



**INDIAN INSTITUTE OF TECHNOLOGY MADRAS**  
Chennai 600 036



Telephone: [044] 2257 9763  
E-mail: tender@imail.iitm.ac.in

The Senior Manager (Project Purchase)

Date: 07.05.2024

Open Tender Reference No: CY/PRAD/018/2024/PREAIRCOND

GEM NAR ID: GEM/GARPTS/25042024/BLZC93YC3LX3

Due Date/Time: 27.05.2024@ 3:00 PM

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, digitally signed online bids are invited in two bid system from Class-I Local Suppliers and Class II Local Suppliers, for the supply of Installation Testing and commissioning of: **“PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS & DIGITAL SCROLL COMPRESSORS”** Conforming to the specifications given in **Annexure - A**.

Tender Documents may be downloaded from Central Public Procurement Portal <https://etenders.gov.in/e procure/app>. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <https://etenders.gov.in/e procure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at **“Help for Vendors”**. [Special Instructions to the Vendors / Bidders for the e-submission of the bids online through this eProcurement Portal”]

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type ‘IIT Madras’. Thereafter, click on “GO” button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <https://etenders.gov.in/e procure/app> as per the schedule attached.

**No manual bids will be accepted.** All tender documents including Technical and Financial bids should be submitted in the E-procurement portal.

1)	<b>Pre-bid Meeting Details</b>	:	If required will be intimated
2)	<b>ICSR Vendor Registration</b>	:	<p><b><u>Vendor registration:</u></b> Vendor registration with IC&amp;SR (IITM) is mandatory for bidders to participate in tenders.</p> <p><b>** <u>For Vendor Registration &amp; Guidelines, Please follow the website :</u></b>  <a href="https://icandsr.iitm.ac.in/vendorportal">https://icandsr.iitm.ac.in/vendorportal</a>;            Helpdesk: <a href="mailto:vendorhelpdesk@icsrpis.iitm.ac.in">vendorhelpdesk@icsrpis.iitm.ac.in</a></p>

<b>Last date for receipt of tender</b>	:	<b>27.05.2024@ 3:00 PM</b>
<b>Date &amp; time of opening of tender</b>	:	<b>28.05.2024@ 3:00 PM</b>

### 3. Instructions to the Bidder:

A)	Searching for tender documents	:	<ul style="list-style-type: none"> <li>• There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.</li> <li>• Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective “<b>My Tender</b>” folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.</li> <li>• The bidder should make a note of the <b>unique Tender ID</b> assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.</li> </ul>
B)	Assistance to bidders	:	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]</li> </ul>
C)	Enrollment Process to Bidders	:	<p><b><u>REGISTRATION</u></b></p> <ul style="list-style-type: none"> <li>• Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal <a href="https://etenders.gov.in/eprocure/app">URL:https://etenders.gov.in/eprocure/app</a> by clicking on “Online Bidder Enrollment”. Enrollment on the CPP Portal is free of charge.</li> <li>• As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.</li> <li>• Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.</li> <li>• Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.)</li> <li>• Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.</li> <li>• Bidder then may log in to the site through the secured log-in by</li> </ul>

			<p>entering their user ID / password and the password of the DSC / eToken.</p> <ul style="list-style-type: none"> <li>• Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a></li> <li>• Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <a href="https://etenders.gov.in/eprocure/app">https://etenders.gov.in/eprocure/app</a> under the “Information about DSC”.</li> </ul>
<b>D)</b>	<b>Preparation of bids</b>	:	<ul style="list-style-type: none"> <li>• Bidder should take into account any corrigendum published on the tender document before submitting their bids.</li> <li>• Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.</li> <li>• Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option.</li> <li>• 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, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “<b>My Documents</b>” area available to them to upload such documents. These documents may be directly submitted from the “<b>My Documents</b>” 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.</li> </ul>
<b>E)</b>	<b>Submission of bids</b>	:	<ul style="list-style-type: none"> <li>• Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues.</li> <li>• The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.</li> <li>• Bidder has to select the bid security declaration. Otherwise, the tender will be summarily rejected.</li> <li>• A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as</li> </ul>

		<p>name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.</li> <li>• The uploaded tender documents become readable only after the tender opening by the authorized bid openers.</li> <li>• Upon the successful and timely submission of bids, the portal will give a successful bid submission message &amp; a bid summary will be displayed with the bid no. and the date &amp; time of submission of the bid with all other relevant details.</li> <li>• Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.</li> <li>• More information useful for submitting online bids on the CPP Portal may be obtained at: <a href="https://etenders.gov.in/eprocare/app">https://etenders.gov.in/eprocare/app</a>.</li> <li>• All tender documents including pre-qualification bid, Technical Bid &amp; Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. <b>No manual bid submission will be entertained.</b></li> </ul>
F)	Marking on Technical Bid	<ul style="list-style-type: none"> <li>• The bidder eligibility criteria, technical specification and supply of item for this tender is given in Annexure A.</li> <li>• The Bidders shall go through the specification and submit the technical bid.</li> <li>• The Technical bid should be submitted in the proforma as per Annexure-B in pdf format only through online (e-tender). No manual submission of bid will be entertained.</li> <li>• The technical bid should have a page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.</li> <li>• The technical bid should consist of bidder eligibility criteria details and all technical details along with catalogue/ pamphlet which will give a detailed description of product with technical data sheet so that technical compliance can be verified.</li> </ul>
G)	Marking on Price Bid	<ul style="list-style-type: none"> <li>• Financial bid (BoQ) should be submitted in the prescribed proforma format as per Annexure-C in xls format through e-tender only. No manual or other form of submission of Financial Bid will be entertained</li> </ul>

4)	<p><b>Preparation of Tender:</b> The bidders should submit the bids in two bid system as detailed below.</p> <p><b>Bid I _Technical Bid</b></p> <p>The technical bid should consist of bidder eligibility criteria and technical specification compliance sheet as per the <b>Technical Bid Proforma (Annexure-B)</b>.</p> <p><b>Bid II _Price Bid</b></p> <p>The price bid should be submitted in the Tabular format (BoQ) as per the <b>Financial Bid Proforma (Annexure -C)</b> uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.</p>
5)	<p><b>Price:</b></p> <ol style="list-style-type: none"> <li>a) The price should be quoted only in INR net per unit (after breakup) and must include all packing, transit insurance and delivery charges to the <b>Department of Chemistry, IIT Madras</b>.</li> <li>b) The rate quoted shall be all inclusive of all taxes and no extra payment will be made other than statutory revisions as per the terms and conditions stipulated in this contract document.</li> <li>c) The percentage of tax &amp; duties should be clearly indicated separately. IIT Madras is eligible for custom duty at a concessional rate, i.e., 5.5%. Relevant certificates will be issued by IIT Madras wherever necessary.</li> <li>d) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately.</li> </ol>
6)	<p><b>Tenderer shall submit along with this tender:</b></p> <ol style="list-style-type: none"> <li>(i) Proof of having ISO or other equivalent certification given by appropriate authorities.</li> <li>(ii) Name and full address of the Banker and their swift code and PAN No. and GSTIN number.</li> <li>(iii) GST registration proof showing registration number, area of registration etc.</li> <li>(iv) All of your future correspondences including Invoices should bear the GST No. and Area Code.</li> </ol>
7)	<p><b>Terms of Delivery:</b></p> <p>Supplier will be fully responsible for the safe carriage, Installation/Commissioning of goods up to <b>The Department of Chemistry, IIT Madras</b>, or named place as per PO, Insurance coverage will be in the scope of the supplier.</p> <p>The tenderer should indicate clearly the time required for delivery of the item (subject to the approval of the Exclusive Purchase Committee-IIT-Madras). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.</p> <p>In the event of delay or non-supply of materials/execution of Contract beyond the date of delivery/completion of job. The penalty will be levied @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IIT M, the PO would be partially or fully cancelled and liquidated damages will be enforced accordingly.</p>
8)	<p><b>Period for which the offer will remain open:</b></p> <p>The offer shall remain valid for 120 days from the date of opening of the tender. However, the day up to which the offer is to remain valid being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain valid for acceptance till the next working day.</p>

9)	<p><b>EMD:</b> The EMD of <b>Rs.52,000</b> to be transferred to the account details mentioned in Annexure I and proof should be enclosed in the Technical Bid. Any offer not accompanied with the EMD shall be rejected summarily as non-responsive. As per rule no. 5.1.4 (vi) of the Manual of Procurement of Goods, no bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity. Withdrawal of a bid during this period will result in forfeiture of the bidder's bid security (EMD) and other sanctions.</p> <p>The Institute shall not be liable for payment of any interest on EMD.</p> <p>As per the Public Procurement Policy for MSEs, Order 2012 dated 25.03.2022, EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by the Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by the Department of Industrial Policy &amp; Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing the technical bid)</p>
10)	<p><b>Performance Security: -</b></p> <p>The successful bidder should submit Performance Security for an amount of 5% of the basic invoice value of the contract/supply. The Performance Security may be furnished in the form of an Insurance Surety Bond, Account Payee DD, FD Receipt in the name of "The Registrar, IIT Madras" from any scheduled commercial bank or Bank Guarantee from any scheduled commercial bank in India or online payment in an acceptable form. The performance security should be furnished within 14 days from the date of the purchase order.</p> <p>Performance Security in the form of Bank Guarantee: - In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed directly to IIT Madras from the Bank.</p> <p>The Performance Security Deposit should remain valid for a period of sixty days beyond the date of completion of all contractual obligations.</p>
11)	<p>For the same tender, either the OEM or the authorized dealer/service provider can only quote. But both of them cannot quote separately for the same tender.</p>
12)	<p>The offers/bids should be submitted only for an item/Equipment of the exact standard that is acceptable to IIT Madras without Prejudice. The details of a list of customers in India for whom the item is already supplied with must accompany the quotations. Quotations for a prototype machine will not be accepted</p>
13)	<p>Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the technical bid.</p>
14)	<p>Compliance or Confirmation report with reference to the specifications and other terms &amp; conditions should also be obtained from the principal/OEM.</p>
15)	<p><b>Risk Purchase Clause</b></p> <p>In the event of failure of contractual obligation during the schedule, the Office of Industrial Consultancy and Sponsored Research, Indian Institute of Technology Madras has all the right to engage other sources on the total risk of the sanctioned vendor under risk purchase clause.</p>

16)	<p><b>Payment:</b></p> <p>(i) As per GFR 2017 Terms: 90% Payment after supply and 10% after installation are agreed to wherever the installation is involved.</p> <p>(ii) Advance Payment: No advance payment is generally admissible. In case a specific percentage of advance payment (not more than 30%) is required, the Vendor has to submit a Bank Guarantee from a scheduled commercial bank in India equivalent to the amount of advance payment.</p>
17)	<p><b>On-site Installation:</b></p> <p>The equipment/item or Machinery has to be installed or commissioned by the successful bidder within the number of days (as prescribed by PI) from the date of receipt of the item at the site of IIT Madras.</p>
18)	<p><b>Warranty:</b></p> <p>The offer should clearly specify the warranty period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications).</p> <p><b>** Note: PO which involves installation, warranty shall be applicable from date of installation.</b></p>
19)	<p><b>Acceptance and Rejection:</b></p> <p>Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.</p> <p>I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.</p>
20)	<p><b>Debarment from Bidding:</b></p> <p>In case of breach of Terms &amp; Conditions, Bidder may be suspended from being eligible for bidding in any contract with the IIT Madras up to 2 Years [as per Rule 151(iii) of GFR] from the date as fixed by IIT Madras.</p>
21)	<p><b>Disputes and Jurisdiction:</b></p> <p><b>Settlement of Disputes:</b> Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate an arbitrator. The Dean IC&amp;SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&amp;SR IIT Madras, Chennai.</p> <p>a. <b>The Applicable Law:</b> The Purchase Order shall be construed, interpreted and governed by the Laws of India. Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.</p> <p>b. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.</p>

22)	<p><b>Force Majeure:</b> The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.</p> <p>For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.</p> <p>If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.</p>
23)	<p><b>Eligibility Criteria:</b></p> <ul style="list-style-type: none"> <li>➤ <b><u>The bidders should have completed at least one similar works for the value not less than Rs. 7.50 Lakhs in any of the Central/State/Quasi Government, Public Enterprises/Autonomous Institution. Similar work means HVAC works. Copy of proof of completion should be attached.</u></b></li> <li>➤ <b><u>As per the Government of India Order, only "Class - I Local Suppliers" and "Class - II Local Suppliers" can participate in this tender.</u></b></li> <li>➤ <b><u>Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-E. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India &amp; Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 and No.F.7/10/2021-PPD(1) dated 23.02.2023 and No.F.7/10/2021-PPD(1) dated 23.02.2023.</u></b></li> </ul>
24)	<p><b>Preference to "class I Local Suppliers":</b> preference will be given to "class 1 local suppliers" (subject to class -I local supplier's quoted price falling within the margin of purchase preference ) as per public procurement (preference to make in India) order 2017 .O.M No P- 45021/2/2017 – pp(BE - 11) dt 04/06/2020 subject to the conditions that the "class 1 Local Supplier" should agree to supply goods / provide service at L1 rate and furnish a certificate with the technical bid document that the goods/service provided by them consists local content equal to or more than 50%.( certificate from Chartered Accountant in case value of contract exceeds Rs 10 crore).</p> <ul style="list-style-type: none"> <li>➤ <b>'Class - I local supplier'</b> means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to or more than 50% as defined under the above said order. <b>Declaration to be provided as per Annexure-D per item/service/work.</b></li> <li>➤ <b>'Class - II local supplier'</b> means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to 20% but less than 50% as defined under the above said order. <b>Declaration to be provided as per Annexure-D per item/service/work.</b></li> <li>➤ <b>'Margin of purchase preference':</b> - The margin of purchase preference shall be 20%. The Definition of the margin of purchase preference is defined in the Govt. of India Order No: <b>P-45021/12/2017-PP (BE-II) Dt.4th June, 2020) Order 2017. As per the Government of India Order – "Margin of Purchase Preference" means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference.</b></li> </ul> <p><b>**Note: Local content percentage to be calculated in accordance with the definition provided at</b></p>



	<b>clause 2 of revised public procurement preference to Make in India Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 &amp; P-45021/102/2019-BE-II-Part(1) (E-50310) Dt.4th March 2021</b>
25)	<p><b>Evaluation of Bids</b> Bid evaluation will take place in two stages.</p> <p><b>Stage I Technical Bid evaluation</b> All bids received within due date and time will be opened for technical evaluation as per scheduled time. All bidders who have fully complied with bidder eligibility criteria I, II and technical Specification (Annexure B) will only be considered for opening of financial bid.</p> <p><b>Stage II: Financial Bid Evaluation</b> The Financial bid evaluation will be based on price quoted by the bidder. The rate quoted for <b>PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS &amp; DIGITAL SCROLL COMPRESSORS</b> unit will alone be taken up for arrival of Lowest Bid (L1) value.</p>
26)	In accordance to the Rule 173 of GFR,2017 and relevant provisions thereof in Procurement Manuals, 2022, IC&SR, IITM reserves the right to carry out the negotiation process through its purchase/technical committee with L1/H1 (as applicable) vendor to ensure price reasonability before final recommendation to the Competent Authority. The negotiation details, if any, on case-to-case basis shall be recorded in minutes of meetings suitably for records.
27)	<p><b>Selection of successful bidder and Award of Order</b> The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.</p>
28)	All information including selection and rejection of technical or financial bids of the prospective bidders will be communicated through e-Tender portal. In terms of Rule 173(iv) of General Financial Rule 2017, the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of bids.
29)	The tenderer shall certify that the tender document submitted by him / her are of the same replica of the tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract.
30)	Clarification to the queries and doubts raised by the bidders will be issued as a corrigendum/addendum in the e-tenders portal.
31)	In the e-tender process, participation of bidders after the due date is not possible. The eligible bidders can login to the e-Procurement portal to ascertain the tender status.

## **ACKNOWLEDGEMENT**

It is hereby acknowledged that I/We have gone through all the points listed under “Specification, Guidelines, Terms and Conditions” of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

**SIGNATURE OF TENDERER ALONG WITH  
SEAL OF THE COMPANY WITH DATE**

**Bidder Eligibility Criteria and Technical Specification for PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS & DIGITAL SCROLL COMPRESSORS**

Tender No. CY/PRAD/018/2024/PREAIRCOND

**Bidder Eligibility Criteria – I (Public Procurement – Preference to Make in India)**

Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE-II) dated 16<sup>th</sup> September 2020 and other subsequent orders issued therein (ANNEXURE – D)

**Bidder Eligibility Criteria – II**

1. Vendor Registration ID/Proof.
2. Land Border Certificate (ANNEXURE – E).
3. **OEM Certificate Form**-The Participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified authorized firm (ANNEXURE – F).
4. Non- Debarment Declaration (ANNEXURE – H).
5. Mandate Form (ANNEXURE – J)
6. EMD as per Tender, to be remitted in the account number as given in the (Annexure – I) or EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid).
7. The bidders should have completed at least one similar works for the value not less than Rs. 7.50 Lakhs in any of the Central/State/Quasi Government, Public Enterprises/Autonomous Institution. Similar work means HVAC works. Copy of proof of completion should be attached.

**III. Technical Specification for PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS & DIGITAL SCROLL COMPRESSORS**

**Scope:** Scope of this section comprises the supply, installation, testing and commissioning of Precision Air-conditioning Systems.

S.NO	SPECIFICATION
1.	<b><u>Cabinet Construction</u></b> <ul style="list-style-type: none"> <li>• The frame and panels shall be constructed of heavy gauge corrosion resistant sheet steel and have modular construction with railing and hinged doors.</li> </ul>
	<ul style="list-style-type: none"> <li>• The cabinet shall be powder coated and have a textured finish.</li> </ul>
	<ul style="list-style-type: none"> <li>• The cabinet Shall be provided with double skin side panels with inner panel of minimum thickness of 0.8mm and outer panel of thickness of 1.0mm</li> </ul>
	<ul style="list-style-type: none"> <li>• Insulation in the side panels should be 19 mm thick glass wool all four side panels should be insulated with 25 mm thick special acoustic mineral wool.</li> </ul>

2.	<p><b><u>Refrigeration Circuit</u></b></p> <p>The refrigeration system shall be of the direct expansion type. <b>Each unit must incorporate latest high efficiency Digital scroll compressor for variable capacity control</b> having proportional output and having independent evaporator coil circuit. The system shall include a manual reset HP control and an auto reset LP switch, filter drier and charging port. An <b>Electronic Expansion Valve</b>, sight glass and filter drier shall be provided in each circuit. Additionally the system must be provided with vibration absorbers on the suction &amp; discharge piping's of the compressor to minimize chances of any leaks due to compressor vibrations during start / stop cycle, this must be in addition to the anti -vibration mounts provided for the compressors. The system must use environment friendly <b>R410a refrigerant gas</b>.</p>
3.	<p><b><u>Evaporator Coil (Dx)</u></b></p> <ul style="list-style-type: none"> <li>The evaporator coil shall be constructed of rifled bore copper tubes and louvred aluminum blue fins, with the aluminum/ GI frame. The coil should be straight/ slant coil configuration and drip tray should be fabricated from heavy gauge steel with powder coating to avoid corrosion. The drip trays must be double angled for condensate flow and easily removable for cleaning. The cooling coil shall be of suitable rows deep and designed for high sensible cooling. The distance between the fins should not be less than 1.8 mm and the face velocity shall not be more than 2.75 m/sec.</li> </ul>
4.	<p><b><u>Digital Scroll Compressor</u></b></p> <ul style="list-style-type: none"> <li>The compressor shall be of latest technology high efficiency digital <b>scroll design (EC Drive)</b>. The compressor must be suitable for operation with <b>R410a</b> refrigerant. have in-built overloads for high current and voltage regulations and mounted on vibration isolators.</li> </ul>
	<ul style="list-style-type: none"> <li>Compressor can be single / double of the required capacity as per manufacturer standard.</li> </ul>
	<ul style="list-style-type: none"> <li>Crankcase heaters are not required as the compressor is mounted in the indoor unit. Compressors should be without Rota lock valves as Ball valves are provided in the refrigerant circuit for service purpose.</li> </ul>
5.	<p><b><u>Vibration Absorber</u></b></p> <ul style="list-style-type: none"> <li>All units must have <b>VIBRATION ABSORBERS in compressor suction &amp; discharge lines</b> to prevent cracks on high pressure copper pipe lines during start/stop cycle of the compressor.</li> </ul>
6.	<p><b><u>Power Monitoring Switch</u></b></p> <ul style="list-style-type: none"> <li>All units must be provided with CE certified main power line supervisor switch to monitor under voltage / over voltage / phase reversal of incoming power supply. Provision of one common power monitoring device in electrical panel will not be acceptable. The switch provided must be of reputed make and complying with EU norms.</li> </ul>
7.	<p><b><u>Fan and Motor: ELECTRONICALLY COMMUTATED DRIVES</u></b></p> <p>Fans: Unit must be provided with <b>direct drive backward curved fans each running with DC drive electronically communicated motors</b>, the fans should be aligned and balance statically and dynamically. The fan speed must be controlled based on the room return air Temperatures and also must have automatic speed control without manual intervention. The fans can be one /two/ three no's as per the manufacturer's standard.</p> <p><b>Units with latest innovative EC fan technology with "COMPOSITE "Blade material will be preferred.</b></p>

	<p><b>Composite blade EC fan saves more energy compared to Standard EC fan with aluminum blade.</b></p> <p>Units shall be factory balanced in accordance with Section 15071, Mechanical Sound and Vibration Control.</p> <p><b>Only direct drive fans to be provided in offered units and centrifugal fans with belt drive is strictly not acceptable.</b></p> <p>Noise Level: 70 db from 1 MT of unit in free filed conditions.</p>
8.	<p><b><u>Accessibility: Service Area:</u></b></p> <ul style="list-style-type: none"> <li>The unit shall be accessed from front which will be enabling to access all the main components of the machine from the front for installation purposes and routine servicing.</li> </ul>
	<ul style="list-style-type: none"> <li>The unit shall be serviceable from the front with a maximum service space required of 1 mtr.</li> </ul>
9.	<p><b><u>Electrical Heating</u></b></p> <ul style="list-style-type: none"> <li>The electric heating elements shall operate at a level not exceeding 60 KW / sqm. The low watt density elements shall be of finned tubular nickel plated steel construction.</li> </ul>
	<ul style="list-style-type: none"> <li>The heating circuit shall include dual safety protection through loss of air and high temperature controls.</li> </ul>
10.	<p><b><u>Humidification</u></b></p> <ul style="list-style-type: none"> <li>Humidity shall be achieved by using Immersed-electrode type humidifier by which steam shall be produced and the steam shall be distributed evenly into the bypass air-stream of the process cooling unit. The Humidifier operation should have periodic flushing cycle. The Humidifier should guarantee a perfect efficiency with low energy consumption and greater durability of components. The humidifier shall be fully serviceable with replaceable electrodes.</li> </ul>
	<ul style="list-style-type: none"> <li>Steam humidifier capacity 5/8 or 10 kg/hr with 3 phase electrodes having function of auto drain and proportional control for capacity complete with steam supply and water drain hose pipe.</li> </ul>
11.	<p><b><u>De-Humidification</u></b></p> <ul style="list-style-type: none"> <li>De- Humidification to be achieved by controlling the evaporator fan speed. De- humidification done via split coil and solenoid valve is an out dated practice and not recommended for the latest generation Precision units.</li> </ul>
12.	<p><b><u>Filtration</u></b></p> <ul style="list-style-type: none"> <li>Filtration level should be of 95% - 5 microns. Filter should be of HDPE media &amp; washable type. <b>Filters with combustible / dry disposable media are strictly not accepted.</b></li> </ul>
13.	<p><b><u>Electrical Panel</u></b></p> <p><b><u>Control cabinet to be provided with Type 2 enclosure, with grounding lug, combination magnetic starters with overload relays, circuit breakers and cover interlock, and fusible control circuit transformer.</u></b></p> <ul style="list-style-type: none"> <li>The electric panel provided for the unit must be equipped with main incoming power isolation switch, additionally the unit must be provided with under voltage / over voltage / phase reversal / single phasing protection, all three phase motors must be operated only via 24V coil voltage contactors and MPCB's, additionally step down transformer must be provided for power supply to the unit controller. The electrical panel must also be providing with relay block for common alarm.</li> </ul>

14.	<p><b><u>Air Cooled Condenser</u></b></p> <ul style="list-style-type: none"> <li>The condensers shall be factory matched to provide an operating range of (-) 5 °C to 45°C ambient. Condensers shall be suitable for 24 hour operation and be capable of providing vertical or horizontal discharge.</li> </ul>
	<ul style="list-style-type: none"> <li>The condenser frame shall be constructed from heavy duty steel with powder coating to avoid corrosion and incorporate a copper tube and aluminium fin coil.</li> </ul>
	<ul style="list-style-type: none"> <li>The coil shall be a maximum of 6 rows deep, with a minimum fin spacing of 2.0 mm with a maximum face velocity of 3.6 m/s.</li> </ul>
	<ul style="list-style-type: none"> <li>The condenser fans shall be direct drive axial type operating at not more than 1440 rpm variable voltage electric motors. 6 pole 900 rpm fan motors will be used for low noise level applications.</li> </ul>
15.	<p><b><u>AC Fan motor for Condenser fans</u></b></p> <ul style="list-style-type: none"> <li>The condensers must be provided with Axial type Energy efficient AC fan motor, the speed of fans must be controlled based on temperature sensing of liquid line to ensure compressor constant head pressure, pressure monitoring electronic switch must be suitable for application up to 12 Amps to take care of high motor amps.</li> </ul>
16.	<p><b><u>Micro Processor Controller</u></b></p> <ul style="list-style-type: none"> <li>Each Air conditioners should have single microprocessor with following controls:</li> </ul>
	<p><b><u>Control Type</u></b>  The controls shall be a microprocessor programmable logic controller. The controls shall have separate indication of operating modes (cooling, heating, humidifying and dehumidifying), alarm conditions (temperature high, loss of sensor, compressor HP &amp; LP, wet floor, no air flow and low humidifier water). The display and indication shall be visible on the front without removing any external panels. Local and remote alarms will be triggered if an alarm condition is reached. <b><u>Each unit must be provided with large screen HMI DISPLAY and additionally the controller must have feature of DUAL SET POINT programming.</u></b></p>
	<ul style="list-style-type: none"> <li>The control should have an auto-restart feature which will return the unit to normal operation resumption of mains power.</li> </ul>
	<ul style="list-style-type: none"> <li>Automatic load / time and alarm sequencing function to be performed by the unit.</li> </ul>
	<ul style="list-style-type: none"> <li>Microprocessor must have output point for ON/OFF of motorized damper and must be suitable to be integrated with fire point for unit shut off incase receiving signal from fire panel or fire detectors.</li> </ul>
	<ul style="list-style-type: none"> <li><b>The unit controller must have option of { DUAL SET } point for energy saving i.e. customer must have the option to set two independent set points for the unit based on operational requirements and energy saving concepts.</b></li> </ul>
17.	<p><b><u>Display:</u></b>  In normal operating mode the screen should display unit number, temperature and relative humidity set points and actual, operating status.</p> <p>The unit must have a large screen HMI display on controller with user friendly menus and minimum two level password protections.</p> <p><b>RS485 interface port for BMS compatibility with ModBus RTU protocol is required.</b></p>

18.	<p><b><u>Alarms:</u></b>  <u>Following alarms should be available:</u></p> <ol style="list-style-type: none"> <li>1. Temperature High / Loss of Sensor</li> <li>2. Compressor 1 High / Low Pressure</li> <li>3. Compressor 2 High / Low Pressure</li> <li>4. Wet floor</li> <li>5. No Air flow</li> <li>6. Low Humidifier Water.</li> <li>7. Temperature high / low</li> <li>8. Humidity high / low</li> </ol>
19.	<p><b><u>Safety Protections:</u></b>  The unit shall also incorporate the following protections:</p> <ol style="list-style-type: none"> <li>a) Single phasing preventers.</li> <li>b) Reverse phasing</li> <li>c) Phase unbalancing</li> <li>d) Phase failure</li> <li>e) Overload tripping (MPCB) of all components</li> <li>f) Wet Floor Sensor</li> </ol>
20.	<p><b><u>Safety Interlocks:</u></b>  Operation of heaters &amp; humidifiers shall be possible only when blower fan is in operation.</p>
21.	<p><b><u>Sequencing:</u></b>  The sequencing should be feature of the PAC units. The units shall be designed to work for equal no of run hours also in case of fault the stand by unit should start.</p>
22.	<p><b><u>Microprocessor Controls:</u></b>  <b><u>Following information shall be available on the display on the units:</u></b></p> <ol style="list-style-type: none"> <li>a) Room temperature and humidity.</li> <li>b) Supply fan working status.</li> <li>c) Current date and time.</li> <li>d) Electric heaters working status.</li> <li>e) Manual / Auto unit status.</li> <li>f) Temperature set point.</li> <li>g) Humidity set point.</li> <li>h) Working hours of main component i.e. fan, heater, humidifier</li> <li>i) Unit working hours.</li> <li>j) Modes of operation (cooling, heating, humidification, de-humidification,).</li> <li>k) The last 10 intervened alarms.</li> </ol>
23.	<p><b><u>The Microprocessor shall be able to perform following functions:</u></b></p> <ol style="list-style-type: none"> <li>a) Password for unit calibration values modification.</li> <li>c) Automatic reset of program.</li> <li>d) Cooling capacity control.</li> <li>e) Compressor starting timer</li> <li>f) Date &amp; time of last 10 intervened alarms.</li> <li>g) Start / Stop status storage by switch</li> </ol>
24	<p><b><u>Warranty:</u></b> Warranty shall be one year from the date of successful commissioning after trail run of 15 days.</p>

**TECHNICAL BID PROFORMA**

Tender No. CY/PRAD/018/2024/PREAIRCOND

Item Name: PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS &amp; DIGITAL SCROLL COMPRESSORS

**1.0 Bidder Eligibility Criteria:**

I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content Percentage	Ref. Page No.
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 <sup>th</sup> September 2020 and other subsequent orders issued therein (ANNEXURE – D)			

**2.0 Bidder Eligibility Criteria:**

II	Bidder Eligibility Criteria-II	Complied/Not Complied	Ref Page No.
1	Vendor Registration ID/Proof		
2	Land Border Certificate (ANNEXURE – E)		
3	<b>OEM Certificate Form</b> -The Participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified authorized firm (ANNEXURE – F)		
4	Non- Debarment Declaration (ANNEXURE – H).		
5	Mandate Form (ANNEXURE – J)		
6	EMD as per Tender, to be remitted in the account number as given in the (Annexure – I) or EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid).		
7	The bidders should have completed at least one similar works for the value not less than Rs. 7.50 Lakhs in any of the Central/State/Quasi Government, Public Enterprises/Autonomous Institution. Similar work means HVAC works. Copy of proof of completion should be attached.		



**3.0 Technical Compliance:** Unquoted offer to be enclosed with technical bid in detail mentioning Model number, Description of the goods / service if any, for the supply with terms and conditions in conformity with the Tender requirement.

**Scope:** Scope of this section comprises the supply, installation, testing and commissioning of Precision Air-conditioning Systems.

S.NO	SPECIFICATION	Complied/Not Complied	Ref Page No.
1.	<p><b><u>Cabinet Construction</u></b></p> <ul style="list-style-type: none"> <li>The frame and panels shall be constructed of heavy gauge corrosion resistant sheet steel and have modular construction with railing and hinged doors.</li> </ul>		
	<ul style="list-style-type: none"> <li>The cabinet shall be powder coated and have a textured finish.</li> </ul>		
	<ul style="list-style-type: none"> <li>The cabinet Shall be provided with double skin side panels with inner panel of minimum thickness of 0.8mm and outer panel of thickness of 1.0mm</li> </ul>		
	<ul style="list-style-type: none"> <li>Insulation in the side panels should be 19 mm thick glass wool all four side panels should be insulated with 25 mm thick special acoustic mineral wool.</li> </ul>		
2.	<p><b><u>Refrigeration Circuit</u></b></p> <ul style="list-style-type: none"> <li>The refrigeration system shall be of the direct expansion type. <b>Each unit must incorporate latest high efficiency Digital scroll compressor for variable capacity control</b> having proportional output and having independent evaporator coil circuit. The system shall include a manual reset HP control and an auto reset LP switch, filter drier and charging port. An <b>Electronic Expansion Valve</b>, sight glass and filter drier shall be provided in each circuit. Additionally the system must be provided with vibration absorbers on the suction &amp; discharge piping's of the compressor to minimize chances of any leaks due to compressor vibrations during start / stop cycle, this must be in addition to the anti -vibration mounts provided for the compressors. The system must use environment friendly <b>R410a refrigerant gas</b>.</li> </ul>		
3.	<p><b><u>Evaporator Coil (Dx)</u></b></p> <ul style="list-style-type: none"> <li>The evaporator coil shall be constructed of rifled bore copper tubes and louvred aluminum blue fins, with the aluminum/ GI frame. The coil should be straight/ slant coil configuration and drip tray should be fabricated from heavy gauge steel with powder coating to avoid corrosion. The drip trays must be double angled for condensate flow and easily removable for cleaning. The cooling coil shall be of suitable rows deep and designed for high sensible cooling. The distance between the fins should not be less than 1.8 mm and the face velocity shall not be more than 2.75 m/sec.</li> </ul>		

4.	<p><b><u>Digital Scroll Compressor</u></b></p> <ul style="list-style-type: none"> <li>The compressor shall be of latest technology high efficiency digital <b>scroll</b> design (<b>EC Drive</b>). The compressor must be suitable for operation with <b>R410a</b> refrigerant. have in-built overloads for high current and voltage regulations and mounted on vibration isolators.</li> </ul>		
	<ul style="list-style-type: none"> <li>Compressor can be single / double of the required capacity as per manufacturer standard.</li> </ul>		
	<ul style="list-style-type: none"> <li>Crankcase heaters are not required as the compressor is mounted in the indoor unit. Compressors should be without Rota lock valves as Ball valves are provided in the refrigerant circuit for service purpose.</li> </ul>		
5.	<p><b><u>Vibration Absorber</u></b></p> <ul style="list-style-type: none"> <li>All units must have <b>VIBRATION ABSORBERS in compressor suction &amp; discharge lines</b> to prevent cracks on high pressure copper pipe lines during start/stop cycle of the compressor.</li> </ul>		
6.	<p><b><u>Power Monitoring Switch</u></b></p> <ul style="list-style-type: none"> <li>All units must be provided with CE certified main power line supervisor switch to monitor under voltage / over voltage / phase reversal of incoming power supply. Provision of one common power monitoring device in electrical panel will not be acceptable. The switch provided must be of reputed make and complying with EU norms.</li> </ul>		
7.	<p><b><u>Fan and Motor: ELECTRONICALLY COMMUTATED DRIVES</u></b></p> <p>Fans: Unit must be provided with <b>direct drive backward curved fans each running with DC drive electronically communicated motors</b>, the fans should be aligned and balance statically and dynamically. The fan speed must be controlled based on the room return air Temperatures and also must have automatic speed control without manual intervention. The fans can be one /two/ three no's as per the manufacturer's standard.</p> <p><b>Units with latest innovative EC fan technology with "COMPOSITE "Blade material will be preferred.</b></p> <p><b>Composite blade EC fan saves more energy compared to Standard EC fan with aluminum blade.</b></p> <p>Units shall be factory balanced in accordance with Section 15071, Mechanical Sound and Vibration Control.</p> <p><b>Only direct drive fans to be provided in offered units and centrifugal fans with belt drive is strictly not acceptable.</b></p> <p>Noise Level: 70 db from 1 MT of unit in free filed conditions.</p>		

8.	<p><b><u>Accessibility: Service Area:</u></b></p> <ul style="list-style-type: none"> <li>The unit shall be accessed from front which will be enabling to access all the main components of the machine from the front for installation purposes and routine servicing.</li> </ul>		
	<ul style="list-style-type: none"> <li>The unit shall be serviceable from the front with a maximum service space required of 1 mtr.</li> </ul>		
9.	<p><b><u>Electrical Heating</u></b></p> <ul style="list-style-type: none"> <li>The electric heating elements shall operate at a level not exceeding 60 KW / sqm. The low watt density elements shall be of finned tubular nickel plated steel construction.</li> </ul>		
	<ul style="list-style-type: none"> <li>The heating circuit shall include dual safety protection through loss of air and high temperature controls.</li> </ul>		
10.	<p><b><u>Humidification</u></b></p> <ul style="list-style-type: none"> <li>Humidity shall be achieved by using Immersed-electrode type humidifier by which steam shall be produced and the steam shall be distributed evenly into the bypass air-stream of the process cooling unit. The Humidifier operation should have periodic flushing cycle. The Humidifier should guarantee a perfect efficiency with low energy consumption and greater durability of components. The humidifier shall be fully serviceable with replaceable electrodes.</li> </ul>		
	<ul style="list-style-type: none"> <li>Steam humidifier capacity 5/8 or 10 kg/hr with 3 phase electrodes having function of auto drain and proportional control for capacity complete with steam supply and water drain hose pipe.</li> </ul>		
11.	<p><b><u>De-Humidification</u></b></p> <ul style="list-style-type: none"> <li>De- Humidification to be achieved by controlling the evaporator fan speed. De- humidification done via split coil and solenoid valve is an out dated practice and not recommended for the latest generation Precision units.</li> </ul>		
12.	<p><b><u>Filtration</u></b></p> <ul style="list-style-type: none"> <li>Filtration level should be of 95% - 5 microns. Filter should be of HDPE media &amp; washable type. <b>Filters with combustible / dry disposable media are strictly not accepted.</b></li> </ul>		
13.	<p><b><u>Electrical Panel Control cabinet to be provided with Type 2 enclosure, with grounding lug, combination magnetic starters with overload relays, circuit breakers and cover interlock, and fusible control circuit transformer.</u></b></p> <ul style="list-style-type: none"> <li>The electric panel provided for the unit must be equipped with main incoming power isolation switch, additionally the unit must be provided with under voltage / over voltage / phase reversal / single phasing protection, all three phase motors must be operated only via 24V coil voltage contactors and MPCB's, additionally step down transformer must be provided</li> </ul>		

	for power supply to the unit controller. The electrical panel must also be providing with relay block for common alarm.		
14.	<p><b><u>Air Cooled Condenser</u></b></p> <ul style="list-style-type: none"> <li>The condensers shall be factory matched to provide an operating range of (-) 5 °C to 45°C ambient. Condensers shall be suitable for 24 hour operation and be capable of providing vertical or horizontal discharge.</li> </ul>		
	<ul style="list-style-type: none"> <li>The condenser frame shall be constructed from heavy duty steel with powder coating to avoid corrosion and incorporate a copper tube and aluminium fin coil.</li> </ul>		
	<ul style="list-style-type: none"> <li>The coil shall be a maximum of 6 rows deep, with a minimum fin spacing of 2.0 mm with a maximum face velocity of 3.6 m/s.</li> </ul>		
	<ul style="list-style-type: none"> <li>The condenser fans shall be direct drive axial type operating at not more than 1440 rpm variable voltage electric motors. 6 pole 900 rpm fan motors will be used for low noise level applications.</li> </ul>		
15.	<p><b><u>AC Fan motor for Condenser fans</u></b></p> <ul style="list-style-type: none"> <li>The condensers must be provided with Axial type Energy efficient AC fan motor, the speed of fans must be controlled based on temperature sensing of liquid line to ensure compressor constant head pressure, pressure monitoring electronic switch must be suitable for application up to 12 Amps to take care of high motor amps.</li> </ul>		
16.	<p><b><u>Micro Processor Controller</u></b></p> <ul style="list-style-type: none"> <li>Each Air conditioners should have single microprocessor with following controls:</li> </ul>		
	<p><b><u>Control Type</u></b></p> <p>The controls shall be a microprocessor programmable logic controller. The controls shall have separate indication of operating modes (cooling, heating, humidifying and dehumidifying), alarm conditions (temperature high, loss of sensor, compressor HP &amp; LP, wet floor, no air flow and low humidifier water). The display and indication shall be visible on the front without removing any external panels. Local and remote alarms will be triggered if an alarm condition is reached. <b><u>Each unit must be provided with large screen HMI DISPLAY and additionally the controller must have feature of DUAL SET POINT programming.</u></b></p>		

	<ul style="list-style-type: none"> <li>The control should have an auto-restart feature which will return the unit to normal operation resumption of mains power.</li> </ul>		
	<ul style="list-style-type: none"> <li>Automatic load / time and alarm sequencing function to be performed by the unit.</li> </ul>		
	<ul style="list-style-type: none"> <li>Microprocessor must have output point for ON/OFF of motorized damper and must be suitable to be integrated with fire point for unit shut off incase receiving signal from fire panel or fire detectors.</li> </ul>		
	<ul style="list-style-type: none"> <li><b>The unit controller must have option of { DUAL SET } point for energy saving i.e. customer must have the option to set two independent set points for the unit based on operational requirements and energy saving concepts.</b></li> </ul>		
17.	<p><b><u>Display:</u></b> In normal operating mode the screen should display unit number, temperature and relative humidity set points and actual, operating status.</p> <p>The unit must have a large screen HMI display on controller with user friendly menus and minimum two level password protections.</p> <p><b>RS485 interface port for BMS compatibility with ModBus RTU protocol is required.</b></p>		
18.	<p><b><u>Alarms:</u></b> <i>Following alarms should be available:</i></p> <ol style="list-style-type: none"> <li>9. Temperature High / Loss of Sensor</li> <li>10. Compressor 1 High / Low Pressure</li> <li>11. Compressor 2 High / Low Pressure</li> <li>12. Wet floor</li> <li>13. No Air flow</li> <li>14. Low Humidifier Water.</li> <li>15. Temperature high / low</li> <li>16. Humidity high / low</li> </ol>		
19.	<p><b><u>Safety Protections:</u></b> The unit shall also incorporate the following protections:</p> <ol style="list-style-type: none"> <li>a) Single phasing preventers.</li> <li>b) Reverse phasing</li> <li>c) Phase unbalancing</li> <li>d) Phase failure</li> <li>e) Overload tripping (MPCB) of all components</li> <li>f) Wet Floor Sensor</li> </ol>		

20.	<p><b><u>Safety Interlocks:</u></b> Operation of heaters &amp; humidifiers shall be possible only when blower fan is in operation.</p>		
21.	<p><b><u>Sequencing:</u></b> The sequencing should be feature of the PAC units. The units shall be designed to work for equal no of run hours also in case of fault the stand by unit should start.</p>		
22.	<p><b><u>Microprocessor Controls:</u></b> <b><u>Following information shall be available on the display on the units:</u></b> a) Room temperature and humidity. b) Supply fan working status. c) Current date and time. d) Electric heaters working status. e) Manual / Auto unit status. f) Temperature set point. g) Humidity set point. h) Working hours of main component i.e. fan, heater, humidifier i) Unit working hours. j) Modes of operation (cooling, heating, humidification, de-humidification,). k) The last 10 intervened alarms.</p>		
23.	<p><b><u>The Microprocessor shall be able to perform following functions:</u></b> a) Password for unit calibration values modification. c) Automatic reset of program. d) Cooling capacity control. e) Compressor starting timer f) Date &amp; time of last 10 intervened alarms. g) Start / Stop status storage by switch</p>		
24	<p><b><u>Warranty:</u></b> Warranty shall be one year from the date of successful commissioning after trail run of 15 days.</p>		

Note:

(i) It is mandatory for the bidders to provide the compliance statement (Complied/Not Complied) for the above points with document proof as required). If the compliance statement (Complied/Not Complied) is not furnished for the evaluation Bidders will be disqualified.

(ii) Technical Bid Should NOT Contain Price Bid/Financial Bid details (or) Indication. If the price Details are indicated, mentioned inside the technical bid, then bid will be disqualified and neither the Technical Bid nor the Price Bid/Financial Bid will be considered.

**SIGNATURE OF BIDDER ALONG WITH  
SEAL OF THE COMPANY WITH DATE**

**FINANCIAL BID (PROFORMA) - BILL OF QUANTITIES (BOQ)****Item Name: PRECISION AIR CONDITIONING UNITS DX TYPE UNITS WITH EC FAN MOTORS & DIGITAL SCROLL COMPRESSORS****Tender No. CY/PRAD/018/2024/PREAIRCOND**

It. No	Description of work	Quantity	Units	Basic Rate in INR	GST in Percentage	Total Amount with taxes in INR
1	HVAC Supply,loading unloading lifting, installation, commissioning and testing of High Precision package type DX air cooled unit with top/ side discharge, air cooled condenser with fan and motor, with filter section, EC motor with plug type axial fan, air cooled condenser coil with anti corrosive paint, twin scroll compressor motor set with R 407C/R 410A refrigerant, condensate drain pan, in built data logger, power monitor relay, liquid receiver, thermostatic expansion valve, vibration absorber for compressor, HP/ LP cutouts, Water detector sensor, fire tripping relay, in built auto sequencing program, micro processor panel, digital display, programmable control and recording unit, alpha numeric display, function keys, cursor keys, free programmable keys, multi color LEDs, Humidifier, Heater, battery back up supply at 24 V/ 50 cycles/sec etc. The unit shall be suitable for operation on 415 V, 3 phase supply. The display panel shall display date, time, actual & set values, fault timing values,. Controls shall be suitable for linking to Building Automation System Modbus open protocol.					
1.01	Capacity 28 KW (8 TR) temperaure 20 +/- 0.8 deg C, Relaitve humidity 50% +/- 5% RH.	2	sets			
1.02	MS painted pedestal for both outdoor & Indoor Units	4	sets			
2	Supply and laying of 18/19G copper refrigeration piping with all fittings should be long bend (no elbow) with proper insulations, supports, nylon tape wrapping etc					
2.01	34.9 mm copper pipe	40	Mtr			
2.02	22.2 mm copper pipe	40	Mtr			

3	Supply and laying of copper conductor cable from main panel to control panel as required.	20	Mtr			
4	Supply and laying of copper conductor power cable between indoor and outdoor as required	45	Mtr			
5	Supply and laying of copper conductor communication cable between units for sequencing as required.	10	Mtr			
6	Supply and laying of GI ducting, complete with anchor fasteners and GI supports, bracings as required, nut, bolt & gasket etc	20	Sq.M			
3.01	22 G ducting:					
4	Supply and installation of powder coated Aluminium Supply air grills and return air outlets:					
4.01	Supply air grille with damper	2	Sq.M			
4.02	Return air grille with motorized damper	3	Sq.M			
5	Supply and installation of powder coated Aluminium fresh air damper and cowl:	0.1	Sq.M			
5.01	Supply and installation of fusible link type fire damper: Frames 18 G Aluminium Louvres 20 G Aluminium	2	Sq.M			
7	Supply and laying of fresh water and drain piping for the units with nitrile rubber insulation , with PVC piping of 4 Kg rating, complete with bends, fittings and supports					
7.01	50 NB	20	Mtr			
7.02	25 NB (Drain)	25	Mtr			
8	Supply and fixing of Perforated Cable tray with cover with horizontal & vertical bends, reducers, Tee's, cross over , suitable supports and brackets and other accessories as required confirming to IEC-61537. The Tray shall be galvanized for corrosion protection confirming to DIN EN 10346 / ISO 1461 .The trays should be tested for a safe working load of 150 Kgs with a span distance of 1.5 meters and the deflection should be within the limits as per standard. The safety factor shall be 1.7 times of the safe working load. The perforated					



	tray shall be supplied with the standard length of 3 Mtr . incl cover. The rate shall inclusive of necessary theaded rods,nuts & bolts, making clamp in the Z perlin/Truss, cable tray clamps etc,(8 mm threaded rod shall be provided at every alternative purlin appx. 2 mtr length)					
8.01	300 x 50mm x1.6mm	20	MTR			
8.02	100 x 50mm x1.6mm	20	MTR			
	Grand Total					

Total Amount Rupees in words \_\_\_\_\_

Note:

1. Price bid as per this format to be uploaded only at the financial document column in CPP Portal. Price disclosure at the technical bid will result in disqualification.
2. Technical Bid Should NOT Contain Price Bid/Financial Bid details (or) Indication. If the price Details are indicated, mentioned inside the technical bid, then bid will be disqualified and neither the Technical Bid nor the Price Bid/Financial Bid will be considered.
3. Unquoted offer to be enclosed with technical bid in detail mentioning Model number, Description of the goods / service if any,for the supply with terms and conditions in conformity with the Tender requirement.

I/We the bidder accept all the terms and conditions as per tender including all technical & commercial conditions.

Date:  
Place:

Authorized Signatory  
(\_\_\_\_\_)  
Seal and signature

**FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PREFERENCE TO MAKE  
IN INDIA – PER ITEM**

**Tender Reference Number:**

**Name of the item / Service:**

Date: \_\_\_\_\_

I/We \_\_\_\_\_ S/o, D/o, W/o, \_\_\_\_\_

Resident of \_\_\_\_\_

Hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-Part (1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and

That the local content for all inputs which constitute the said item/service/work has been verified by me and I am responsible for the correctness of the claims made therein.

<b>Tick (✓) and Fill the Appropriate Category</b>	
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to or more than 50% and come under <b>“Class-I Local Supplier”</b> category.
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to 20% but less than 50% and come under <b>“Class-II Local Supplier”</b> category.

- The details of the location (s) at which the local value addition is made and the proportionate value of local content in percentage

Address \_\_\_\_\_

Percentage of Local content: \_\_\_\_\_%

\_\_\_\_\_

Country of Origin of Goods: \_\_\_\_\_

For and on behalf of ..... (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)

<Insert Name, Designation and Contact No.>

[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]

**This letter should be on the letterhead of the quoting firm and should be signed by a competent authority. Non-submission of this will lead to Disqualification of bids.**

**Land Border Sharing Declaration**

(To be given on the letter head of the bidder)

In-line with Department of Expenditure's (DoE) Public Procurement Division Order vide ref.

F.No.6/18/2019-PPD dated 23.07.2020 &amp; 24.7.2020

Tender No. \_\_\_\_\_

Dated: \_\_\_\_\_

**CERTIFICATE***(Bidders from India)*

"I/ we have read the clauses pertaining to Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1, 2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India. I/We hereby certify that I/ we \_\_\_\_\_ (Name of the bidder) is/are

a) Not from such a country and eligible to be considered for this tender.

**OR***(Bidders from Country which shares a land border with India)*

I/We \_\_\_\_\_ (Name of the bidder) is/are from \_\_\_\_\_ (Name of the Country) and has been registered with the Competent Authority. I also certify that I fulfil 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)*

Place:

Signature of the Bidder

Date:

Name &amp; Address of the Bidder with Office Stamp

**OEM CERTIFICATION FORM**  
**(In Original Letter Head of OEM)**

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

We are Original Equipment Manufacturers (OEM) of..... (Name of the company) Ms..... (Name of the vendor) is one of our Distributors/Dealers/Resellers/Partners (tick one) for the ..... and is participating in the above-mentioned tender by offering our product model.....(Name of the product with model number).

..... is authorized to bid, sell and provide service support warranty for our product as mentioned above.

Name and Signature of the authorized signatory of OEM along with seal of the company with Date

**TENDER CHECKLIST – Mandatory documents to be filled and attached along with technical bid document.**

- (1) I have registered as a Vendor with IC&SR. (Proof to be enclosed)   
 To submit document proof pertaining to point.no: 6 of tender ISO certificate, Active GSTIN certificate, valid PAN details.
- (2) Technical Bid details and Financial Bid details have to be provided in a separate folder
- (3) Completed and Signed Form of Tender. The Form of Tender document shall be signed by a person legally authorized. (Proof of Authorization to be enclosed)
- (4) Completed Technical Compliance Statement
- (5) Evidence of similar contracts completed/Product supplied in case if the details are requested in (**Annexure – A**)
- (6) Certification of Class I / Class II Local Supplier (Goods, Services, or Works) is submitted as part of the technical bid. (**Annexure – D**)
- (7) EMD as per tender norms is deposited and the proof is enclosed (**Annexure – I**)
- (8) Land Border sharing declaration document is submitted (**Annexure – E**)
- (9) Non- Debarment Declaration (**Annexure – H**)
- (10) Authorized agent certificate from OEM is mandatory if Indian agent/Indian office of OEM is participating in this tender on behalf of OEM. (**Annexure F**)

The bid will be valid if all the above documents are provided. Bidders are asked to supply and tick off the required information. Failure to provide any of the stated documents as per tender norms may result in the bid being considered non-compliant and rejected.

**Signature of the Bidder**

**FORM - A  
NON- DEBARMENT DECLARATION**

**Date: XXXX**

To,  
The Indian Institute of Technology Madras,  
Sardar Patel road,  
Guindy, Chennai - 600036

**Subject: Non-debarment declaration in connection with tender RFF No: XXXXXX for procurement of “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”**

Dear Sir,

This is to notify you that our Firm/Company/Organization *<provide Name of the Firm/Company/Organization>* intends to submit a proposal in response to the invitation for procurement of “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX” In accordance with the above we declare that:

- a. We are not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment.
  
- b. We are not debarred by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authorities in India or any other country in the world for any kind of fraudulent activities in last XX years.

Sincerely,

[BIDDERS NAME]

Name

Title Signature



CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR)  
INDIAN INSTITUTE OF TECHNOLOGY MADRAS  
CHENNAI 600 036



**ELECTRONIC CLEARING SERVICE (Credit Clearing)/ REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS**

**A. Details of Account Holder**

Name of the Institution	Indian Institute of Technology - Madras
Complete Contact Address	Industrial Consultancy and Sponsored Research Indian Institute of Technology-Madras, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
Permanent Account Number (PAN)*	AAAAI3615G
GST REGISTRATION NO.	33AAAAI3615G1Z6
Telephone No./ Fax No.	Tel - 044-2257 8356
E- mail ID of the FO/AO/REG/DIR	dricsr@iitm.ac.in

**B. Bank Account Details:**

Institution Account Name (As per Bank Record)	The Registrar, Indian Institute of Technology - Madras
Account No.	2722101003872
IFSC CODE	CNRB0002722
SWIFT CODE	CNRBINBBIIT
Bank Name (in full)	Canara Bank
Branch Name	IIT-Madras Branch
Complete Branch Address	Canara Bank, IIT-Madras Branch, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
MICR No.	600015085
Account Type	Savings Account

Certified that the Institute's account is in an RTGS enabled branch.  
I hereby declare that the particulars given above are correct and complete.

Date: 04/08/2023

कृते कनारा बँक / For CANARA BANK

  
अधिकारी / Officer  
आई आई टी चेन्नई शाखा / IIT Chennai Branch  
चेन्नई / Chennai - 600 036

करोलिन लेमिना.न  
M. KAROLINE LEMINA  
अधिकारी  
OFFICER  
S.P. No:64356

  
Signature of the Competent Authority  
of the Institution with seal.

उप कुलसचिव (आईसी एवं एसआर)  
DEPUTY REGISTRAR (IC & SR)  
  
आईआईटी मद्रास  
I.I.T. MADRAS

## MANDATE FORM

## ELECTRONICS CLEARING SERVICE (CREDIT CLEARING)/REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS.

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**A. DETAILS OF ACCOUNT HOLDER: -**

NAME OF ACCOUNT HOLDER	
COMPLETE CONTACT ADDRESS	
TELEPHONE NUMBER/E MAIL	

**B. BANK ACCOUNT DETAILS: -**

BANK NAME	
BRANCH NAME WITH COMPLETE ADDRESS, TELEPHONE NUMBER AND EMAIL	
WHETHER THE BRANCH IS COMPUTERISED?	
WHETHER THE BRANCH IS RTGS ENABLED? IF YES, THEN WHAT IS THE BRANCH <b>IFSC CODE</b>	
IS THE BRANCH ALSO NEFT ENABLED?	
TYPE OF BANK ACCOUNT(SB/CURRENT/CASH CREDIT)	
COMPLETE BANK ACCOUNT NUMBER(LATEST)	
MICR CODE OF BANK	

**DATE OF EFFECT:**

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge the responsibility expected of me as a participant under the Scheme.

(.....)  
Signature of Bidder

**Date:**

Certified that the particulars furnished above are correct as per our records.  
(Bank's Stamp)

(.....)  
Signature of Bidder

**Date :**

1. Please attach a photocopy of the cheque along with the verification obtained from the bank.
2. In case your Bank Branch is presently not "RTGS enabled", then upon its upgradation to "RTGS Enabled" branch, please submit the information again in the above pro-forma to the Department at the earliest.