
6	CSU	1no	Edgetech	2200	1st floor/A
7	CSU	1no	Edgetech	2200	1st floor/A
8	AHU	1no	Edgetech	4500	2 nd Floor/A
9	CSU	1no	Edgetech	6500	2 nd Floor/A
10	AHU	1no	Edgetech	8000	3rd Floor/A
11	CSU	1no	Edgetech	5000	3rd Floor/A
12	AHU	1no	Edgetech	4000	3rd Floor/A
13	AHU	1no	Edgetech	8000	4th Floor/A
14	CSU	1no	Edgetech	5000	4th Floor/A

15	CSU	1no	Edgetech	5000	4th Floor/A
16	CSU	1no	Edgetech	1500	4th Floor/A
17	AHU	1no	Edgetech	8000	5th Floor/A
18	AHU	1no	Edgetech	4000	6th Floor/A
19	CSU	1no	Edgetech	5000	6th Floor/A
20	AHU	1no	Edgetech	4000	6th Floor/A
21	AHU	1no	Edgetech	10000	7th Floor/A
22	AHU	1no	Edgetech	8000	Ground Floor/B
23	AHU	1no	Edgetech	5500	
24	AHU	1no	Edgetech	14000	1st Floor /B
25	CSU	1no	Edgetech	5000	
26	AHU	1no	Edgetech	14000	
27	CSU	1no	Edgetech	2000	2nd Floor/B
28	AHU	1no	Edgetech	5500	
29	CSU	1no	Edgetech	2500	
30	CSU	1no	Edgetech	2500	
31	CSU	1no	Edgetech	2500	3rd Floor/B
32	AHU	1no	Edgetech	3500	
33	CSU	1no	Edgetech	2000	
34	CSU	1no	Edgetech	2200	
35	CSU	1no	Edgetech	2500	
36	CSU	1no	Edgetech	2500	4th Floor/B
37	AHU	1no	Edgetech	3500	
38	CSU	1no	Edgetech	2000	
39	CSU	1no	Edgetech	2200	
40	CSU	1no	Edgetech	2500	
41	CSU	1no	Edgetech	4000	5th Floor/B
42	CSU	1no	Edgetech	1500	
43	AHU	1no	Edgetech	4000	
44	CSU	1no	Edgetech	2000	

45	CSU	1no	Edgetech	4000	6th Floor/B
46	AHU	1no	Edgetech	16000	
47	AHU	1no	Edgetech	15000	7th Floor/B

C. J C Ghosh and P C Roy Science Block

Details of FCU :

Sl. No	Major Items.	Qty.	Manufacturer	Capacity	Location of Installation
1	FCU	3no	Edgetech	1.5 TR	1st floor/A Faculty Room
2	FCU	1no	Edgetech	1 TR	1st floor/A Faculty Room
3	FCU	1no	Edgetech	1.5 TR	2 nd Floor/A Faculty Room
4	FCU	5no	Edgetech	1.5 TR	3rd Floor/A Faculty Room
5	FCU	5no	Edgetech	1.5 TR	4th Floor/A Faculty Room
6	FCU	7no	Edgetech	1.5 TR	5th Floor/A Faculty Room
7	FCU	2no	Edgetech	1 TR	5th Floor/A Faculty Room
8	FCU	5no	Edgetech	1.5 TR	6th Floor/A Faculty Room
9	FCU	5no	Edgetech	1.5 TR	7th Floor/A Faculty Room
10	FCU	5no	Edgetech	1.5 TR	1st Floor /B Faculty Room
11	FCU	4no	Edgetech	1.5 TR	2nd Floor/B Faculty Room
12	FCU	1no	Edgetech	1 TR	2nd Floor/B Faculty Room
13	FCU	4no	Edgetech	1.5 TR	2nd Floor/B Faculty Room
14	FCU	1no	Edgetech	1 TR	2nd Floor/B Faculty Room
15	FCU	4no	Edgetech	1.5 TR	4th Floor/B Faculty Room
16	FCU	1no	Edgetech	1 TR	4th Floor/B Faculty Room
17	FCU	8no	Edgetech	1.5 TR	5th Floor/B Faculty Room

18	FCU	1no	Edgetech	1 TR	5th Floor/B Faculty Room
19	FCU	6no	Edgetech	1.5 TR	7th Floor/B Faculty Room

D. Aerospace Annex Building

Details of AHU &CSU :

Sl. No	Major Items.	Qty.	Manufacturer	Capacity (cfm)	Location of Installation
1	AHU	1no	ZECO	2400	1st floor/Meeting Hall
2	AHU	1no	ZECO	1600	1st floor/Meeting Hall
3	AHU	1no	ZECO	3200	1st floor/Seminar Hall
4	AHU	1no	ZECO	3200	1st floor/Seminar Hall
5	AHU	1no	ZECO	2000	2 nd Floor/Post Doc
6	AHU	1no	ZECO	2400	2 nd Floor/CFD Lab
7	AHU	1no	ZECO	2400	2 nd Floor/CFD Lab
8	AHU	1no	ZECO	2400	2 nd Floor/CFD Lab
9	AHU	1no	ZECO	2400	2 nd Floor/CFD Lab
10	AHU	1no	ZECO	3200	3rd Floor/Reserchs coller room
11	AHU	1no	ZECO	2400	3rd Floor/Reserchs coller room
12	AHU	1no	ZECO	3200	3rd Floor/Aero modeling lab
13	AHU	1no	ZECO	3200	3rd Floor/Aero modeling lab
14	AHU	1no	ZECO	2800	3rd Floor/Aero modeling lab
15	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR

16	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
17	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
18	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
19	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
20	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
21	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
22	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
23	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
24	Hi Wall Units	1no	Bhutoria	2TR	1ST FLOOR
25	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
26	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
27	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
28	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
29	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
30	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
31	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
32	Hi Wall Units	1no	Bhutoria	2TR	2ND FLOOR
33	Hi Wall Units	1no	Bhutoria	2TR	3RD FLOOR
34	Hi Wall Units	1no	Bhutoria	2TR	3RD FLOOR
35	Hi Wall Units	1no	Bhutoria	2TR	3RD FLOOR
36	Hi Wall Units	1no	Bhutoria	2TR	3RD FLOOR
37	Hi Wall Units	1no	Bhutoria	2TR	3RD FLOOR
38	DX Split and Window AC	Lot	BSL/ Voltas/ Eqv	Diff. capacity	In the building

Note: The list of equipment's is indicative. Contractors are requested to visit and asses the requirements as per site condition. Not claim of additional equipment maintenance shall be entertained.

SCOPE OF WORK

The Scope of work as mentioned below are the minimum expected from the firm / agency / contractor required for operation in proper way as per the operation manuals of respective equipment's and as per good engineering practices will be required to be done under this scope of work. Successful bidder will make Performa for recording the following minimum work schedule / parameters and show to IIT- Kharagpur to ensure proper accomplishment of these tasks.

A. WORK TO BE DONE ON EVERY DAY BASIS (as applicable based on the plant type:

1. The readings of the suction and discharges pressure, oil pressure, oil & gas level, suction and discharges pressure of pumps, Voltmeters & Ammeters etc shall be checked and recorded in the LOG-BOOK (provided by firm/agency/contractor) on hourly basis. Necessary action is to be taken if the readings are not normal.
2. To check all the electrical motors and their bearings for abnormal noise / heating and to take necessary action if found abnormal.
3. To check the water level in the make–up water tank in the Cooling Towers and check functioning of float valve. See proper function of the Cooling Towers.
4. To drain out water and clean the AC Plant Room / Cooling Towers/AHU's etc.
5. The inside ambient conditions i.e. DBT(Dry Bulb Temperature). WBT(Wet Bulb Temperature) &RH(Relative Humidity) of all the AHU's shall be recorded on hourly basis.
6. The temperature of each room shall also be measured for any corrective action and these are to be recorded in LOG- BOOK.
7. To keep the machine rooms equipment such as chilling plant area, AHU's, Exhaust fans neat and clean including their room floor, wall ceiling etc. in an orderly manner.
8. Any other work required by the equipment for proper functioning.

B. EQUIPMENT-WISE CHECKING NEED TO BE DONE AS LISTED BELOW (FOR OPERATION):

Sl.No	Time Line	Description
Air Handling Units/ Indoor units		
1	Weekly.	Check for damage especially to coil and filters.
2	Weekly.	Cleaning of AHU pre-filters/ fine filters
3	Weekly.	Check for air and water leakage
4	Weekly.	Check condensate drain for any blockage, clean if required.
5	Weekly.	Check drain pan for any blockage.
Fan Coil Units/ / Indoor units		
1	Weekly.	Check the water leakage
2	Weekly.	Clean air filters.
3	Weekly.	Check drain pan for any blockage.

4	Monthly	Clean the filter & Y-Strainers, if required.
Cooling Towers		
1	Weekly.	Check the operating oil level and oil leakage in gear box.
2	Weekly.	Inspect basin for clogging.
3	Monthly	Check for unusual noise/vibration in fan and fan guard, motor drive shaft and guards gear reducer.
Pumps		
1	Weekly.	Check the cable for heating
2	Weekly.	Check for any leakage from glands or flange joint.
Chillers/ package units		
1	Weekly.	Check DELTA T(T Cond wtr.out.liq.ref.) for condenser fouling
2	Weekly.	Verify proper water treatment
3	Weekly.	Check oil return system/ suction & discharge pressure
4	Weekly.	Inspection of starter

TOOLS & PLANTS

All necessary safety gear required for the safety of the operators shall be provided by the contractor.

Mandatory Equipment's to kept at site-

C. EQUIPMENT-WISE CHECKING NEED TO BE DONE AS LISTED BELOW (FOR OPERATION AND CAMC):

Sl.No	Time Line	Description
Air Handling Units/ Indoor units		
1	Weekly.	Check for damage especially to coil and filters.
2	Weekly.	Cleaning of AHU pre-filters/ fine filters
3	Weekly.	Check for air and water leakage
4	Weekly.	Check condensate drain for any blockage, clean if required.
5	Weekly.	Check drain pan for any blockage.
6	Monthly	Check fan Belt for correct tension and sign of wear and alignment of fan and motor.

7	Monthly	Inspect coils and clean if required
8	Monthly	Check functioning of lights and limit switch interlocking & proper Illumination
9	Monthly	Check for bearing of motor and blower
10	Monthly	Check for tightness of V-belts and pulleys.
11	Monthly	Check looseness of any bolt in fan casing motor base etc
12	Monthly	Check for vibration in blower and motors.
13	Monthly	Check access doors and hinges for easy operation.
14	Monthly	Check cleanliness of the filters and clean if required.
15	Monthly	Check the looseness of any bolt in the fan or casing etc.,
16	Monthly	Check the associated damper flap movement and apply grease for the bearing house if required.
17	Monthly	Check running current of the motor.
18	Quarterly	Check/Add grease or lubricate to the Fan shaft bearing, motor bearing blower bearing. if required.
19	Quarterly	Check the alignment of Fan and Motor, If necessary, correct the same.
20	Quarterly	Inspect the condensate drain pane and ensure that it is clean and water is freely flow to the drain.
21	Quarterly	Inspect the coils for cleanliness. If necessary, wash the coil with a low pressure water hose or low pressure air.
22	Quarterly	Observe all dampers for proper operation.
23	Quarterly	Check tightness of electrical connections
24	Quarterly	Check flexible connections spool piece for leakage

25	Quarterly	Check for condition of inlet strainers and clean(if required)
26	Half yearly	Check in motors full load current, fan motor running current and tightness of terminals.
27	Half yearly	Check blower shaft, scroll, impeller and bearing.
28	Yearly	Check/clean cooling coils & fins.
29	Yearly	Clean interiors and check for corrosion, check tightness of all sections
30	Yearly	Check anti-vibration mounting & flexible connections
31	Yearly	Check operation & condition of all electrical connections.
32	Yearly	Check alignment of drive pulleys, adjust the same if required
33	Yearly	Combing of fins to be done after coil cleaning (if required)
34	Yearly	Check all bellows, replace if any crack/water leakage observed
35	Yearly	Check insulation resistance (Megger) of motor
Fan Coil Units/ Indoor units		
1	Weekly.	Check the water leakage
2	Weekly.	Clean air filters.
3	Weekly.	Check drain pan for any blockage.
4	Monthly	Clean the filter & Y-Strainers, if required.
5	Monthly	Check the fan belt tension, abnormal noise and rectify if required.
6	Monthly	Check any water leakage from unit.
7	Monthly	Inspect the condensate drain pan and ensure that it is clean and water is freely flow.
8	Monthly	Check the condition of access door hinges for proper fixing.
9	Monthly	Check the unit is secured.
10	Monthly	Check the operation of inlet/outlet isolation valve.
11	Monthly	Check looseness of any bolts in fan casing motor base etc
12	Monthly	Check associated damper movement and apply grease for bearings.
13	Quarterly	Inspect cooling coil and clean if required.
14	Quarterly	Clean strainers for FCU.

15	Half yearly	Check blower, motor unit etc. Clean lubricate.
16	Half yearly	Check and receive the vibration value and compare with recommended values.
17	Half yearly	Check tightness of electrical connections.
18	Half yearly	Add water and flush condensate drain pan, trap and drain line.
19	Half yearly	Check the condition of inlet strainers and clean if required
20	Half yearly	Check the proper functioning of the 3 way and 2way valve.
21	Half yearly	Check the interconnection, copper piping, canvas and cooling coils.
22	Half yearly	Check full load current of motor.
23	Half yearly	Check the tightness of terminals of motor.
24	Half yearly	Check motor running current.
25	Yearly	Check blower, motor unit etc clean & lubricate.
26	Yearly	Check electrical control & connection.
27	Yearly	Check and clean cooling coil with water, if necessary.
28	Yearly	Check 2/3-way valve for proper operation.
29	Yearly	Check insulation resistance (Megger) of motor.
30	Yearly	Check/clean cooling coils and fins.
Cooling Towers		
1	Weekly.	Check the operating oil level and oil leakage in gear box.
2	Weekly.	Inspect basin for clogging.
3	Monthly	Check for unusual noise/vibration in fan and fan guard, motor drive shaft and guards gear reducer.
4	Monthly	Inspect for clogging in eliminator, fills and water basin
5	Monthly	Check operating and static oil level in gear reducer.
6	Monthly	Check oil seals of gear reducer.
7	Monthly	Check oil for water and sludge in gear reducer.
8	Monthly	Check water level in water basin.

9	Monthly	Check and adjust float valve if required.
10	Monthly	Check AMP of motor
11	Monthly	Check for any leakage in gear reducer, water basin and float valve.
12	Monthly	Check gear-reducer oil for water and sludge.
13	Monthly	Inspect eliminator and fills for clogging
14	Monthly	Check motor winding for over heating
15	Monthly	General cleaning for inside and outside.
16	Monthly	Drain cooling tower twice in a month along with condenser pipe line water.
17	Quarterly	Check access door work properly
18	Quarterly	Check the staircase ladder & interior walkway of wooden decay or steel Corrosion.
19	Quarterly	Check the distribution basin for corrosion, leaks and sediments
20	Quarterly	Check the drift eliminator louvers for scale build up
21	Quarterly	Adjust belts and pulleys for proper tension and alignment
22	Quarterly	Check the fan blades for dirt/scale deposits and condition of fan cylinder
23	Quarterly	Check the mechanical parts of motor supports (cracks)
24	Quarterly	Check the distribution spray nozzles to ensure even distribution of water over the fill
25	Quarterly	Check sludge in gear box
26	Quarterly	Check motor winding for 0verheating
27	Quarterly	Clean cooling tower from inside and outside.
28	Quarterly	Check and top up oil in gear box
29	Quarterly	Cleaning of sump and check for any leakage
30	Quarterly	Clean Fan & Fan Guard, motor shaft, gear reducer, eliminator, fills, water basin, float valve, control valves etc.
31	Quarterly	Rebalance of fan & fan guard, driveshaft & guards
32	Quarterly	Check insulation resistance.
33	Quarterly	Clean nozzle & clean if required.
34	Quarterly	Check the water distribution system including the nozzles.
35	Half yearly	Inspect keys, keyways and set screws of fan and fan guard, motor, gear reducers, drive shaft and guards.
36	Half yearly	Inspect the general condition of fan & fan guard, motor, shaft, gear reducer, fills, control valves, structural members, fan cylinder, stairs ladders etc.

37	Half yearly	Tighten loose bolts of fan, fan guard, motor, shaft, gear reducer if any.
38	Half yearly	Check the working of control valve
39	Half yearly	Check completely open and close operation of float valve. Repair as reqd.
40	Half yearly	Clean all nozzles & replace if damaged.
41	Half yearly	Check grease, clean and re-lubricate bearings of motor
42	Yearly	Tighten loose bolts of FRP, gear box, structure bolt connection andmotor.
43	Yearly	Check and change nozzles, fills if required.
44	Yearly	Complete cleaning the whole parts of CT (Louvers drift eliminators & fill surface)
Pumps		
1	Weekly.	Check the cable for heating
2	Weekly.	Check for any leakage from glands or flange joint.
3	Weekly	Check alignment of pumps , motor & rectify if required
4	Weekly	Check coupling condition adjust & replace if required
5	Monthly	Check for any leak in motor and pump connections & rectify if required
6	Monthly	Check bearings temperature with thermometer of hand test that bearing is not running excessively hot are not running excessively hot.
7	Monthly	Check for any abnormal noise and vibrations during running (if observed then rectify)
8	Monthly	Check for leaks in isolation of valves, strainers, and flexible connections.
9	Monthly	Clean pump exterior
10	Quarterly	Check pumps lubrication as necessary
11	Quarterly	Check & clean pump, strainers & motor casings
12	Quarterly	Check shaft or shaft sleeve for scoring
13	Quarterly	Tight & clean all electrical terminals, electrical connections, conduits, insulation, flexible connection.
14	Quarterly	Check & record motor running current
15	Half yearly	Check & clean all contact surfaces of Circuit breaker, enclosures switches& push buttons
16	Yearly	Check condition of seals & bearing (Adjust of replace if required)
Chillers/ Package units		
1	Weekly.	Check DELTA T(T Cond wtr.out.liq.ref.) for condenser fouling
2	Weekly.	Verify proper water treatment

3	Weekly.	Check oil return system/ suction & discharge pressure
4	Weekly.	Inspection of starter
5	Monthly	Check oil heater operation
6	Monthly	Refrigerant leak check
7	Monthly	Check oil pump discharge pressure
8	Monthly	Clean all sensors
9	Monthly	Measure oil filter pressure drop
10	Monthly	Measure and log the sub cooling and superheat
11	Quarterly	Verify proper operation/setting/calibration of safety controls
12	Quarterly	Check & tighten all electrical connections
13	Quarterly	Clean & water strainers in both chilled & condenser line
14	Yearly	Replace oil filter & oil return filter, if required
15	Yearly	Clean or back flush heat exchanger of SS starter
16	Yearly	Replace coolant after cleaning heat exchanger
17	Yearly	Perform de-scaling of condensers
18	Yearly	High pressure cut off
19	Yearly	Low pressure cut off
20	Yearly	Low oil pressure switch
21	Yearly	Oil pump timers
22	Yearly	Flow switches
23	Yearly	Pump interlocks
24	Yearly	System monitor timer
25	Yearly	System freeze stats
26	Yearly	Vane closing switches
27	Yearly	Temperature control stats
28	Yearly	Motor load limit controls
29	Yearly	Megger motor winding
30	Yearly	Compressor oil analysis

	Switch board	
31	Six-monthly and annual inspection Yearly	1. Clean and adjust all switch gear, contractors, relays and associated electrical equipment at intervals not exceeding six months. 2. Check and prove operation of thermal over load and protection devices. 3. Check and ensure tightness of all equipment fastenings and cable terminations within switch boards. 4. Vacuum clean all switch board cubicles
	Piping system	
32	Monthly and annual inspection	1. Check all piping system for leaks and repair these where they have occurred. 2. Check for damage & deterioration of insulation or sheathings. Rectify as necessary
	De Scaling of System	
33	Six-monthly or as required for system	1. De- scaling of condenser, all pipe lines of Condenser, valves installed in system with chemical (Super floc 6110) and rodding.
	Consumable materials	
34		The Firm shall supply the following consumable materials as and when required: - 1. All oils and greases required for lubrication of compressors, fan bearings, motors bearings, pivots and other moving parts. 2. All consumable filter elements/rolls. 3. All electric contact points required worn electric contact points in switchgears, motor starter gears, electronic control gears and electric relays. 4. All electric fuses/MCB,s required to replace.

Note:- All tests shall be carried out in the presence of the Engineer-in-Charge or his representative.

D. Other Work:

1. Overhauling of Compressor/ chilling units as and when required by the OEM's engineer as per service schedule and obtaining their clearance / report.
2. Oil/ refrigerant to be provided as and when required for proper functioning of HVAC Plant systems.
3. Check electrical overload protection system and other electrical system and rectify/replace the electrical component/cable etc.
4. Any other requirement to keep the whole HVAC Plant systems in proper, healthy running condition as per operation and maintenance manual of various equipment's.
5. Validation/Calibration Certificates of all instruments to be submitted with IIT- Kharagpur as its mandatory.
6. Replacement of scroll compressor and repair of Reciprocating compressor /condenser/ HVAC equipment any other parts (valves, cables etc) if required.
7. Rewinding of motors if required.

E. Special Requirements:

The performance (capacity, airflow, water flow rate, COP of chilling unit etc) of each plant during peak summer needs to check completely once in a year in presence of IIT- Kharagpur's representative. The performance test shall be recorded so that owner can understand the healthiness of the plant/ equipment.

TOOLS & PLANTS

All the general & special tools, tackles including chain pulley blocks, Oxy-Acetylene gas cutting set, welding set with Electrode, etc. required for proper maintenance and repairs and attending break down etc, shall be

arranged by the contractor at his own cost and issued to the staff deployed by him for this work. The contractor shall identify suitable place for safe keeping of these tools. All necessary safety gear required for the safety of the operators shall be provided by the contractor.

CONSUMABLES

The rates shall be all inclusive of establishment as well as spares and consumables as per schedule of work. The contractor is required to assess the probable quantity of all types of spares and consumables likely to be required for replacement for keeping all the installations in good working conditions. Nothing extra on any account shall be payable over and above the approved all-inclusive comprehensive rates of the contract.

The consumables and spares shall be of best standard quality purchased from the original manufactures or authorized dealers only and shall have to be approved by IIT Kharagpur before use.

All spares and consumables shall be arranged by the contractor for which no extra amount shall be payable.

A list of minimum stock to be maintained by the contractor at site as prescribed below. Vendor shall get submit a monthly report highlighting stock of all major & minor spares/consumables and shall get the approval of IIT- Kharagpur.

Replaced parts/ spares, used brunt oil etc. will be property of vendor. It is his responsibility to disposed of immediately as per norms of Pollution Control Board.

Log book and complaint books, all stationery like registers, sheets, markers, pens and pencils etc. will be supplied by the contractor and no extra payment for these shall be made. Log book Performa must be approved by IIT- Kharagpur.

Any additional works not covered above, but necessary for the functioning of the system and required as per specification are to be incorporated. The items of minor nature, which are not mentioned, shall be incorporated by the Tenderer.

General Terms & conditions of the contract for annual maintenance contract.

The tender is for proper Operation of whole HVAC Plant systems at **Operation and Comprehensive Maintenance of following plants Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 years** The list of major equipment of whole HVAC systems are given in **ANNEXURE–E.**

The firm / agency/ contractor who wishes to quote are required to visit and examine the whole systems and satisfy themselves before submitting their offer and to apprise themselves about the conditions of equipment's as well as minor items and equipment, which are accessories but not listed in ANNEXURE–I and are part of the complete systems.

Central AC Plant

The operation of Central Air conditioning plants including reciprocating, centrifugal, screw chillers & VRF/VRV plants of all capacities as well as maintenance of low side can be carried out by the APQ agencies of appropriate category and class but maintenance of the high side of the Central Air conditioning plant shall be carried out by the manufacturers / Authorized agencies only. (Modified vide OM DG/MAN/270 dt 01.05.2013)

3 LOG-BOOK for recording of parameters related to HVAC Plant systems shall be provided and maintained by the firm/ agency /contractor showing the complete working on the HVAC Plant systems and it should be made available to the engineer-in-charge of IIT- Kharagpur.

4 Tools and equipment required for proper operation for whole HVAC Plant systems with their Chiller units, AHU's, Cooling Towers, FCU & CSU and allied accessories etc. shall be provided by the firm /agency /contractor.

5 Deployment of manpower: -one supervisor (HVAC) having BE in Mechanical engineering OR Electrical Engineering with 10 years of experience in maintenance in HVAC background, one Electrician (ITI certificate with Electrical License) shall be made available for the whole work. All of them should be technically qualified and well experienced to operate the systems. Any other manpower required shall be made available by the firm/ agency/ contractor for proper functioning. Proper supervision of firm/ agency/ contractor's senior engineers has to be provided to oversee the whole work for the smooth operation of the system as and when required but at least monthly which shall be recorded in the Log-Book.

Firm/ agency/ contractor shall furnish the data of minimum Manpower to be deployed at IIT- Kharagpur for these works along with the technical bid.

- The successful bidder has to operate and maintain the AC Systems along with their accessories such as pumps, cooling towers, DX Unit, FCU, CSU etc. as per the broad requirement specified in the table given below.

6 **Qualification of Manpower**: -The contractor should deploy the manpower as the following qualifications: -

a) **Supervisor** - BE/ B Tech in Mechanical or Electrical with minimum 10 years of industry experience in AC operation of HVAC system.

b) **Operator cum mechanic** -ITI/ NCVT with 5years post qualification Experience in the field of Central Refrigeration and Central Air Conditioning plant maintenance and operation.

7 The contractor himself or his representative of at least Manager / Engineer level shall meet with nominated officer of IIT- Kharagpur at least once a week and attend the office whenever called by him.

8. The Contractor shall deploy minimum 2nos. Operator cum Mechanic in Morning and in the Evening Shifts. In the night shift the minimum 1 no. Operator cum mechanic shall be required. As per statuary requirement contractor shall deploy reliever as per by law.

9. Care shall be taken so that the HVAC Plant systems do not lead to major breakdown. In the event of any breakdown, the same will be informed to the concern person immediately.

10. The services required are for initially a period of one year. The contract may be extended on mutual consent subsequently. The contract may be terminated at any stage solely at the option of IIT Kharagpur with an advance notice of one month without assigning any reason whatsoever.

11. Precaution against any fire hazards or other damages to Plant and equipment shall be arranged by the firm/agency/contractor. IIT Kharagpur shall remain indemnified by the contractor from any encumbrances /loss on this account.

12. The firm/ agency/ contractor shall fulfill the requirement of various law enforcing agencies / local authorities, such Pollution Control Board, Directorate of Electricity Safety etc by taking their approvals as and when required.

13. Electricity and Water for this work will be provided by IIT Kharagpur free of cost. The furniture for sitting purpose of their deputed staff should be provided by the firm/ agency/ contractor.

14. The firm/ agency/ contractor will be responsible for the safety of their deputed staff during the performance of their duty at site.

15. In case any of staff is not found up to the mark and not able to do work properly, he will have to be changed as per the instruction of IIT- Kharagpur.

16. Agency has to submit the biodata with documentary proof of the staff proposed to be deputed. Only confirmed staff after due evaluation will be deputed at site.

17. In case of any problem with the equipment, the firm/agency/contractor's deputed staff will keep IIT Kharagpur informed immediately.

18. The firm/ agency/ contractor shall keep the equipment well maintained, neat and clean and adhere to the operation schedule of various equipment given in the respective manuals.

19. IIT KHARAGPUR may short close the contract or contract scope any time during contract execution.

20. Manpower indicated in the tender document are minimum and indicative. Contractor is at liberty to augment his workforce as per the performance requirement. No extra claim shall be entertained in case contractor requires to augment the manpower. However, any deficiency observed in the deployment of manpower vis-a- vis that indicated in the tender shall be adjusted in payment on prevailing market rate.

21. SPECIAL TOOLS AND TACKLES

The Contractor shall mandatorily maintain the following calibrated tools and instruments at site throughout the contract period for operation, maintenance, testing, and troubleshooting activities:

- Clamp-on type BTU Meter (Ultrasonic Type)
- Clamp Meter
- Belt Tension Measuring Instrument
- Torque Meter
- Master Temperature Gauge (TG) and Pressure Gauge (PG)
- Hygrometer
- Psychrometer
- Noise Level Measuring Instrument
- Infrared Temperature Gauge / Infrared Thermometer
- Capture Hood for Air Flow Measurement

All measuring instruments shall be maintained in proper working condition and shall possess valid calibration certificates from authorized agencies whenever applicable.

Salient Conditions of Contract:

a) The Contractor shall deploy one full-time qualified Supervisor at the Indian Institute of Technology Kharagpur campus for the entire duration of the contract. The Supervisor shall remain available during Institute holidays, weekends, and special events as required.

b) The Contractor shall establish and maintain an effective Complaint Redressal System for registering, monitoring, and resolving complaints/service requests within the stipulated response time.

c) The Contractor shall submit Monthly Reports to IIT Kharagpur covering equipment-wise and system-wise operation, maintenance activities, breakdown analysis, preventive maintenance records, energy consumption trends, and pending issues.

d) A Site Review Meeting shall be conducted on a fortnightly basis with participation of the Contractor's Head Office Representative of the rank of Senior Manager or above, along with the Institute representatives.

e) The Contractor shall provide and maintain a dedicated Call Centre / Complaint Registration Number for lodging complaints and service requests, without any additional cost to the Institute.

f) An Energy Audit shall be conducted annually through a reputed Third-Party Energy Audit Firm or certified/qualified Energy Auditor. The audit findings and recommendations shall be reviewed every six (06) months in consultation with the Institute.

g) The Contractor shall maintain at site a minimum inventory of essential spare parts equivalent to 5%–7% of the installed equipment quantity. The mandatory spares shall include, but not be limited to, the following:

- Belts
- Bearings
- Capacitors
- Motors
- Fan Blades
- Temperature Gauges
- Pressure Gauges
- Couplings
- Controllers for FCUs and Cassette Air Conditioners

The Contractor shall ensure uninterrupted availability of these spares to minimize equipment downtime and ensure smooth operation of the systems.

Service Level Agreement

1. Complaints during contract execution time shall be resolved by the vendor to the satisfaction of Engineer-in-charge within one hour from the time of intimation.

2. Any complaint left un-responded by the vendor beyond one hour without specific reasons on record shall attract levy of penalty of Rs 50/- per complaint per day from 4th day to 7th day and Rs 100/- per complaint per day thereafter recoverable from dues to the vendor.

3. Complaints requiring completion time more than one hour shall be responded specifically by the vendor with the scheme and timeline for compliance, to the Engineer-in-charge within 1 day from the date of intimation.

Signature of the Tenderer and seal

(Name & Designation of the authorized signatory)

4. **Checklist for Documents to be uploaded on *https://eprocure.gov.in/eprocure/app*(To be filled by bidders)**

Sl. No.	Documents(Sealed and Signed)	Page Number
1.	Tender Documents	
2.	EMD/ Exception Certificate	
3.	Document support of Bonafide Business Entity	
4.	GST Registration Certificate	
5.	Permanent Account Number	
6.	Average annual turnover of the bidder as per ITCC or profit and loss statement for last 5 year	
7.	Experience Certificate	
8.	ANNEXURES-I_II_III_A_B_C_D_E	
9.	SOQ	

Schedule of Quantities (SOQ)

Refrigeration and Air Conditioning Unit, IIT KHARAGPUR

Name of Work: Operation and Comprehensive Maintenance of following HVAC system-Dr. Syama Prasad Mookerjee Super Specialty Hospital, 1000TR HVAC System and JCGPCR HVAC System in Indian Institute of Technology- Kharagpur Campus for 5 calendar years.

Sl. No.	Description of items	Unit	Quantity	Rate per Unit (₹)	Amount (₹)
1	1st year Operation of Dr SPMSH HVAC system	1095	Shift		
2	1st year CAMC of Dr SPMSH HVAC system	1500	TR		
3	1st year Operation of JCGPCR HVAC system	1	JOB		
4	1st year CAMC of JCGPCR HVAC system	900	TR		
5	1st year Operation of 1000TR HVAC system	1	JOB		
6	1st year CAMC of 1000TR HVAC system	1000	TR		
7	2nd year Operation of Dr SPMSH HVAC system	1095	Shift		
8	2nd year CAMC of Dr SPMSH HVAC system	1500	TR		
9	2nd year Operation of JCGPCR HVAC system	1	JOB		
10	2nd year CAMC of JCGPCR HVAC system	900	TR		
11	2nd year Operation of 1000TR HVAC system	1	JOB		
12	2nd year CAMC of 1000TR HVAC system	1000	TR		
13	3rd year Operation of Dr SPMSH HVAC system	1095	Shift		
14	3rd year CAMC of Dr SPMSH HVAC system	1500	TR		
15	3rd year Operation of JCGPCR HVAC system	1	JOB		
16	3rd year CAMC of JCGPCR HVAC system	900	TR		
17	3rd year Operation of 1000TR HVAC system	1	JOB		
18	3rd year CAMC of 1000TR HVAC system	1000	TR		
19	4th year Operation of Dr SPMSH HVAC system	1095	Shift		
20	4th year CAMC of Dr SPMSH HVAC system	1500	TR		
21	4th year Operation of JCGPCR HVAC system	1	JOB		
22	4th year CAMC of JCGPCR HVAC system	900	TR		
23	4th year Operation of 1000TR HVAC system	1	JOB		
24	4th year CAMC of 1000TR HVAC system	1000	TR		
25	5th year Operation of Dr SPMSH HVAC system	1095	Shift		
26	5th year CAMC of Dr SPMSH HVAC system	1500	TR		
27	5th year Operation of JCGPCR HVAC system	1	JOB		
28	5th year CAMC of JCGPCR HVAC system	900	TR		
29	5th year Operation of 1000TR HVAC system	1	JOB		

30	5th year CAMC of 1000TR HVAC system	1000	TR		