



Basic Details

Organisation Chain	SECURITY PRINTING AND MINTING CORPORATION OF INDIA-SPMCIL CURRENCY NOTE PRESS NASHIK(MH) Purchase Deptt -SPMCIL		
Tender Reference Number	6000019761		
Tender ID	2026_SPMCI_288775_1	Withdrawal Allowed	Yes
Tender Type	Open Tender	Form of contract	Turn-key
Tender Category	Goods	No. of Covers	3
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	No
Payment Mode	Offline	Is Multi Currency Allowed For BOQ	No
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No

Payment Instruments

Offline	S.No	Instrument Type
	1	Demand Draft
	2	FDR
	3	Bankers Cheque
	4	Bank Guarantee
	5	NEFT
	6	R-T-G-S

Cover Details, No. Of Covers - 3

Cover No	Cover	Document Type	Description
1	PRE QUALIFICATION BID	.pdf	TENDER NO.6000019761 FOR SITC OF AIR HANDLING UNITS WITH ACCESSORIES ON TURNKEY BASIS
2	TECHNO-COMMERCIAL BID	.pdf	TENDER NO.6000019761 FOR SITC OF AIR HANDLING UNITS WITH ACCESSORIES ON TURNKEY BASIS
3	PRICE BID	.xls	TENDER NO.6000019761 FOR SITC OF AIR HANDLING UNITS WITH ACCESSORIES ON TURNKEY BASIS

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee Exemption Allowed	No		

EMD Fee Details

EMD Amount in ₹	17,60,000	EMD Exemption Allowed	Yes
EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Currency Note Press - A Unit of SPMCIL	EMD Payable At	Nashik

Work /Item(s)

Title	TENDER DOCUMENTS FOR SUPPLY, INSTALLATION TESTING AND COMMISSIONING OF AIR HANDLING UNITS WITH ACCESSORIES ON TURNKEY BASIS
Work Description	TENDER DOCUMENTS FOR SUPPLY, INSTALLATION TESTING AND COMMISSIONING OF AIR HANDLING UNITS WITH ACCESSORIES ON TURNKEY BASIS
Pre Qualification Details	AS PER BID
Independent External Monitor/Remarks	NA

Tender Value in ₹	NA	Product Category	Mechanical Tools and Equipment	Sub category	AIR HANDLING UNITS
Contract Type	Tender	Bid Validity(Days)	180	Period Of Work(Days)	365
Location	CNP-Nashik	Pincode	422101	Pre Bid Meeting Place	CNP-NASHIK
Pre Bid Meeting Address	PURCHASE DEPT., CURRENCY NOTE PRESS, JAIL ROAD, NASHIK ROAD-422101	Pre Bid Meeting Date	01-Oct-2026 11:30 AM	Bid Opening Place	CNP-Nashik
Should Allow NDA Tender	No	Allow Preferential Bidder	No		
Tenderer Class	Not Applicable				

Critical Dates

Publish Date	17-Sep-2026 12:05 PM	Bid Opening Date	19-Oct-2026 12:05 PM
Document Download / Sale Start Date	17-Sep-2026 12:05 PM	Document Download / Sale End Date	17-Oct-2026 12:05 PM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	17-Sep-2026 12:05 PM	Bid Submission End Date	17-Oct-2026 12:05 PM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)	
	1	Tendernotice_1.pdf	TENDER DOCUMENTS FOR SUPPLY, INSTALLATION TESTING AND COMMISSIONING OF AIR HANDLING UNITS WITH ACESSORIES ON TURNKEY BASIS	1423.47	
Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	Tender Documents	FB.pdf	TENDER DOCUMENTS FOR SUPPLY, INSTALLATION TESTING AND COMMISSIONING OF AIR HANDLING UNITS WITH ACESSORIES ON TURNKEY BASIS	1401.71
	2	BOQ	BOQ_336816.xls	PRICE BID-TENDER DOCUMENTS FOR SUPPLY, INSTALLATION TESTING AND COMMISSIONING OF AIR HANDLING UNITS WITH ACESSORIES ON TURNKEY BASIS	397.50

Tender Inviting Authority

Name	Dy. GM (M)
Address	CURRENCY NOTE PRESS JAIL ROAD, NASHIK

Standard Bidding Document (SBD)

(Procurement of Goods and Services)

CURRENCY NOTE PRESS

(A Unit of Security Printing and Minting Corporation of India Limited)
Wholly owned by Government of India Nashik Road, Maharashtra, India)

Tel No 00 91 253 2454493

Fax No 00 91 253 2464100

EPABX: 00 91 253 2463730-39

Email: purchase.cnpnashik@spmCIL.com

Website: www.cnpnashik.spmCIL.com

Tender No: 6000019761

Dated: 17.09.2026

Not Transferable

Security Classification : Non Security

**TENDER DOCUMENT FOR SUPPLY INSTALLATION TESTING AND
COMMISSIONING OF AIR HANDLING UNITS WITH ACCESSORIES ON
TURNKEY BASIS**

This Tender Document Contains _____ Pages.

Tender Documents is sold to:

M/s _____

Address _____

Details of Contact person in Currency Note Press regarding this tender:

Name & Designation: Shri. Ravi Prakash Yadav, Dy.General Manager (Material)

Address: Currency Note Press, Phone: 0253-2461318 / 2454493
Nashik Road- 422 101 Fax : 0253-2464100
Maharashtra email: purchase.cnpnashik@spmCIL.com
India

Note: The word “SPMCIL” in this SBD may also referred as “Currency Note Press, Nashik Road A unit of SPMCIL.”

DISCLAIMER

The information contained in this Bid Document or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Security Printing and Minting Corporation Limited (hereafter referred as the "Purchaser") or any of its employees or associated agencies, is provided to Bidder(s) on the terms and conditions set out in this Bid Document and such other terms and conditions subject to which such information is provided.

This Bid Document is not an agreement and is neither an offer nor invitation by the Purchaser to the prospective Bidder(s) or any other party hereunder. The purpose of this Bid Document is to provide the Bidder(s) with information to assist them in the formulation of their proposal submission. This Bid document does not purport to contain all the information Bidder(s) may require. This Bid document may not be appropriate for all bidders, and it is not possible for the Purchaser to consider particular needs of each Bidder. Each Bidder should conduct its own investigation and analysis, and should check the accuracy, reliability, and completeness of the information in this document and obtain independent advice from appropriate sources.

Information provided in this Bid Document to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Purchaser, its employees and other associated agencies accept no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

This Bid document and ensuing bids; communications and Contracts would alone determine the legal and commercial relationship between the bidders/ contractors and the Purchaser. No other Government or Purchaser's document/ guidelines/ Manuals including its Procurement Manual (which are for internal and official use of its officers), have any locus standi in such a relationship. These documents/ guidelines/ Manuals therefore should not be cited or referred in any legal or dispute resolution or grievance redressal proceedings.

The Purchaser, its employees and other associated agencies make no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulation or tort, principles or restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this Bid Document or otherwise, including the accuracy, adequacy correctness, completeness or reliability of the Bid Document and any assessment, assumption, statement or information contained therein or deemed to form part of the this Bid Document or arising in any way for participation in this Bid Stage.

The Purchaser, its employees and other associated agencies also accept no liability of

any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder(s) upon the statement contained in this Bid Document.

The Purchaser may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this Bid Document.

The issue of this Bid Document does not imply that the Purchaser is bound to select Bidder(s) and the Purchaser reserves the right to reject all or any of the Bidders or Bids or to decide to drop the procurement process at any stage without assigning any reason.

The Bidder(s) shall bear all its costs associated with or relating to the preparation and submission of their Bids including but not limited to preparation, copying, postage, delivery fees, expenses associated with any submission of samples, demonstrations or presentations which may be required by the Purchaser or any other costs incurred in connection with or relating to their Bids. All such costs and expenses will remain with the Bidder(s) and the Purchaser shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder(s) in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

This disclaimer forms an integral part of the Bid document and shall supplement but not supplant the provision of the Bid Document.

Section I: Notice Inviting Tender (NIT)

CURRENCY NOTE PRESS

(A Unit of Security Printing and Minting Corporation of India Limited)
Wholly owned by Government of India Nashik Road, Maharashtra, India)

Tel No 00 91 253 2461471

Fax No 00 91 253 2464100

EPABX: 00 91 253 2463730-39

Email: purchase.cnpnashik@spmcl.com

Website: www.cnpnashik.spmcl.com

1. Tender No: 6000019761

Dated: 17.09.2026

2. Sealed tenders are invited from eligible and qualified tenderers for supply of following goods & services on turnkey basis:

Sr. No	Brief Description of Goods/ services	Qty. (with unit)	EMD (Rs.)	Remarks
1	Supply, Installation, Testing and Commissioning of Air Handling Units With Accessories on Turnkey Basis.	1AU	17,60,000/- Seventeen Lakhs Sixty Thousand only	..

Type Of Tender (Two Bid/ PQB/ EOI/ RC/ Development/ Indigenization/ Disposal of Scrap/ Security Item etc.)	Three Bid (CPP Portal) National Competitive Bidding
Dates of sale of tender documents:	As per CPP Portal
Place of sale of tender documents	As per CPP Portal
Pre-Bid Meeting will be held at Currency Note Press, Nashik Road	As per CPP Portal
Closing date and time for receipt of tenders	As per CPP Portal
Place of receipt of tenders	As per CPP Portal
Time and date of opening of tenders	As per CPP Portal
Place of opening of tenders	As per CPP Portal
Nominated Person/ Designation to Receive Bulky Tenders (Clause 21.21.1 of GIT)	Ravi Prakash Yadav Dy. General Manager (Materials)

2. Eligibility to participate as per Government of India's Public Procurement (Preference to Make in India) Order 2017 (as amended/ revised) and Ministry of Finance, Department of Expenditure, Public Procurement Division's Orders (Public Procurement 1, 2 and 3) F.No.6/18/2019-PPD dated 23rd/ 24th July 2020 (or any further amendments thereof) regarding eligibility of bidders from neighboring countries shall apply to this tender.

3. Please note that SPMCIL reserves its right to grant Purchase preferences in accordance with Government of India's Public Procurement (Preference to Make in India) Order 2017 (as amended/revised) and Public Procurement Policy for Micro and Small Enterprises (MSEs) Amendment Order, 2018 (as amended/ revised).

4. Interested tenderers may obtain further information about this requirement from the above office selling the documents. They may also visit our website mentioned above for further details.

5. Tenderer may also download the tender documents from the web site mentioned above and submit its tender by utilizing the downloaded document (Through e-tendering portal i.e. CPP Portal), the bidder must not make any changes to the contents of the documents, except for filling the required information. A certificate to this effect must be submitted by the bidder in the Tender Form (Section X).

6. Tenderers are required to upload their bids, duly sealed and signed, complete in all respects as per instructions contained in the Tender Documents, on or before the closing date and time indicated in the Para 1 above at the e-Procurement portal. (Website address <https://etenders.gov.in/eprocure/app/>). Original copies of scanned EMD amount uploaded on portal must reach in physical form to following address within 5 days after tender opening, otherwise their uploaded bid, would be declared as unresponsive;

Address:
The Chief General Manager,
Currency Note Press,
Jail Road, Nashik Road,
Maharashtra - 422 101

7. In the event of any of the above-mentioned dates being declared as a holiday/ closed day for the purchase organization; the tenders will be opened on the next working day at the appointed time.

8. The tender documents are not transferable.

9. The bidder, their affiliates, or subsidiaries – including subcontractors or suppliers for any part of the contract – should not be by DoE, MoF, GoI; DEA, MoF, GoI; SPMCIL; Procuring unit of SPMCIL for participating in its tenders. A declaration to this effect shall be submitted by the bidder in the Tender Form (Section X).

10. Bidders are requested to attend a pre-bid conference for clarification on technical specifications and commercial conditions of the Tenders, on the time, Date and Place mentioned in Section III of SBD. Participation is not mandatory, however, in case a bidder chooses not to participate (or fails to do so) in the pre bid conference, it would be assumed that they have no issues regarding the Technical/commercial specifications/conditions. Further, firms who wish to attend pre bid meeting, have to

submit the authority letter as per section XVII of tender document.

11. (i) SUBMISSION OF TENDER: As per E-Procurement Portal. Bidders must upload their bids along with scanned copies as required enclosures (including proofs of EMD as applicable - unless an online payment gateway is provided in the instruction) as per instructions given in this regard.

(ii) Earnest Money Deposit mentioned in section VI : EMD shall be submitted in form as given below: (a) Account Payee Demand Draft, (b) Fixed Deposit Receipt, (c) Banker's Cheque, (d) Electronic Fund Transfer (NEFT/RTGS), e) Bank Guarantee; in acceptable form, otherwise the tender will not be accepted in any case. The demand draft, fixed deposit receipt or banker's cheque shall be drawn on any scheduled commercial bank in India. In favour of SPMCIL, Unit CNP, Payable at Nashik. In case of bank guarantee, the same is to be provided from/confirmed by any schedule commercial bank in India as per the format specified under Section XIII in these documents. Electronic fund transfer may be done to CNP account no. 201003551111 IFSC code: INDB0001451. The earnest money shall be valid for a period of forty five days beyond the validity period of the tender.

(iii) The bid is to be submitted in three parts.

PART A: Pre-qualification Bid

PART B: Techno Commercials Bid

PART C: Price Bid

(iv) Tenderers shall ensure that their tenders, duly sealed and signed, complete in all respects as per instructions contained in the Tender Documents.

12. In case of order material in your favour for Rs. 5,00,000/- or above, the supplier shall furnish the performance security amount/ Security Deposit(S.D) (5% of the ordered value) after issue of Purchase order by CNP, Nashik Road in favour of SPMCIL, Unit CNP, payable at Nashik. The performance security will be return back without any interest to successful bidder after the completion of all contractual obligations including warranty/defect liability period.

13. No exemption will be given for deposition of performance guarantee.

14. Any dispute in the matter will be under Nashik (Maharashtra) Jurisdiction only.

15. Right of acceptance: - The Chief General Manager, Currency Note Press reserves the right to reject any or all tenders without assigning any reason thereof.

16. Rejection of offer - In case of rejection of offer at any stage on CPP portal, rejected firms may raise representation challenging the rejection within 2 days through email (purchase.cnpnashik@spmcil.com). However no representation will be considered after due time.

17. "Anti-Bribery Management System (ABMS): By participating in this tender, the suppliers/Vendors/Contractors are deemed to have undertaken that they shall not give or take, any financial or non-financial bribe, to or from anyone during the tender or during the execution of the contract thereafter and if they notice any such incident happening, they shall report it to Vigilance."

18. All bidders shall have to sign the integrity pact with the purchaser as per format given in Section XX; otherwise, their bids are liable to be summarily rejected.

19. SPMCIL has appointed following independent external monitors for the Integrity pact in Consultation with Central Vigilance Commission (CVC) :

i. Shri. Thudi Venudhar Reddy. IFoS(Retd.),
Plot No.108, Kavuri Hills,
Phase-II, Hyderabad 500033.
Email ID : venudharifs@gamil.com;

2. Shri.Prem Chand Pankaj, ex-CMD, NEEPCO
M-402, Pioneer Park, Sector-61,
Golf Course Extension Road,
Gurgaon 122011.
Email ID : Prempankaj@gamil.com;

20. Undersigned confirms that the required goods mentioned above are not available on GeM as per "GeM- Availability Report and past transaction summery" (GeM-AR &PTS). This unique ID is "GEM/GARPTS/27072026/YLJ2RHN1E9KA Dated 27.07.2026.

-SD/-

Dy. General Manager (Materials)
For Chief General Manager

Section II: GENERAL INSTRUCTIONS TO TENDERERS (GIT)

Please **CLICK** the link for further details

<https://www.spmcil.com/spmcil/UploadDocument/GIT.pdf>

Bidders are requested to download **44** pages by clicking the above said link and submit the same duly stamped and signed along with tender document in technical bid unsigned/stamped printout of these pages are not acceptable.

Section III: Special Instructions to Tenderers (SIT)

The following special instructions to Tenderers will apply for this purchase. These special instructions will modify/ substitute/ supplement the corresponding General Instructions to Tenderers (GIT) incorporated in Section II. The corresponding GIT clause numbers have also been indicated in the text below:

In case of any conflict between the provision in the GIT and that in the SIT, the provision contained in the SIT shall prevail.

Sr. No.	GIT Clause No.	Topics	SIT Provision
1	8	Pre-bid Conference	Applicable. The date & time of pre-bid conference is 11:30 am on 01.10.2026. The Pre-bid will be held at Currency Note Press, Nashik.
2	9	Time limit of receiving request for clarification of tender documents	The queries of the bidders should reach at least two days in advance before pre-bid conference date. No queries will be consider after due date.
3	10.1	The Technical bid to be submitted by tenderer shall contain the.....	Applicable, as mentioned in Section VI.
4	11.2	Tender Currency	INR
5	12.2, 33, 36.1	Schedule Wise Evaluation	The method of evaluation of L-1 bidder for awarding the contract shall be on total offered price for whole work by the bidder as per section XI (Price Schedule) of the tender document. Further since work is for complete supply & installation of system, hence MSE/MII firm will be awarded 100% quantity of work as per MSE/MII purchase preference clause.
6	19	Tender Validity	180 Days from the date of opening of Pre-qualification bid (PQB).
7	20.4	Number of copies of tenders to be submitted	One copy through E-Tendering Portal i.e. CPP Portal.

8	20.8	Three Bid System	E-Tender will consist of Three bid System i.e. Part I- Pre-Qualification Bid, Part II-Techno-Commercial/ Technical Bid & Part III- Financial/Price Bid.
9	20.9	E-Procurement	Applicable
10	34 & 35.1	Comparison on CIF Destination Basis	FOR CNP Nashik Basis including installation, commissioning, testing, training and FAT.
11	43	Parallel Contracts	Not Applicable
12	44.3	Integrity Pact	Applicable
13	45.1	Notification of Award	Applicable

Section IV: GENERAL CONDITION OF CONTRACT

Please **CLICK** the link for further details

<https://www.spmcil.com/spmcil/UploadDocument/GCC.pdf>

Bidders are requested to download **30** pages by clicking the above said link and submit the same duly stamped and signed along with tender document in technical bid. Unsigned/stamped printouts of these pages are not acceptable.

Section V: Special conditions of Contract (SCC)

The following special conditions of Contract (SCC) will apply for this purchase. The corresponding clauses of General Conditions of Contract (GCC) relating to the SCC stipulations have also been incorporated below. These special conditions will modify/ substitute/ supplement the corresponding (GCC) clauses.

Whenever there is any conflict between the provision in the GCC and that in the SCC, the provision contained in the SCC shall prevail.

Sr. No.	GCC Clause No.	Topics	SCC provision
1	6.1	Performance Bond / Security Deposit	Within 21 days after the issue of Notification of Award by SPMCIL, Supplier shall furnish performance security to SPMCIL for an amount equal to 05 % of the total value of the contract valid upto sixty days after the date of completion of all contractual obligations by the supplier, including the warranty obligations.
2	16.2	Warranty Clause	Applicable, as mentioned in Section VI.
3	19.3	Option Clause	Not Applicable
4	22	Terms and Mode of Payments	Applicable, as mentioned in Section VI.
5	24.1	Quantum of LD	Applicable, as mentioned in Section VI.

Section VI: List of Requirements

Sr. No	Brief Description of Goods/ services	Qty. (with unit)	Bid Security Declaration	Remarks
1	Supply, Installation, Testing and Commissioning of Air Handling Units With Accessories on Turnkey Basis.	1AU	Rs. 17,60,000/- Seventeen Lakhs Sixty Thousand only	

1. Required Delivery Schedule : Within Twelve (12) Months from the date of issue of Purchase Order for the Entire Work of Supply, Installation, Testing and Commissioning of Air Handling Units with accessories including PDI and FAT Period.

2. Required Terms of Delivery : - FOR Currency Note Press, Nashik Road.

3. Destination : - Currency Note Press, Nashik Road-422101

4. All the copies of tenders shall be complete in all respects with all their attachments/enclosures duly numbered.

5. The Pre-Dispatch Inspections may be carried out as mentioned below –

5.1 Scope of Inspection

i. The Pre-Dispatch Inspection (PDI) shall be done by the CNP Officials before the dispatch of materials i.e.- Air Handling Units AHUs, Humidifiers, Electrical Panels, Distribution Panels, chilled water pumps and condenser water pumps for sections wise as per mutually agreed schedule for installation at site (section wise).

ii. If the supplier differs from materials required for each section, then PDI shall be done again for the differed material.

iii. The duration of PDI will be 02 days for the inspection of material for each section

5.2 Inspection Intimation

The supplier shall provide a minimum of Ten (10) working days' written notice before offering materials for inspection. Inspection shall be carried out only after receipt of such notice and confirmation from the CNP. Firm shall also provide the details of places/site where Pre-Dispatch Inspection is to be carried out.

5.3 Applicable Standards

All equipment shall conform to the latest applicable Indian Standards (IS), Bureau of Indian Standards (BIS), National Building Code (NBC), ASHRAE guidelines, SMACNA standards, AHRI standards and other applicable international standards specified in the contract.

5.4 Inspection Activities

The inspection shall include, but not be limited to:

- i. Verification of make, model, capacity, dimensions, specifications etc.
- ii. Visual inspection for workmanship and finish.

5.5 Inspection Clearance

Inspection clearance shall not relieve the supplier of contractual obligations regarding quality, workmanship, performance, guarantees, or warranty. The Purchaser reserves the right to reject any equipment/material found defective after delivery or during installation and Final Acceptance Test (FAT).

5.6 Final Decision

- i. The Purchaser reserves the right to carry out further inspections upon receipt of materials at site. Acceptance during PDI shall not constitute final acceptance.
- ii. The decision of the Purchaser regarding acceptance or rejection of equipment shall be final and binding with respect to compliance with contractual specifications.

5.7 All expense towards Traveling, Boarding & Lodging of CNP's Inspectors are to be borne by CNP. In case of rejection, Re-inspection (Re-PDI) may be done, if necessary, at supplier's cost.

6. Final Acceptance Test (FAT) -

- i. The FAT of AHUs along with accessories for all sections will be carried out for continuous 30 working days at a time.
- ii. The firm will have to take minimum 06 reading of DBT & WBT at an interval of 01 hour using sling psychrometer in all the sections and report may be prepared for readings of temperature and RH recorded in each section.
- iii. The AHUs along with accessories must maintain the required temperature 22 ± 2 °C and RH 55 ± 5 % required in each section throughout the day irrespective of weather conditions.
- iv. Firm shall submit all required documents as per tender terms and conditions for successful Final Acceptance Test (FAT).

7. Final Acceptance Certificate : Final acceptance certificate shall be issued after successful FAT, Training completion, and documentation submission (manuals, test Certificates, warranty, spares list, etc.)

8. Warranty Clause - The firm will have to provide 24 months performance warranty for complete work including all the installed equipment with desired temperature and RH in the various sections from the date of successful FAT.

9. Training - 07 days training shall be given to CNP employees working in AC plant & Electrical Department.

10. Payments Terms -

i. The 70% payment will be released for each line item for the Supply, Installation, testing and commissioning of Air Handling Units along with accessories such as chilled water piping, butterfly valves, balancing valves, Y-strainer etc., section wise used to run individual section as per actual measurement and operation of AHU with corresponding capacity in CFM. If the AHUs fail to operate during operation trial, there shall be no payment made to firm till operation of AHUs along with its accessories.

ii. The balance 30% payment along with 100% payment towards standard commissioning of AHUs will be released for all sections after completion and acceptance of all the works related to the Supply, Installation, Testing and Commissioning of Air Handling Units with accessories after successful completion of FAT as per actual measurement of each line item and issuance of FAC.

11. Undertakings:

(a) The bidder should give undertaking/declaration that they have read and understood all the terms & conditions of tender documents and submitting unconditional acceptance to all terms & conditions.

(b) Undertaking of declaration that the bidder is not blacklisted/debarred for dealing by Government of India.

(c) Make in India - Documentary/undertaking against Make in India Status i.e. being a Class I/Class II supplier as per MII Policy.

Note:- The bidder shall Submit Local Content details as per Public procurement (Preference to make in India) order 2017 (as amended and revised till date) .

(d) Undertaking toward compliance of border sharing criteria as per guidelines issued by Government of India to be submitted (vide letter no. F.No.6/18/2019-PPD dated 23rd/24th July 2020 or any further amendments thereof).

12. Other requirements for the Bidders:

12.1 The bidder has to submit Power of Attorney/ Authorization indicating that authorized signatory is competent and legally authorized to submit the tender and /or enter into legally binding contract.

12.2 Manufacturer's Authorization Letter (As per section XIV): The firm has to be submit Manufacturer's Authorization Certificate for "Air Handling Unit".

a) Wherever Authorized bidder are submitting the bid, Authorization Form/Certificate with OEM details such as name, designation, address, e-mail id and Phone No.

required to be furnished along with the bid.

12.3 PAN and Goods & Service Tax Registration (GST) : The bidder should be registered with the Income Tax. Relevant Proof in support shall be submitted.

13. After Sales Service : The Firm has to give in writing that the offered AHUs and its accessories are not obsolete and consumables/spares required for the maintenance will be readily available in the market for next 10 years from date of completion of FAT.

14. Liquidated damages clause : Subject to GCC clause 28, if the supplier fails to deliver any or all of the goods or fails to perform the services within the time frame(s) incorporated in the contract, SPMCIL shall, without prejudice to other rights and remedies available to SPMCIL under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to the ½% percent (or any other percentage if prescribed in the SCC) of the delivered price of the delayed goods and/ or services for each week of delay or part thereof until actual delivery or performance, subject to a maximum deduction of the 10% (or any other percentage if prescribed in the SCC) of the delayed goods' or services' contract price(s). During the above-mentioned delayed period of supply and / or performance, the conditions incorporated under GCC sub-clause 23.4 above shall also apply. In all such cases GST would not be applicable on LD.

15. The firm should furnish the list of spares required for operation & maintenance of Air Handling Units AHUs, Chilled Water Pumps and Condenser Water Pumps with item wise price valid for 02 years from date of completion of warranty. These prices are not to be included in the price bid of tender but to be furnished separately along with technical bid.

16. Bank Details: Copy of Cancelled Cheque or the Bank details on the letter head signed by Authorized signatory to be submitted.

17. Price Evaluation Method:

- i. The basis of L1 criteria shall be on consolidation basis that is summation of Supply, Installation, Testing and Commissioning of complete project charges. Accordingly Contract will be placed.
- ii. As the said work of SITC is on turnkey basis the order shall not be split-table and complete order shall be awarded to single bidder.

18. SUBMISSION OF TENDERS:

a) Pre-Qualification Bid, Techno-Commercial Bid and Price Bid are to be submitted through e-tendering portal i.e. CPP Portal (<https://etenders.gov.in/eprocure/app>) on or before the due date of submission of tenders.

b) It may be noted that the price is NOT to be quoted in Pre-qualification bid and Techno Commercial Bid. It shall only be quoted in Price-Bid. Non-adherence to this shall be making tender liable for rejection.

c) Checklist of documents:

PART 1: Pre-Qualification Bid.

1. EMD Fee / Exemption Document.
2. Tender Validity 180 days as per the tender.
3. Signed Undertakings of Unconditional Acceptance, Non-Blacklisting Declaration, Make in India & towards Borders Sharing Criteria as per tender.
4. GST Registration Certificate and Copy of PAN Card.
5. Submit Manufacturer's Authorization form (As Applicable)
6. Submit the documents as per Qualification / Eligibility criteria – Section IX (As Applicable).
7. Power of Attorney for signing the bid document and contract (if awarded).
8. Sealed and Signed Integrity pact.
9. Any other document as per tender, if required.

PART 2: TECHNO-COMMERCIAL BID

1. Tender Document duly Seal & Signed (with corrigendum's, if published) as an acceptance of all section of tender documents including GIT & GCC without any deviation.
2. Technical Specification - Section VII as per tender. The tenderer, if required; submit detailed techno-commercial offer as per Technical Specifications given in Section VII of this tender document.
3. Undertaking and acceptance of following:
 - a. Delivery Schedule
 - b. Pre-Dispatch Inspections Clause
 - c. Final Acceptance Test Clause
 - d. Warranty Clause
 - e. Training clause
 - f. After sales Services clause
 - g. Spare part list
 - h. Payment Terms
4. Filled, Sealed & Signed Tender Form – Section X (Without mentioning price) & Section XII.
5. Any other document as per tender, if required.

PART 3: PRICE BID

The Bidders shall quote the price and other elements of price as per enclosed Price Schedule of tender document, Section XI.

Section VII- Technical Specification & General Terms and Conditions

Technical Specification – Line Item wise

S.No.	Line Item	Technical Specification
1.	SITC of Air Handling Unit (AHU) - 50,000 CFM	The scope shall be supply, installation, testing and commissioning of double skin air handling units - A. Make – Citizen /Zeco/ Edgetech or equivalent B. Capacity – AHU Capacity = 50,000 CFM, Cooling Coil Rows - 06 & Heater Bank Capacity - 55 kW C. Material of Construction & Design i. Inner panels shall be constructed out of 24 gauge (0.6 mm) plain galvanized sheet and outer panels shall also be made out of 24 gauge (0.6 mm) pre painted galvanized steel sheet. Width of each panel shall not exceed 750mm. Insulation shall be injected polyurethane foam in between the double skin panels of thickness as above. ii. AHU framework shall be made out of extruded aluminium hollow sections filled with preformed insulation section. Frame work for each section shall be bolted together with soft rubber gasket in between to make the joints air tight. Frames shall be assembled using mechanical joints to make a sturdy and strong framework for various sections. Suitable doors with pressure die cast aluminium hinges and latches shall be provided for access to various panels for maintenance. The entire housing shall be mounted on steel channel frame work. D. Drain Pan Drain pan shall be made out of 22 gauge stainless steel (22G SS304) with necessary slope to facilitate rapid removal of condensate water. Drain pan shall be insulated with closed cell elastomeric insulation/ nitrile rubber of thickness as required. Necessary supports will be provided to slide the coil in the drain pan. Outlet shall be provided from the drain pan in a manner that access panel can be opened without disconnecting the drain pipe connection. E. Fan & Motor

i. Fan shall be Ultra High Efficiency fan/s. The fan shall be Axial High Efficiency fans with minimum efficiency of 85% with IE5 Ultra-Premium Efficiency PM motor. Overall System Efficiency should be more than 80% including VFD losses, for the given duty points. AMCA certified computer selection must be submitted along with all fan selections.

ii. Fans shall be driven by an Ultra-Premium IE5 PM motors as specified in the schedule of quantities. Motor ratings are only tentative and where a fan requires a higher capacity motor, the contractor shall clearly point out the requirement and make his offer accordingly.

F. Cooling Coils

Coil section shall house the chilled water coils having 12.5 mm to 16 mm dia tubes of wall thickness not less than 0.5mm with aluminium fins firmly bonded to copper tubes assembled in zinc coated steel frame. Material of construction of header associated with cooling coil shall be copper. Face and surface areas shall be such as to ensure rated capacity from each unit and such that air velocity across each coil shall not exceed 500 FPM. The coil shall be pitched in the unit casing for proper drainage. Each coil shall be factory tested at 21Kg/Sq.cm air pressure under water. Tubes shall be hydraulically/ mechanically expanded for minimum thermal contact resistance with fins. Fin spacing shall be 11 to 13 fins per inch (4 to 5 fins per cm).

G. Pre-Filters, Fine Filter and Chemical Filter

Filter section shall house the washable synthetic type air filters having anodized aluminium frame. The media shall be supported with HDP mesh on one side and aluminium mesh on other side. Filters shall fit so as to prevent by-pass. Holding frames shall be provided for installing a number of filter cells in banks. These cells shall be held

within the frames by sliding the cells between guiding channels. Mixing Chamber with 10 micron pre-filter (G4 or equivalent), R.A and F.A. dampers 10 % of Supply Air. Fine Filter with efficiency of 97 % up to 3 micron.

Moreover, Chemical filter of minimum 50 mm thickness using materials like activated carbon to absorb gaseous pollutants, odour, VOCs and chemical fumes.

H. Accessories

		Each air handling unit shall be provided with manual air vent at highest point in the cooling coil and drain plug at the bottom of the coil and digital water flow meter in the inlet chilled water pipeline to AHU to monitor the required water flow rate. I. Performance Data - Air handling units shall be selected for the operating noise level in 50-70 dB range. Fan performance rating and power consumption characteristics shall be submitted and verified at the time of testing and commissioning of the entire installation. - The AHUs shall be certified by Eurovent or AHRI and should meet the minimum requirements for the parameters as given below – Requirement of Eurovent Certification as per Standard EN 1886 - Casing Leakage L2, Thermal Bridging TB2, Thermal Transmittance T2 and Casing Deflections D2. Requirement of AHRI Certification as per AHRI Standard 1350 - Casing Leakage CL2, Thermal Bridging CB2, Thermal Transmittance CT2 and Casing Deflections CD2. J. Testing Cooling capacity of various air handling unit models shall be computed from the measurements of air flow and dry and wet bulb temperatures of air entering and leaving the coil. Air flow measurements shall be carried out by an anemometer and temperature measurements by accurately calibrated thermometers. Computed results shall conform to the specified capacities and quoted ratings. Power consumption shall be computed from measurements of incoming voltage and input current.
2.	SITC of Air Handling Unit (AHU) - 37,500 CFM	The scope shall be supply, installation, testing and commissioning of double skin air handling units - A. Make – Citizen /Zeco/ Edgetech or equivalent B. Capacity – AHU Capacity = 37,500 CFM, Cooling Coil Rows - 06 & Heater Bank Capacity - 48 kW C. Material of Construction & Design Inner panels shall be constructed out of 24 gauge (0.6 mm) plain galvanized sheet and outer panels shall also be made out of 24 gauge (0.6 mm) pre painted galvanized steel sheet. Width of each panel shall not exceed 750mm. Insulation shall be injected polyurethane foam in between the double skin panels of thickness as

		mentioned above. ii. AHU framework shall be made out of extruded aluminium hollow sections filled with preformed insulation section. Frame work for each section shall be bolted together with soft rubber gasket in between to make the joints air tight. Frames shall be assembled using mechanical joints to make a sturdy and strong framework for various sections. Suitable doors with pressure die cast aluminium hinges and latches shall be provided for access to various panels for maintenance. The entire housing shall be mounted on steel channel frame work. D. Drain Pan Drain pan shall be made out of 22 gauge stainless steel (22G SS304) with necessary slope to facilitate rapid removal of condensate water. Drain pan shall be insulated with closed cell elastomeric insulation/ nitrile rubber of thickness as required. Necessary supports will be provided to slide the coil in the drain pan. Outlet shall be provided from the drain pan in a manner that access panel can be opened without disconnecting the drain pipe connection. E. Fan & Motor i. Fan shall be Ultra High Efficiency fan/s. The fan shall be Axial High Efficiency fans with minimum efficiency of 85% with IE5 Ultra-Premium Efficiency PM motor. Overall System Efficiency should be more than 80% including VFD losses, for the given duty points. AMCA certified computer selection must be submitted along with all fan selections. ii. Fans shall be driven by an Ultra-Premium IE5 PM motors as specified in the schedule of quantities. Motor ratings are only tentative and where a fan requires a higher capacity motor, the contractor shall clearly point out the requirement and make his offer accordingly. F. Cooling Coils Coil section shall house the chilled water coils having 12.5 mm to 16 mm dia tubes of wall thickness not less than 0.5mm with aluminium fins firmly bonded to copper tubes assembled in zinc coated steel frame. Material of construction of header associated with cooling coil shall be copper. Face and surface areas shall be such as to ensure rated capacity from each unit and such that air velocity across each coil shall not exceed 500 FPM. The coil shall be pitched in the unit casing for proper drainage. Each coil shall be factory tested at 21Kg/Sq.cm
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air pressure under water. Tubes shall be hydraulically/ mechanically expanded for minimum thermal contact resistance with fins. Fin spacing shall be 11 to 13 fins per inch (4 to 5 fins per cm).

G. Pre-Filters, Fine Filter and Chemical Filter

Filter section shall house the washable synthetic type air filters having anodized aluminium frame. The media shall be supported with HDP mesh on one side and aluminium mesh on other side. Filters shall fit so as to prevent by-pass. Holding frames shall be provided for installing a number of filter cells in banks. These cells shall be held

within the frames by sliding the cells between guiding channels. Mixing Chamber with 10 micron pre-filter (G4 or equivalent), R.A and F.A. dampers 10 % of Supply Air. Fine Filter with efficiency of 97 % up to 3 micron.

Moreover, Chemical filter of minimum 50 mm thickness using materials like activated carbon to absorb gaseous pollutants, odour, VOCs and chemical fumes.

H. Accessories

Each air handling unit shall be provided with manual air vent at highest point in the cooling coil and drain plug at the bottom of the coil and digital water flow meter in the inlet chilled water pipeline to AHU to monitor the required water flow rate.

I. Performance Data

- i. Air handling units shall be selected for the operating noise level in 50-70 dB range. Fan performance rating and power consumption characteristics shall be submitted and verified at the time of testing and commissioning of the entire installation.
- ii. The AHUs shall be certified by Eurovent or AHRI and should meet the minimum requirements for the parameters as given below –
 - a. **Requirement of Eurovent Certification as per Standard EN 1886** - Casing Leakage L2, Thermal Bridging TB2, Thermal Transmittance T2 and Casing Deflections D2.
 - b. **Requirement of AHRI Certification as per AHRI Standard 1350** - Casing Leakage CL2, Thermal Bridging CB2, Thermal Transmittance CT2 and Casing Deflections CD2.

J. Testing

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		Cooling capacity of various air handling unit models shall be computed from the measurements of air flow and dry and wet bulb temperatures of air entering and leaving the coil. Air flow measurements shall be carried out by an anemometer and temperature measurements by accurately calibrated thermometers. Computed results shall conform to the specified capacities and quoted ratings. Power consumption shall be computed from measurements of incoming voltage and input current.
3.	SITC of Air Handling Unit (AHU) – 9,000 CFM	The scope shall be supply, installation, testing and commissioning of double skin air handling units - A. Make – Citizen /Zeco/ Edgetech or equivalent B. Capacity – AHU Capacity = 9,000 CFM, Cooling Coil Rows - 08 & Heater Bank Capacity - 30 kW C. Material of Construction & Design i. Inner panels shall be constructed out of 24 gauge (0.6 mm) plain galvanized sheet and outer panels shall also be made out of 24 gauge (0.6 mm) pre painted galvanized steel sheet. Width of each panel shall not exceed 750mm. Insulation shall be injected polyurethane foam in between the double skin panels of thickness as above. ii. AHU framework shall be made out of extruded aluminium hollow sections filled with preformed insulation section. Frame work for each section shall be bolted together with soft rubber gasket in between to make the joints air tight. Frames shall be assembled using mechanical joints to make a sturdy and strong framework for various sections. Suitable doors with pressure die cast aluminium hinges and latches shall be provided for access to various panels for maintenance. The entire housing shall be mounted on steel channel frame work. D. Drain Pan Drain pan shall be made out of 22 gauge stainless steel (22G SS304) with necessary slope to facilitate rapid removal of condensate water. Drain pan shall be insulated with closed cell elastomeric insulation/ nitrile rubber of thickness as required. Necessary supports will be provided to slide the coil in the drain pan. Outlet shall be provided from the drain pan in a manner that access panel can be opened without disconnecting the drain pipe connection.

E. Fan & Motor

i. Fan shall be Ultra High Efficiency fan/s. The fan shall be Axial High Efficiency fans with minimum efficiency of 85% with IE5 Ultra-Premium Efficiency PM motor. Overall System Efficiency should be more than 80% including VFD losses, for the given duty points. AMCA certified computer selection must be submitted along with all fan selections.

ii. Fans shall be driven by an Ultra-Premium IE5 PM motors as specified in the schedule of quantities. Motor ratings are only tentative and where a fan requires a higher capacity motor, the contractor shall clearly point out the requirement and make his offer accordingly.

F. Cooling Coils

Coil section shall house the chilled water coils having 12.5 mm to 16 mm dia tubes of wall thickness not less than 0.5mm with aluminium fins firmly bonded to copper tubes assembled in zinc coated steel frame. Material of construction of header associated with cooling coil shall be copper. Face and surface areas shall be such as to ensure rated capacity from each unit and such that air velocity across each coil shall not exceed 500 FPM. The coil shall be pitched in the unit casing for proper drainage. Each coil shall be factory tested at 21Kg/Sq.cm air pressure under water. Tubes shall be hydraulically/ mechanically expanded for minimum thermal contact resistance with fins. Fin spacing shall be 11 to 13 fins per inch (4 to 5 fins per cm).

G. Pre-Filters, Fine Filter and Chemical Filter

Filter section shall house the washable synthetic type air filters having anodized aluminium frame. The media shall be supported with HDP mesh on one side and aluminium mesh on other side. Filters shall fit so as to prevent by-pass. Holding frames shall be provided for installing a number of filter cells in banks. These cells shall be held

within the frames by sliding the cells between guiding channels. Mixing Chamber with 10 micron pre-filter (G4 or equivalent), R.A and F.A. dampers 10 % of Supply Air. Fine Filter with efficiency of 97 % up to 3 micron.

Moreover, Chemical filter of minimum 50 mm thickness using materials like activated carbon to absorb gaseous pollutants, odour, VOCs and chemical fumes.

		H. Accessories Each air handling unit shall be provided with manual air vent at highest point in the cooling coil and drain plug at the bottom of the coil and digital water flow meter in the inlet chilled water pipeline to AHU to monitor the required water flow rate. I. Performance Data - Air handling units shall be selected for the operating noise level in 50-70 dB range. Fan performance rating and power consumption characteristics shall be submitted and verified at the time of testing and commissioning of the entire installation. - The AHUs shall be certified by Eurovent or AHRI and should meet the minimum requirements for the parameters as given below – Requirement of Eurovent Certification as per Standard EN 1886 - Casing Leakage L2, Thermal Bridging TB2, Thermal Transmittance T2 and Casing Deflections D2. Requirement of AHRI Certification as per AHRI Standard 1350 - Casing Leakage CL2, Thermal Bridging CB2, Thermal Transmittance CT2 and Casing Deflections CD2. J. Testing Cooling capacity of various air handling unit models shall be computed from the measurements of air flow and dry and wet bulb temperatures of air entering and leaving the coil. Air flow measurements shall be carried out by an anemometer and temperature measurements by accurately calibrated thermometers. Computed results shall conform to the specified capacities and quoted ratings. Power consumption shall be computed from measurements of incoming voltage and input current.
4.	SITC of Humidifier - 210 lb/hr	- Supply, Installation, Testing and Commissioning of AHU Room mounted Pan Type Low pressure Steam Humidifier with suitable control logic to maintain RH at any given point of time. - All the related necessary SS piping from Humidifier to the AHU inlet plenum, with control valve, integrated control cable from RH sensor to control valve, safety cut off auto control etc., - All accessories required for hooking up humidifier with AHU along with power and control cables shall be considered in cost of humidifier.
5.	SITC of Humidifier - 160 lb/hr	- Supply, Installation, Testing and Commissioning of AHU Room mounted Pan Type Low pressure Steam Humidifier with suitable control logic to maintain RH at any given point of time. - All the related necessary SS piping from Humidifier to the AHU inlet plenum, with control valve, integrated control cable from RH sensor to control valve, safety cut off auto control etc., - All accessories required for hooking up humidifier with AHU along with power and control cables shall be

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		considered in cost of humidifier.
6.	SITC of all Electrical Panels for AHU - Section-1	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply. vi. Suitable double earthing with earthing pits shall be provided to each panel.
7.	SITC of all Electrical Panels for AHU - Section-2	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply. vi. Suitable double earthing with earthing pits shall be provided to each panel.
8.	SITC of all Electrical Panels for AHU - Section-3	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply.

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		vi. Suitable double earthing with earthing pits shall be provided to each panel.
9.	SITC of all Electrical Panels for AHU - Section-4	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply. vi. Suitable double earthing with earthing pits shall be provided to each panel.
10.	SITC of all Electrical Panels for AHU - Section-5	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply. vi. Suitable double earthing with earthing pits shall be provided to each panel.
11.	SITC of all Electrical Panels for AHU - Section-6	i. Supply, Erection, Testing and Commissioning of Electrical Panel with Electronic Controller, Electronic over current relay for protection against three phase, Phase Change and Over Load. Indication lamp for RYB phase, Voltmeter, Ammeter & Time delay relay (TDR) for Motorized damper shall be present in Panel. ii. The firm shall submit necessary Manufacturer Authorisation Certificate of all supplied Panels, Multifunction Meter, ACB, MCCB, CT & Cables at the time of supply of material and submit technical catalogue of each item in technical bid. iii. The switchgear/control gear used in the panel will be of reputed make of L & T / SIEMENS / ABB / CROMPTON /AE / EE & panel should be CPRI approved. iv. SCADA compatibility: All ACB feeders to have Modbus communication capability. v. The panel shall be conforming to IEC 61439 and IP 54 as per IEC 60529 protection & test certificate from CPRI/ERDA shall be provided at the time of supply.

		vi. Suitable double earthing with earthing pits shall be provided to each panel.
12.	SITC of Distribution Panels for all AHUs	Three LT distribution panels for the above said AHU's should be provided at different places of CNP I area by the firm with necessary outgoing along with four spare outgoing. The details of all Electrical panels shall be provided to CNP before supplying the panel. The bus bar used in panel shall be of Electrolytic Copper bus bar grade & the full load current rating of bus bar shall be 1.5 times of rated current of Bus Bar. The panels shall be of as per ongoing latest IS or IEC Standards. i. Panel Make: Authorised OEM partners for L & T / SIEMENS / ABB / CROMPTON /AE / EE. Should be CPRI approved. ii. Bus bar & wiring: The Copper Bus bar shall be used of electrolytic grade copper and duly insulated with heat shrinkable sleeve with phase indication marking. All control wires should be of 1.5 Sq.MM flexible multi stranded copper wire with terminal ferrules. The power circuit inside the Feeders should be provided with adequate size multi stranded copper wires. All out going cables copper terminals should be brought at one side inside the Panel & terminated to suitable size of connectors for feeding supply. Suitable heavy duty stands of size 2 feet 6 inches should be provided for mounting the Panel. Size of the Panel above the stand should be selected by the supplier as per the available space at the site. Suitable size of copper earthing should be provided. iii. Note: - Any additional electrical items which are not mentioned here and not bearing a significant value with respect to the project cost but are required for successful installation and commissioning of all AHUs shall be part of the order without any additional cost to Purchaser.
13.	Design, SITC of Chilled Water Pumps along with accessories	i. The existing chilled water (CHW) pumps with motor (03 nos) along with accessories such as Butterfly valves , Y-strainer, NRV etc. is to be replaced after designing the new pipeline considering the enhanced chilled water flow requirement for new AHUs. ii. The firm will have to design the new chilled water pumps with motor (03 nos) based on required head, flow rate, suction and discharge line etc. iii. The scope of work also includes the replacement of Butterfly valves , Y-strainer, NRV etc. necessary civil works such foundation for new pumps and motor etc. and electrical works such as replacement of electrical panels etc.
14.	Design, SITC of Condenser Water Pumps along with accessories	i. The existing condenser water (CW) pumps with motor (03 nos) along with accessories such as Butterfly valves , Y-strainer, NRV etc. is to be replaced after designing the new pipeline considering the enhanced chilled water flow requirement for new AHUs. ii. The firm will have to design the new condenser water pumps with motor (03 nos) based on required head, flow rate, suction and discharge line etc. iii. The scope of work also includes the replacement of Butterfly valves , Y-strainer, NRV etc., necessary civil works such foundation for new pumps and motor etc. and electrical works such as replacement of electrical panels etc.

15.	SITC of Air Ducting - 24G	This includes the supply, fabrication, installation and testing of all GS sheet metal ducts complete with rubber gasket, Elbows etc. A. Duct Work Fabricated at Site as per BIS Standards Duct Material and Fabrication i. Material used for ducts shall be galvanized steel sheets class VIII conforming to IS: 277-1962 (revised) or equivalent / aluminium sheets conforming to IS:737-1955 or equivalent. ii. Thickness of the sheet shall be as given hereunder : <table border="1"> <thead> <tr> <th>S ize of Duct</th><th>GSS</th><th>Aluminium</th></tr> </thead> <tbody> <tr> <td>Up to 750 mm</td><td>24 Gauge (0.63mm)</td><td>22 Gauge (0.80mm)</td></tr> <tr> <td>751 mm to 1500mm</td><td>22 Gauge (0.80mm)</td><td>20 Gauge (1.00mm)</td></tr> <tr> <td>1501 mm to 2250mm</td><td>20 Gauge (1.00mm)</td><td>18 Gauge (1.25mm)</td></tr> <tr> <td>2251 mm and above</td><td>18 Gauge (1.25mm)</td><td>16 Gauge (1.6mm)</td></tr> <tr> <td>All Round Ducts</td><td>20 Gauge (1.00mm)</td><td>--</td></tr> </tbody> </table> iii. GI sheets shall be produced using hot deep galvanization process and minimum acceptable coating of zinc shall be 120 g/m². Sample of GI sheet along with test certificate to be submitted for approval prior to supply of GI sheets. iv. Zinc coating if found peeled –off or duct work with water marks after fabrication shall be rejected. v. Ducts shall be straight and smooth on the inside with neatly finished joints. All joints shall be made air tight. vi. All exposed ducts within conditioned spaces shall have only slip joints and no flanged joints. The internal ends of slip joints shall be made in the direction of air flow. vii. Change in dimensions and shape of ducts shall be gradual. Curved elbows, unless otherwise approved, shall have a Centre line radius equal to one and half times the width of the duct. Air turns shall be installed in all abrupt elbows and shall consist of curved metal blades or vanes, arranged to permit the air to make the turns without appreciable turbulence. viii. GI splitter dampers complete with brass metal lever shall be installed at each bifurcation / trifurcation point of duct for proper flow of air quantity in each duct. ix. All sheet metal connections, partitions and plenums required to confine the flow of air to and through the filters and fans, shall be constructed out of 18 gauge galvanized steel sheet, thoroughly stiffened with angle iron braces mentioned above and fitted with all necessary doors as required by the CNP, to give access to all parts. Doors shall not be less than 45cm x 45cm in size. All hardware fittings such as thunder bolts, hinges, handles etc. shall be in extruded Aluminium construction. B. Duct Work Fabricated in Factory as per SMACNA Standards i. Duct Material and Fabrication –	S ize of Duct	GSS	Aluminium	Up to 750 mm	24 Gauge (0.63mm)	22 Gauge (0.80mm)	751 mm to 1500mm	22 Gauge (0.80mm)	20 Gauge (1.00mm)	1501 mm to 2250mm	20 Gauge (1.00mm)	18 Gauge (1.25mm)	2251 mm and above	18 Gauge (1.25mm)	16 Gauge (1.6mm)	All Round Ducts	20 Gauge (1.00mm)	--
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2251 mm and above	18 Gauge (1.25mm)	16 Gauge (1.6mm)																		
All Round Ducts	20 Gauge (1.00mm)	--																		

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- a. Material used for ducts shall be galvanized steel sheets class VIII, light coating of zinc, nominal 120gm/Sq.m surface area conforming to IS:277-1962 (revised) or equivalent / aluminium sheets conforming to IS:737-1955 or equivalent.
- b. Recommended Thickness and Type of Joints - All ducts shall be fabricated using galvanized steel/aluminium sheet with thickness as mentioned hereunder :

GSS Rectangular Ducts		Pressure 250 Pa (25mm)	
Duct Section Length 1.2 m (4 ft)			
Maximum Duct Size	Gauge	Joint Type	Bracing Spacing
1-750 mm	24	“4 Bolt Transverse Duct Connector-E (TDC) with built in sealant”	Nil
751 – 1500 mm	22	4 Bolt TDC-H	Nil
1501 – 2100 mm	20	4 Bolt TDC-H	Nil
2101 – 2700 mm	18	4 Bolt TDC-J	Nil

ii. Fabrication Standards and Equipment - All duct construction and installation shall be in accordance with SMACNA standards or equivalent. In addition ducts shall be factory fabricated utilizing the following machines to provide the requisite quality of ducts.

- a. A coil (Sheet metal in Roll Form) line to facilitate location of longitudinal seams at corners/folded edges only, for required duct rigidity and leakage free characteristics. No longitudinal seams permitted along any face side of the duct.
- b. All ducts, transformation pieces and fittings to be made on CNC profile cutter for requisite accuracy of dimensions, location and dimensions of notches at the folding lines.
- c. All edges to be machine treated using lock formers, flanges and rollers for turning up edges.

iii. Duct Construction - All ducts shall be fabricated and installed in workmanlike manner, conforming to relevant SMACNA codes or equivalent.

- a) Ducts so identified on the Drawings shall be acoustically lined and insulated from outside as described in the section "Insulation" and as indicated in schedule of Quantities. The fabricated duct dimensions should be as per approved drawings and care should be taken to ensure that all connecting sections are dimensionally matched to avoid any gaps.
- b) Ducts shall be straight and smooth on the inside with longitudinal seams shall be airtight and at corners only which shall be either Pittsburgh or snap button as per SMACNA or equivalent practice, to ensure air

tightness.

c) All concealed ducts up to 750mm width within conditioned spaces shall have slip and drive (C & S/SS) joints. The internal ends of slip joints shall be in the direction of airflow. Care should be taken to ensure that S/SS Cleats are mounted on the longer side of the duct and Cleats on the shorter side. Ducts and accessories within ceiling spaces, visible from air-conditioned areas shall be provided with two coats of paint as directed by the CNP.

d) Changes in dimensions and shape of ducts shall be gradual. Air-turns (vanes) shall be installed in all bends and duct collars designed to permit the air to make the turn without appreciable turbulence.

e) All ducts shall be rigid and shall be adequately supported and braced where required with standing seams, tees, or angles, of ample size to keep the ducts true to shape and to prevent buckling, vibration or breathing.

f) All sheet metal connection, partitions and plenums, required to confine the flow of air to and through the filters and fans, shall be constructed of 18 gauge GSS / 16gauge aluminium, thoroughly stiffened with 25mm x 25mm x 3mm galvanized steel angle braces and fitted with all necessary inspection doors as required, to give access to all parts of the apparatus. Access doors shall be not less than 450mm x 450mm in size.

g) Plenums shall be shop/factory fabricated panel type and assembled at site. Fixing of galvanized angle flanges on duct pieces shall be with rivets heads inside i.e. towards GS sheet and riveting shall be done from outside.

h) Self-adhesive Neoprene rubber / UV resistant PVC foam lining 5mm nominal thickness instead of felt, shall be used between duct flanges and between duct supports in all ducting installation'

C. Installation of Ductwork

i. During construction, the contractor shall temporarily close the duct openings with sheet metal covers to prevent debris and any foreign material entering ducts and to maintain opening straight and square.

ii. All ducts shall be installed generally as per the drawings and in strict accordance with approved drawings.

iii. All ducts shall be supported from the ceiling /slab using 9mm to 12mm dia MS rods depending upon the size of the duct MS angle iron of size not less than 40mmx40mmx5mm or more if duct size is large enough shall be used at the bottom. The MS rods shall be anchored to RCC slab using suitable metallic expansion fasteners.

iv. All necessary allowances and provisions shall be made by the contractor for beams, pipes or other obstructions in the buildings, whether or not the same are shown on the drawings. Where it becomes necessary to avoid beams or other structural work, plumbing or other pipes, and /or conduits, the ducts shall be transformed, divided or curved to one side, the required area being maintained as approved.

v. If a duct cannot be run as shown on the drawing, the contractor shall install the duct between the required points by any path available, subject to the approval by Site Engineer.

vi. All duct work shall be independently supported from building elements. All horizontal ducts shall be rigidly and securely supported, in an approved manner, within hangers formed of MS rods and angle iron under ducts not greater than 2 M centers. All vertical duct work shall be supported by structural members at each floor.

Larger Size of Duct	“C” channel size	Fully threaded GI Vertical Rod size	Maximum Spacing between supports
Up to 750mm	Slotted Channel	8mm	2000mm
751mm to 1500mm	32mmx32mmx 5mm MS angle Duly painted	8mm	2000mm
1501mm to 2100mm	40mmx40mmx 5 mm MS angle duly painted	10mm	2000mm
2101mm & above	50mmx50mmx5mm MS angle iron duly painted	12mm	2000mm

vii. Ducting over false ceiling shall be supported from the slab above, or from beams, after obtaining approval of CNP's site representative. In no case shall any duct be supported from false ceiling hangers or be permitted to rest on false ceiling. All metal work in dead or furred down spaces shall be erected in time to occasion no delay to other Contractor's work in the building. All supports of ducts shall be taken from structural slab/wall by means of fastener.

viii. Where ducts pass through brick or masonry openings, it shall be provided with 25 mm thick TF quality expanded polystyrene around the duct and totally covered with mortar for complete sealing. Contractor shall ensure that contact between metal duct and mortar is avoided.

ix. Ducting on top of the ceiling shall be supported from the slab above, or from beams with the help of adequate strength dash fasteners, after obtaining approval of Site Engineer. In no case shall a duct be supported from the ceiling hangers or be permitted to rest on a hung ceiling.

x. In case of grid type false ceiling, the entire diffuser assembly with plenum shall be independently hung from the ceiling through adjustable GI wires and the same shall be connected to the main duct through a flexible round duct.

xi. Duct shall not rest on false ceiling and shall be in level from bottom. Taper pieces shall taper from top.

xii. All metal work in dead or closed down spaces shall be erected in time to occasion no delay to the CNP.

xiii. All air turns of 45 degrees or more shall include curved metal blades or vanes so as to permit the air to make the abrupt turns without an appreciable turbulence. Turning vanes shall be securely fastened to prevent noise or vibration. All supply air collars shall be provided with GI vanes properly secured using rivets.

xiv. All ducts shall be totally free from vibration under all conditions of operations. Whenever duct work is connected to fans, that may cause vibrations in the duct, ducts shall be provided with two flexible connections

located close to the unit in mutually perpendicular directions. Flexible connection shall be constructed of fire resistant flexible double canvas sleeves at least 150mm long, secured properly and bolted at both ends. Sleeve shall be made smooth and the connecting duct work rigidly held by independent supports on both ends. The flexible connection shall be suitable for pressures at the point of installation.

xv. The two mating flanges of the ducts being joined with each other shall be made air tight by providing 4mm thick rubber gasket fixed on both mating flanges by means of good quality adhesive. Rubber strip shall also be provided between bottom surface of duct and angle iron at each duct support to avoid metal to metal contact.

xvi. All duct supports including MS rods, cleats and angle iron shall be primer coated and thereafter, painted with enamel paint.

D. Round Ductwork

Spiral/round ductwork wherever required shall meet following parameters:

- i. Conform to BIS or equivalent round ductwork requirements.
- ii. Round Ducts shall be constructed out of galvanized sheet steel as per relevant BIS standards or equivalent.
- iii. Up to 1200mm dia ducts spiral lock seam shall be provided.
- iv. Ducts more than 1200 mm diameter shall be provided with welded longitudinal or spiral seam.
- v. Lap or snap lock seams are not permitted for round ductwork of any size.
- vi. Provide beaded sleeve or flanged and gasket joints for ducts.
- vii. Provide all welded long radius elbows.
- viii. Provide conical tees, all welded.
- ix. Butt tees or butt taps are not permitted.
- x. All round ducts, 750 mm and larger, shall be supported with two hangers at each support point in an approved manner

E. Testing

After duct installation, total duct work (Air conditioning) carried out under this scope of works should be light tested for leakages.

F. Documentation & Measurement of Ducting

All ducts fabricated and installed should be accompanied and supported by following documentation:

- i. For each drawing, all supply of ductwork must be accompanied by computer generated detailed bill of materials indicating all relevant duct sizes, dimensions and quantities.
- ii. In addition, summary sheets are also to be provided showing duct area by gauge and duct size range as applicable.

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		iii. Measurement sheet covering each fabricated duct piece showing dimensions and external surface area along with summary of external surface area of duct gauge-wise. iv. All duct pieces to have a part number, which should correspond to the serial number, assigned to it in the measurement sheet. The above system will ensure speedy and proper site measurement, verification and approvals.
16.	SITC of Air Ducting - 22G	Same as above as at sr.no.15
17.	SITC of Air Ducting - 20G	Same as above as at sr.no.15
18.	SITC of Air Ducting - 18G	Same as above as at sr.no.15
19.	Supply and Installation of Thermal Insulation of Air ducting	i. Material - Insulation material shall be closed cell elastomeric material (nitrile rubber) having fire retardant Class "O" properties. Density of insulation material shall range between 0.04-0.07 g/cm³. Thermal conductivity (K value) at 40 C mean temperature and Service temperature limit shall be 0.039 W/M.K and -40C to 105C respectively. Moisture Resistance Factor (μ) shall not be less than 7000. Water absorption shall not be more than 1.5% by weight. Insulation material shall have excellent ozone resistance properties. Excellent Thermal Stability. Insulation material shall be tested for the said properties in accordance with the relevant international codes including BS 874 Part 2 1986, DIN 52612(K Value), DIN 52615 (Water vapour permeability), BS 476 Part6 & Part7 (Flammability) or equivalent. ii. Application Duct insulation shall be applied as follows: a. External surface of the ducts to be cleaned vigorously to remove dirt and any other foreign material from the surface of the ducts. b. Apply adhesive on the surface of ducts. c. Wait for around half an hour to develop Tack until the adhesive layer got colourless. d. Wrap factory aluminium foil laminated/IC cladding finish closed cell insulation material having suitable thickness butting all joints. All joints to be sealed with adhesive.
20.	Supply and Installation of Acoustic Duct lining insulation	i. Material - Acoustic insulation material shall generally possess the properties mentioned above line item 200, however, insulation material shall be processed Nitrile Rubber Foam having fire retardant Class "O" properties. Density of insulation material shall range between 140-180 Kg/m³. The insulation material shall conform to the international codes including BS 476 Part6 & Part7 (Flammability) or equivalent. ii. Application Acoustical lining of duct wherever specified shall be applied as under: a. Internal surface of the ducts to be cleaned vigorously to remove dirt and any other foreign material from the surface of the ducts.

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		b. Apply Low VOC adhesive Fevicol AC duct King Eco Fresh/equivalent on the surface of ducts. c. Wait for around half an hour to develop Tack until the adhesive layer got colourless. d. Cut foamed sheets into required sizes using sharp knives. Apply adhesive on the foam and stick it to the duct surface.
21.	Supply and Fitting of Canvass connection	Supply and Fitting of Canvass connection between AHUs and Supply & Return Air Ducts
22.	Supply, Installation and Testing of Collar Dampers	Supply, Installation and Testing of Aluminium Collar Dampers to be provided in supply air collar complete with key operation facility for manual control of air volume and air balancing as per drawing.
23.	Supply and Installation of Duct Damper	Supply and Installation of GI Duct Damper for manual control of air volume of the duct as per the drawing i. Opposed blade type louver dampers with quadrant and thumb screw lock shall be used at supply air collars for balancing of air distribution system and box type volume control dampers having lever operation shall be used at the outlet of air conditioning equipment. ii. All dampers shall be multi blade type of robust construction of galvanized steel unless and tightly fitted. The design, method of handling, and control shall be suitable for the location and service required. iii. Dampers shall be provided with suitable links, levers and quadrants as required for their proper operation; control or setting devices shall be made robust, easily operable and accessible through suitable access doors in the ducts. Every damper shall have an indicating device clearly showing the damper position at all times. iv. Dampers shall be placed in ducts and at each supply air collar, whether or not indicated on the drawings, for the proper volume control and balancing of the system. v. Automatic and manual volume control opposed blade dampers shall be complete with frames and bronze bearings as per drawings. Dampers and frames shall be constructed out of 1.6mm steel sheets and blades shall not be over 225mm wide. The dampers for fresh air inlet shall additionally be provided with fly mesh screen, on the outside, of 0.8mm thickness with fine mesh. vi. Wherever required for system balancing, a volume balancing opposed blade damper with quadrant and thumb screw lock shall be provided. vii. After completion of the duct work, dampers are to be adjusted and set to deliver air flow as specified on the drawings.
24.	Supply and Installation of Supply and Return Air Diffuser Size 600 x600mm	i. Supply & Installation of Aluminium powder coated square diffuser for supply and return air of sizes 600 x600mm (Approx. Sizes) ii. Square ceiling diffuser shall be anti-smudge ring type fabricated out of extruded aluminium sections. The four directional air flow diffuser shall consist of outer ring fixed to duct collar with concealed screws. Foam gasket shall be provided between outer ring and suspended ceiling. The central core shall be clip fixed to the

		outer ring. iii. Opposed blade volume control damper in extruded aluminium construction shall be fixed to the neck of diffuser. The damper shall be adjusted after removing the central core.
25.	Supply and Installation of Supply and Return Air Diffuser Size 750 x750mm	i. Supply & Installation of Aluminium powder coated square diffuser for supply and return air of sizes 750 x750mm (Approx. Sizes) ii. Square ceiling diffuser shall be anti-smudge ring type fabricated out of extruded aluminium sections. The four directional air flow diffuser shall consist of outer ring fixed to duct collar with concealed screws. Foam gasket shall be provided between outer ring and suspended ceiling. The central core shall be clip fixed to the outer ring. iii. Opposed blade volume control damper in extruded aluminium construction shall be fixed to the neck of diffuser. The damper shall be adjusted after removing the central core.
26.	Supply and Installation of Grills for supply and return air	Supply and Installation of Aluminium powder coated Grills for supply and return air.
27.	Supply and Installation of Motorized Duct Damper	i. All supply and return air ducts/ return air spaces at AHU room crossings and at all floor crossings shall be provided with approved make motorized dampers. These dampers shall be multi-leaf type –Ruskin. ii. Damper blades and outer frame shall be formed out of 1.6mm (16G) galvanized steel sheet of length as mentioned in the approved for construction shops drawings tilted as AHU Room Blow Up. The damper blade shall be pivoted on both ends using chrome-plated spindles in self-lubricated bronze bushes. Stop seals shall be provided on top and bottom of the damper housing made of 16 gauge galvanized sheet steal. For preventing smoke leakage, metallic compression side seals shall be provided. Dual side leakage shall be provided for better structural stability. The construction of the damper shall allow maximum free area to reduce pressure drop and noise in the air passage, in normal position damper blade shall be held in open position with the help of a 220 V operated electric actuators thereby providing maximum air pressure without creating any noise or chatter. iii. For wall mounted dampers retaining MS angles duly painted with enamel paint shall be supplied and installed by HVAC Contactor as per established installation procedure. iv. Every motorized damper shall be tested in the factory and will be certified by the manufacturer in form of

		the test certificate. v. For dampers of size higher than one approved by certifying agency the damper shall be supplied in multiple units of size not exceeding the tested damper by CBRI or equivalent. All the multiple units shall be housed in a common factory fitted sleeve. vi. The damper shall be installed in accordance with the installation method recommended by the manufacturer.
28.	Supply and Installation of Actuator for Duct dampers	The actuator shall be maintenance free coupled spring return type suitable to work on 24V electric supply. The torque rating of the actuator shall exceed at least by 15% over torque required to open/ close the damper. The selection of actuator size shall be the responsibility of the manufacturer of the damper. Spring return time shall be 20 seconds or less at ambient temperature. Other features of the damper actuator shall be as under: i. Actuator shall have tamper proof housing with IP-54 protection rating or better. ii. Actuator shall have electronic over load or digital sensing circuit to prevent damage to actuator. iii. Should be capable of changing direction of rotation by changing mounting orientation. iv. Actuator shall have manual over ride facility. v. Damper actuator shall be such that it should close the damper in the event of power failure automatically and open in the same manner in case of power being restored.
29.	Supply and Installation of Motorized fire Duct Damper	i. All supply and return air ducts/ return air spaces at AHU room crossings and at all floor crossings shall be provided with approved make motorized fire and smoke dampers of at least 120 minutes fire rating as certified by CBRI Roorkee, India as per clause 10 of UL:555-1995 or equivalent. These dampers shall be multi-leaf type – Ruskin. Fire Dampers shall be UF & FM approved. ii. Fire damper blades and outer frame shall be formed out of 1.6mm (16G) galvanized steel sheet of length as mentioned in the approved for construction shops drawings tilted as AHU Room Blow Up. The damper blade shall be pivoted on both ends using chrome-plated spindles in self-lubricated bronze bushes. Stop seals shall be provided on top and bottom of the damper housing made of 16 gauge galvanized sheet steal. For preventing smoke leakage, metallic compression side seals shall be provided. Dual side leakage shall be provided for better structural stability. The construction of the fire damper shall allow maximum free area to reduce pressure drop and noise in the air passage, in normal position damper blade shall be held in open position with the help of a 220 V operated electric actuators thereby providing maximum air pressure without creating any noise or

		chatter. iii. For wall mounted fire dampers retaining MS angles duly painted with black enamel paint shall be supplied and installed by HVAC Contactor as per established installation procedure. Whereas the fire damper is also used for Smoke management (Smoke and fire damper) the same shall be as per UL-555 or equivalent. iv. Every motorized fire damper/ Smoke and fire damper shall be tested in the factory and will be certified by the manufacturer in form of the test certificate. v. For fire dampers/ smoke fire dampers of size higher than one approved by certifying agency the damper shall be supplied in multiple units of size not exceeding the tested damper by CBRI or equivalent. All the multiple units shall be housed in a common factory fitted sleeve. vi. The fire dampers shall be mounted in fire rated wall with a duct sleeve 400mm/ 500mm long depending upon the wall thickness. The sleeve shall be factory fitted on fire damper. The joints at sleeve end shall be slip on type. Minimum thickness of galvanized sheet shall be 18 gauges. vii. The damper shall be installed in accordance with the installation method recommended by the manufacturer.
30.	Supply and Installation of Actuator for Fire Duct dampers.	The actuator shall be maintenance free coupled spring return type suitable to work on 24V electric supply. The torque rating of the actuator shall exceed at least by 15% over torque required to open/ close the damper. The selection of actuator size shall be the responsibility of the manufacturer of the fire damper. Spring return time shall be 20 seconds or less at ambient temperature. Other features of the damper actuator shall be as under: i. Actuator shall have tamper proof housing with IP-54 protection rating or better. ii. Actuator shall have mechanical integrity of at least one hour at 900°C. iii. Actuator shall have minimum 600000 safe positions at rated torque. It shall be capable to withstand temperature of 75°C for 24 Hrs. iv. Actuator shall have electronic over load or digital sensing circuit to prevent damage to actuator. v. Should be capable of changing direction of rotation by changing mounting orientation. vi. Actuator shall have manual over ride facility. vii. Damper actuator shall be such that it should close the damper in the event of power failure automatically and open in the same manner in case of power being restored.

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31.	Supply, Laying, Termination, Testing and Commissioning of Electrical Cable 3 Core x 16 Sqmm Copper Armoured	Supply, Laying, Termination, Testing and Commissioning of 3 Core x 16 Sqmm Copper Armoured Electrical cabling between Air Handling Unit and Electrical Panels. Supply of suitable incoming copper Armoured cable for the AHU panel along with laying and termination from the source suggested by the CNP.
32.	Supply, Laying, Termination, Testing and Commissioning of Electrical Cable 3 Core x 10 Sqmm Copper Armoured	Supply, Laying, Termination, Testing and Commissioning of 3 Core x 10 Sqmm Copper Armoured Electrical cabling between Air Handling Unit and Electrical Panels. Supply of suitable incoming copper Armoured cable for the AHU panel along with laying and termination from the source suggested by the CNP.
33.	Supply, Laying, Termination, Testing and Commissioning of Electrical Cable 3 Core x 04 Sqmm Copper Armoured	Supply, Laying, Termination, Testing and Commissioning of 3 Core x 4 Sqmm Copper Armoured Electrical cabling between Air Handling Unit and Electrical Panels. Supply of suitable incoming copper Armoured cable for the AHU panel along with laying and termination from the source suggested by the CNP.
34.	Supply and Installation of Communication	Supply and installation of 4 core X 1.5 Sq.mm for Communication between Air Handling Unit motorized Damper.
35.	Supply & Fitting of Condensate Drain Piping with Insulation - Size 32 mm	i. Supply and Fitting of "B" Class GI Pipe of Size 32 mm & shall Conform to IS: 4736 or equivalent of Size 32mm with 09 mm insulation. ii. All piping and their steel supports shall be thoroughly cleaned and primer coated before installation.
36.	Supply & Fitting of Condensate Drain Piping with Insulation - Size 40	i. Supply and Fitting of "B" Class GI Pipe of Size 40 mm & shall Conform to IS: 4736 or equivalent of Size 40mm with 09 mm insulation. ii. All piping and their steel supports shall be thoroughly cleaned and primer coated before installation.

	mm	
37.	Supply & Fitting of Condensate Drain Piping with Insulation - Size 50 mm	i. Supply and Fitting of "B" Class GI Pipe of Size 50 mm & shall Conform to IS: 4736 or equivalent of Size 50mm with 09 mm insulation. ii. All piping and their steel supports shall be thoroughly cleaned and primer coated before installation.
38.	Supply & Fitting of Condensate Drain Piping with Insulation - Size 65 mm	i. Supply and Fitting of "B" Class GI Pipe of Size 65 mm & shall Conform to IS: 4736 or equivalent of Size 60mm with 09 mm insulation. ii. All piping and their steel supports shall be thoroughly cleaned and primer coated before installation.
39.	Supply & Fitting of Condensate Drain Piping with Insulation - Size 80 mm	i. Supply and Fitting of "B" Class GI Pipe of Size 80 mm & shall Conform to IS: 4736 or equivalent of Size 80mm with 09 mm insulation. ii. All piping and their steel supports shall be thoroughly cleaned and primer coated before installation.
40.	Supply of MS Channel/beam for Pipe and Duct support	Supply of MS Channel/Beam with two quote of Epoxy Paint for Pipe and Duct support

41.

SITC of Chilled Water Piping with Insulation - Size 750 mm

Supply, Installation, Testing & Commissioning of M. S. Class 'C' Chilled Water Piping of Size 750 mm with insulation of 50 mm thick TF Quality EPS/ for pipes up to 200 - mm & insulation of 75 mm thick TF Quality EPS for pipes above 200 - mm. The pipe insulation shall be covered with 7 mil glass cloth and finally applied with Star Bond coating for UV and Mechanical protection

OR

Nitrile rubber insulation of suitable thickness with Aluminium cladding (24G).

i. Pipe Size & Wall Thickness -

Nominal Pipe Dia (in mm)	Wall Thickness of Pipe (in mm)	Nominal Pipe Dia (in mm)	Wall Thickness of Pipe (in mm)
50	4.50	200	6.00
65	4.50	250	6.00
80	4.80	300	6.00
100	5.40	350	6.35
125	5.40	450	7.00
150	5.40	600	8.00

- ii. **Make for Pipe** - Tata, Jindal, Surya, Zenith or equivalent
- iii. Piping shall be properly supported on, or suspended from, stands, clamps, springs, hangers as specified and as required at site. The contractor shall adequately design all the brackets, saddles, anchors, clamps and hangers and shall be responsible for their structural sufficiency.
- iv. All pipes in HVAC plant room shall be supported with engineered supports structures made of pipes and channels from floor only with necessary high density PUF pipe supports and engineered vibration / noise isolators.
- v. Pipe supports shall be of steel, adjustable for height and primer coated with rust preventive paint and finish coated black. Where pipe and clamps are of dissimilar materials, a gasket shall be provided in between. Spacing of pipe supports shall not exceed the following:

Pipe Sizes	Spacing Between Supports	Rod Size
Up to 12 mm	1.2 Meter	8 mm
15 to 25 mm	1.8 Meter	8 mm
32 to 150 mm	2.4 Meter	12 mm
Above 150 mm	3.0 Meter	As Per Approved Drg.

		vi. Vertical pipes passing through floors shall be plumb and parallel to wall. Pipes shall be supported on all floors. MS cleats shall be welded on pipes and rest on MS channel placed on the floor with 15 mm thick resistoflex pads between the cleat and channel. U clamps with resistoflex sheet shall be provided to keep the pipe in position. T heading in water piping shall be avoided. Pipe sleeves at least 3 mm thick, 50 mm / 100 mm larger in diameter than retaining wall and slab. Annular space shall be filled with fibre glass and finished with retainer rings welded on the ends of the sleeve. All pipes passing through the retaining wall shall be provided with suitable water proofing compound. vii. Wherever pipes pass through the brick or masonry / slab openings, the gaps shall be sealed with fire sealant. viii. Insulated piping shall be supported in such a manner as not to put undue pressure on the insulation. 20 gauge metal sheets shall be provided between the insulation and the clamp, saddle or roller, extending at least 15 cm on both sides of the clamp, saddles or roller. ix. All pipes shall be accurately cut to the required size in accordance with relevant BIS Codes, edges bevelled and burrs removed before laying. Open ends of the piping shall be closed as the pipe is installed to avoid entrance of foreign matter. Where reducers are to be made in horizontal runs, eccentric reducers shall be used for the piping to drain freely. In other locations, concentric reducers may be used. x. Auto purge valves shall be provided at all highest points in the piping system for venting air. Air valves shall be 15 mm pipe size with screwed joints. Discharge from the air valves shall be piped through an equal sized mild steel or galvanized steel pipe to the nearest drain or sump. These pipes shall be pitched towards drain points. xi. The firm has to provide the drain valves of suitable size at various points/suitable locations on chilled water pipeline pitching towards drain points. The drain valves will be provided by the firm. xii. The firm has to provide the necessary city water connections at suitable locations on the chilled water header line for filling the entire header pipeline.
42.	SITC of Chilled Water Piping with Insulation - Size 600 mm	Scope of Work same as at sr.no.41
43.	SITC of Chilled Water Piping with Insulation - Size 450 mm	Scope of Work same as at sr.no.41
44.	SITC of Chilled Water Piping with Insulation -	Scope of Work same as at sr.no.41

	Size 350 mm	
45.	SITC of Chilled Water Piping with Insulation - Size 300 mm	Scope of Work same as at sr.no.41
46.	SITC of Chilled Water Piping with Insulation - Size 250 mm	Scope of Work same as at sr.no.41
47.	SITC of Chilled Water Piping with Insulation - Size 200 mm	Scope of Work same as at sr.no.41
48.	SITC of Chilled Water Piping with Insulation - Size 150 mm	Scope of Work same as at sr.no.41
49.	SITC of Chilled Water Piping with Insulation - Size 125 mm	Scope of Work same as at sr.no.41
50.	SITC of Chilled Water Piping with Insulation - Size 100 mm	Scope of Work same as at sr.no.41
51.	SITC of Chilled Water Piping with Insulation - Size 80 mm	Scope of Work same as at sr.no.41
52.	SITC of Chilled Water Piping with Insulation - Size 65 mm	Scope of Work same as at sr.no.41

53.	SITC of Chilled Water Piping with Insulation - Size 50 mm	Scope of Work same as at sr.no.41
54.	SITC of Butterfly Valves - Size 600 mm	i. Butterfly valve shall be of PN 16 rating as per IS 13095 or equivalent preferably with fixed linear design to suit duty and flanges as per IS 6392 or equivalent. Valves of sizes 32 mm and above diameter shall be made of cast iron close end body, cast iron epoxy coated disc, Nitrile Seat and SS 410 Stem with Teflon bush. Valves up to 150mm NB shall be with detachable hand lever operation whereas valves above 150 mm NB shall have worm gear operation. ii. Make - L&T, Honseywell or equivalent iii. These valves shall be installed in chilled water lines, make up / drain water piping lines. All valves shall be supplied with factory test reports and the manufacturer shall have test facilities at their works.
55.	SITC of Butterfly Valves - Size 450 mm	Scope of Work same as at sr.no.54
56.	SITC of Butterfly Valves - Size 350 mm	Scope of Work same as at sr.no.54
57.	SITC of Butterfly Valves - Size 300 mm	Scope of Work same as at sr.no.54
58.	SITC of Butterfly Valves - Size 250 mm	Scope of Work same as at sr.no.54
59.	SITC of Butterfly Valves - Size 150 mm	Scope of Work same as at sr.no.54
60.	SITC of Butterfly Valves - Size 125 mm	Scope of Work same as at sr.no.54
61.	SITC of Butterfly Valves - Size 100 mm	Scope of Work same as at sr.no.54
62.	SITC of Butterfly Valves -	Scope of Work same as at sr.no.54

	Size 80 mm	
63.	SITC of Butterfly Valves - Size 65 mm	Scope of Work same as at sr.no.54
64.	SITC of Butterfly Valves - Size 50 mm	Scope of Work same as at sr.no.54
65.	SITC of Y-Strainer - Size 100 mm	i. The Y-strainer of size 100 mm shall be fabricated out of MS 'Heavy' class pipe. Flanges as per BS 10 or equivalent shall be provided at inlet & outlet of connections. The body shall be pressure tested at 16 Kg/Sq. cm and shall be hot dip galvanized. Permanent magnet shall be provided in the body of the strainer to arrest MS particles. Filter element shall be of nonmagnetic 20 gauge SS sheet with 3 mm perforation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. Y-Strainer shall be provided at inlet of each AHU.
66.	SITC of Y-Strainer - Size 80 mm	i. The Y-strainer of size 80 mm shall be fabricated out of MS 'Heavy' class pipe. Flanges as per BS 10 or equivalent shall be provided at inlet & outlet of connections. The body shall be pressure tested at 16 Kg/Sq. cm and shall be hot dip galvanized. Permanent magnet shall be provided in the body of the strainer to arrest MS particles. Filter element shall be of nonmagnetic 20 gauge SS sheet with 3 mm perforation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. Strainer shall be provided at inlet of each AHU.
67.	SITC of Y-Strainer - Size 65 mm	i. The Y-strainer of size 65 mm shall be fabricated out of MS 'Heavy' class pipe. Flanges as per BS 10 or equivalent shall be provided at inlet & outlet of connections. The body shall be pressure tested at 16 Kg/Sq. cm and shall be hot dip galvanized. Permanent magnet shall be provided in the body of the strainer to arrest MS particles. Filter element shall be of nonmagnetic 20 gauge SS sheet with 3 mm perforation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. Strainer shall be provided at inlet of each AHU.
68.	SITC of Y-Strainer - Size 50 mm	i. The Y-strainer of size 50 mm shall be fabricated out of MS 'Heavy' class pipe. Flanges as per BS 10 or equivalent shall be provided at inlet & outlet of connections. The body shall be pressure tested at 16 Kg/Sq. cm and shall be hot dip galvanized. Permanent magnet shall be provided in the body of the strainer to arrest MS particles. Filter element shall be of nonmagnetic 20 gauge SS sheet with 3 mm perforation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. Strainer shall be provided at inlet of each AHU.
69.	SITC of 3 Way Modulating valve with thermostat -	i. The three way modulating valves of Size 100 mm shall be provided in chilled water line to the cooling of Air-handlers which is actuated by a space / duct mounted proportionate thermostat.

	Size 100 mm	ii. Make - Honeywell or equivalent iii. The three - way valve shall be selected for valve authority value in the range of 30 % to 60 %. These valves shall consist of bronze metal valve body with stainless steel trim with linear flow characteristics. iv. Modulating motor suitable for 24 volts AC supply shall be complete with 220/24 volts transformer & shall be suitable for operation with a signal of 0-10 volt DC from the proportionating thermostat. v. The valve linkages shall be of the same make as of valves & modulating motor. vi. Constant space condition shall be maintained by continuous proportional modulation of chilled water through the coil. vii. The valve shall revert to fully by pass position when fan is shut off. The pressure drop across valve for air-handler unit shall not exceed 5.0 PSI.
70.	SITC of 3 Way Modulating valve with thermostat - Size 80 mm	i. The three way modulating valves of Size 80 mm shall be provided in chilled water line to the cooling of Air-handlers which is actuated by a space / duct mounted proportionate thermostat. ii. Make - Honeywell or equivalent iii. The three - way valve shall be selected for valve authority value in the range of 30 % to 60 %. These valves shall consist of bronze metal valve body with stainless steel trim with linear flow characteristics. iv. Modulating motor suitable for 24 volts AC supply shall be complete with 220/24 volts transformer & shall be suitable for operation with a signal of 0-10 volt DC from the proportionating thermostat. v. The valve linkages shall be of the same make as of valves & modulating motor. vi. Constant space condition shall be maintained by continuous proportional modulation of chilled water through the coil. vii. The valve shall revert to fully by pass position when fan is shut off. The pressure drop across valve for air-handler unit shall not exceed 5.0 PSI.
71.	SITC of 3 Way Modulating valve with thermostat - Size 65 mm	i. The three way modulating valves of Size 65 mm shall be provided in chilled water line to the cooling of Air-handlers which is actuated by a space / duct mounted proportionate thermostat. ii. Make - Honeywell or equivalent iii. The three - way valve shall be selected for valve authority value in the range of 30 % to 60 %. These valves shall consist of bronze metal valve body with stainless steel trim with linear flow characteristics. iv. Modulating motor suitable for 24 volts AC supply shall be complete with 220/24 volts transformer & shall be suitable for operation with a signal of 0-10 volt DC from the proportionating thermostat. v. The valve linkages shall be of the same make as of valves & modulating motor. vi. Constant space condition shall be maintained by continuous proportional modulation of chilled water through the coil. vii. The valve shall revert to fully by pass position when fan is shut off. The pressure drop across valve for air-handler unit shall not exceed 5.0 PSI.
72.	SITC of 3 Way Modulating	i. The three way modulating valves of Size 50 mm shall be provided in chilled water line to the cooling of Air-

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	valve with thermostat - Size 50 mm	handlers which is actuated by a space / duct mounted proportionate thermostat. ii. Make - Honeywell or equivalent iii. The three - way valve shall be selected for valve authority value in the range of 30 % to 60 %. These valves shall consist of bronze metal valve body with stainless steel trim with linear flow characteristics. iv. Modulating motor suitable for 24 volts AC supply shall be complete with 220/24 volts transformer & shall be suitable for operation with a signal of 0-10 volt DC from the proportionating thermostat. v. The valve linkages shall be of the same make as of valves & modulating motor. vi. Constant space condition shall be maintained by continuous proportional modulation of chilled water through the coil. vii. The valve shall revert to fully by pass position when fan is shut off. The pressure drop across valve for air-handler unit shall not exceed 5.0 PSI.
73.	SITC of Manual Balancing Valve - Size 100 mm	i. The valves of sizes 75mm and above shall be of cast iron construction with internal parts of SS 410 and EPDM / nitrile seat with flanged ends. The test cocks should be long enough to protrude out of valve insulation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. The valves shall be designed for PN 1.6 and tested for the seat at 1.1 times the design pressure and 1.5 times the design pressure for the shell. All valves shall be supplied with test certificates.
74.	SITC of Manual Balancing Valve - Size 80 mm	i. The valves of sizes 75mm and above shall be of cast iron construction with internal parts of SS 410 and EPDM / nitrile seat with flanged ends. The test cocks should be long enough to protrude out of valve insulation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. The valves shall be designed for PN 1.6 and tested for the seat at 1.1 times the design pressure and 1.5 times the design pressure for the shell. All valves shall be supplied with test certificates.
75.	SITC of Manual Balancing Valve - Size 65 mm	i. The valves of sizes 32 mm to 65mm dia. shall be of gun metal / cast iron construction with screwed ends angular design digital hand wheel with locking facility. The test cocks should be long enough to protrude out of valve insulation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. The valves shall be designed for PN 1.6 and tested for the seat at 1.1 times the design pressure and 1.5 times the design pressure for the shell. All valves shall be supplied with test certificates.
76.	SITC of Manual Balancing Valve - Size 50 mm	i. The valves of sizes 32 mm to 65mm dia. shall be of gun metal / cast iron construction with screwed ends angular design digital hand wheel with locking facility. The test cocks should be long enough to protrude out of valve insulation. ii. Make - L&T, Honeywell, Zoloto or equivalent iii. The valves shall be designed for PN 1.6 and tested for the seat at 1.1 times the design pressure and 1.5 times the design pressure for the shell. All valves shall be supplied with test certificates.

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77.	SITC of Drain Valves - Size 40 mm	i. SITC of Drain Ball Valve (Brass) of Size 40 mm. ii. Make - Zoloto or equivalent
78.	SITC of Drain Valves - Size 32 mm	i. SITC of Drain Ball Valve (Brass) of Size 32 mm. ii. Make - Zoloto or equivalent
79.	SITC of Temperature Gauge	i. Direct reading V form type thermometer alcohol filled of suitable range / length shall be provided at Chiller/Cooling coil – Inlets and outlets in separate wells of Brass / Gun metal. ii. The V form thermometer shall be made of aluminium die casting with golden colour anodizing. The thermometer shall have a V groove in the body to protect the refill from the damages during the installation. The refill shall be filled with blue colour mercury. The thermometer shall be complete with brass well & the calibration of temperature shall be in Celsius & Fahrenheit
80.	SITC of Pressure Gauge	i. Bourdon type pressure gauges of 100mm dia of suitable range shall be provided at the inlet and outlet of cooling coils of AHU. ii. The water pressure gauge shall be made of stainless steel grade SS304. The dial plate shall be powder coated with white colour base & the calibration shall be done in black colour. All the pressure gauges shall be complete with ball valves & SS Siphon and confirming to IS:3624 or equivalent.
81.	SITC of Auto Air Vent	The scope includes the supply, installation, testing and commissioning of auto air vent on chilled water pipelines to purge out trapped air inside the pipeline.
82.	Dismantling & shifting of existing Air Handling Units to Scrap Yard.	The Work includes the dismantling of existing AHUs and shifting its scarp material to the place shown by the CNP Officials within 2kms.
83.	Dismantling & shifting of existing chilled water piping to Scrap Yard.	The Work includes the dismantling and shifting of chilled water piping including valves, connections, etc. to the scrap yard within 2kms.
84.	Dismantling & shifting of existing Ducting to Scrap Yard.	The Work includes the dismantling and shifting of air ducting including dampers etc. to the scrap yard within 2kms.
85.	Dismantling & shifting of existing Air Diffuser to	The Work includes the dismantling and shifting of supply and return air diffuser to the scrap yard within 2kms.

	Scrap Yard.	
86.	Dismantling & shifting of existing Electrical Panel to Scrap Yard.	The Work includes the dismantling and shifting of electrical panel of existing AHUs to the scrap yard within 2kms.
87.	Construction of New brick wall with plaster on both sides	The Work includes the construction of new brick wall with plaster on both sides in the AHU rooms wherever required or broken for the movement and installation of AHUs along with its accessories including Ducting and Electrical Panel.
88.	Breaking of Wall and shifting of debris.	The Work includes the breaking of walls in the AHU rooms for the movement and shifting of old AHUs along with Ducting and Electrical Panel or wherever required.
89.	Water proofing of AHU floor.	Providing and applying fiber reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/ system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect.
90.	Removal of Existing ceiling and re-fixing after duct /chilled water pipe installation	The Work includes the removal of existing ceiling and re-fixing for the installation of new chilled water pipeline and air ducting.
91.	Supply and installation of Desk Panel for AHU ON/OFF and Trip Status in AC plant room	i. The supply and installation of desk panel for operation of all the AHUs (24 nos) from the AC Plant room. ii. 42 numbers of Spare controllers should be provided on desk to connect existing other AHUs. (Total – 66 nos). iii. All the AHUs of Centralized AC Plants are to be remote controlled & operated from Plant room.
92.	Supply and installation of Communication Cable between Air Handling Unit and Desk panel	The supply and installation of 8 core X 1.5 Sqmm. Communication Cable between Air Handling Unit and Desk panel. The communication cable from desk to the AHU's should be 1.5 Sqmm. Armoured copper multi-stranded 8 core cable with sufficient standby cable.

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93.	PCC Blocks for AHU	This includes the supply of PCC block for installation of AHUs in the AHU Room.
94.	SITC of GI Perforated cable tray for cables	The SITC of GI Perforated cable tray for laying all types of cables that is; from AHU to Electrical panel and communication cable from AHU to AC plant room etc.
95.	Standard commissioning for AHUs	This includes the standard commissioning of all 24 nos of Air Handling Units and its accessories including the Final Acceptance Test (FAT).

General Terms and Conditions

1. The firm's representative may be visit the CNP for the site inspection to understand the scope of work for Supply, Installation, Testing and Commissioning of Air Handling Units with accessories before submission of tender. The firm may also check and ascertain the location of existing structure or equipment or any other situation which may affect the work. A Pre-Bid meeting will also be arranged by the CNP before the submission of the tender to clarify the query of the vendors, if any, however query/request regarding change in tender documents will not be accepted after the due date of submission of query before pre bid meeting as stipulated in the tender documents.
2. Firm shall provide technical leaflet/catalogue of Air Handling Units AHUs, Humidifiers, Electrical Panels, Distribution Panels, Chilled Water Pumps and Condenser Water Pumps etc., along with the technical bid of tender.
3. The AHUs and its accessories to be provided should be BMS Compatible.
4. The AHUs shall be certified by Eurovent or AHRI and should meet the minimum requirements for the parameters as given below –
 - i. Requirement of Eurovent Certification as per Standard EN 1886 - Casing Leakage L2, Thermal Bridging TB2, Thermal Transmittance T2 and Casing Deflections D2.
 - ii. Requirement of AHRI Certification as per AHRI Standard 1350 - Casing Leakage CL2, Thermal Bridging CB2, Thermal Transmittance CT2 and Casing Deflections CD2.
 - iii. Firm has to submit above mentioned certification in technical bid.
5. The firm will have to carry out the entire job on turnkey basis. The work will be carried out section wise and only one section at a time will be given. The details of sections are
 - i. Section 1 - 50,000 CFM x 03 nos
 - ii. Section 2 - 50,000 CFM x 04 nos
 - iii. Section 3 - 50,000 CFM x 05 nos
 - iv. Section 4 - 37,500 CFM x 05 nos
 - v. Section 5 - 50,000 CFM x 02 nos
 - vi. Section 6 - 50,000 CFM x 03 nos
 - vii. Section 7 - 37,500 CFM x 01 nos & 9,000 CFM x 01 nos
6. All types of material handling activities like shifting of scrap material to scrap yard, unloading & shifting of materials & its accessories to the installation site etc. are in the scope of the firm.

7. All the types of tools and tackles like forklift, Chain pulley blocks, gas cutting & arc cutting equipment's, ladders etc. will have to be arranged by the firm for the dismantling, shifting, unloading & installation work etc.
8. The firm under this contract commits himself to use the first class material and assume responsibility for the quality of all the materials incorporated or brought for incorporation in the work.
9. Necessary shutdown of centralized AC Plant, if required, shall be given to the firm on Sundays/holidays.
10. In case of any defective equipment or material or workmanship, the firm shall rectify/modify/replace the defective item free of cost. Any delay on the part of firm in doing so gives the CNP the right to get the defect rectified through other agency & cost for the same shall be borne by the firm.
11. Any material or accessories which may not have been specifically mentioned in the order but which is necessary for satisfactory and trouble free operation and maintenance of the AHUs and its accessories will be furnished by the firm without any extra cost.
12. The firm will be allowed to work in the CNP Premises during the regular working hours i.e. from 08am to 05pm which may be further extended up to 07pm.
13. Execution of project –
 - 13.1 Award of Purchase Order - The Purchase Order (PO) is placed on the successful firm through the tender process. The firm will acknowledge the PO's terms and conditions and submits its acceptance.
 - 13.2 The Firm will visit the CNP for discussion on planning and execution of all activities of project after accepting the purchase order. A meeting shall be conducted between the Purchaser i.e CNP and the firm to discuss the following points -
 - a. Scope of work and other terms & conditions.
 - b. Section-wise execution strategy of the entire project.
 - c. Project timeline.
 - d. Inspection and testing requirements.
 - e. Safety requirements.
 - f. Documentation.
 - 13.3 Site Survey and Data Collection - The firm shall visit the CNP for following observations –
 - a. AHUs rooms where the proposed AHUs are to be installed in the CNP

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- b. Verify existing site conditions, record dimensions and equipment location.
 - c. Assess the electrical and civil related readiness such as structural and pipeline supports etc.
 - d. Openings for ducts and piping related works.
 - e. Verify existing chilled water pipeline network.
 - f. Identify constraints for material movement and installation.
- 13.4 The Firm shall prepare and submit the following –
- a. Technical data sheet for selection of Chilled water pump and Condenser water pumps.
 - b. Technical data sheet and layout of Chilled Water Piping.
 - c. Section wise Duct Design and its layout.
 - d. Equipment layout drawings.
- 13.5 Submission and Approval of Drawings - The firm shall submit the following documents for execution of work -
- a. General Arrangement (GA) drawings.
 - b. Equipment layouts.
 - c. Piping layouts.
 - d. Duct layouts.
 - e. Electrical layouts & Control wiring diagrams.
- 13.6 Section-wise Planning and Execution -
- 13.6.1 Since the AHUs are to be installed section-wise on a turnkey basis, the firm shall execute one section at a time.
- 13.6.2 The firm will plan and execute the Isolation of existing AHUs, dismantling of old equipment's, waterproofing of AHUs rooms, installation of AHUs and its accessories etc.
- 13.6.3 The dismantling & shifting of the old AHUs should be done in planned manner so that the air conditioning inside the sections will not be disrupted unreasonably.
- 13.6.4 The firm should design the ducting layout in such a way that all the AHUs of particular sections will be connected to the common supply and return air plenum for delivering the conditioned air to the section and strong rooms.
- 13.6.5 The new AHUs will be connected to the existing supply and return air ducting present in the sections. However, additional ducting branches, if required, may be installed in the section by the firm.
- 13.6.6 Chilled Water Connections to new AHUs –
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- i. The firm may install new chilled water pipeline and connect the new AHUs one by one and operational trial may be done accordingly.
 - ii. The Firm has to design new chilled water pipeline as per the required chilled water flow rate to cater the requirement of CNP. After installation and commissioning of new chilled water pipeline, the firm will connect the new chilled water pipeline to existing AHUs, Chiller Units, Thermo-Regulation Units, Fan Coil Units etc. of CNP-1 & 2 or any other unit required to be connected at the time of execution of project and any other material such as butterfly valve etc. is required for such works will be in the scope of firm.
- 13.6.7 The removing of false ceiling, air ducts, structural supports. Walls etc. for the installation of new chilled water pipeline will be carried out by the firm. After completion of chilled water pipeline, the removed false ceiling/ air ducting etc. will be re-fixed by the firm.
- 13.6.8 Suitable colour code for the pipes / ducts, arrow marks for indication of direction of flow, name on the panel / equipment, labelling of cables / wires for easy identification shall be made.
- 13.6.9 Electrical Works -
- i. The entire work is for making a new provision of design, fabrication, supply, installation, testing and commissioning of LT Distribution Panels and AHU panels in CNP's existing AHU area by discarding existing old panels. The firm should visit CNP before submitting quotation.
 - ii. Though CNP has given the design requirements but before execution of work, firm should carry out the analysis of load variation w.r.t proposed loads/areas. Based on the loads analysis, if it is felt essential to make any addition/changes in the equipment ratings (not less than the required details) to get the desired results, then the same will be required to make within the offered rates/order cost.
 - iii. Since the new panel are to be installed in place of existing working panels, if required, firm should make suitable arrangement by discarding, disconnecting, shifting, erecting etc. at another place, then re-connecting, re-terminating the power/control cables temporarily and put in normal working of the existing panel(s) till the installation of new panel(s) in place

is completed so as to avoid any operational interruptions to CNP.

- iv. Firm should submit, the General Arrangement (GA) drawing showing tentative overall dimensional details along with Single Line Diagram (SLD) showing interconnection scheme of all equipment, their ratings viz. ACB/MCCB/SDF etc. in respect of the offered panels.
- v. Firm has to submit, the various product catalogues showing technical details and features of the panel equipment and panel accessories. Firm has to provide complete specification for all major items that are to be supplied. Firm has to categorically mention the makes and models of the system offered.
- vi. Firm should confirm in writing along with the bid that all the offered switchgears and control and indication devices are of proven technology, latest type and the spares required for the offered panels will be made available for the next 10 years.
- vii. Firm has to give in writing that the offered Switchgear and its accessories are not obsolete and the after sales services for the next 10 years and consumables required for the system will be readily available in the market for next 10 years.
- viii. Any material or accessory which may not have been specifically mentioned but which is necessary or usual for satisfactory and trouble free operation and maintenance of the equipment will be furnished without any extra cost.
- ix. All material and equipment supplied under this specification will be new and unused.
- x. Firm should submit detail GA drawings, layout plan of the panel, civil works and cable routes for approval of CNP authorities prior to starting the work.
- xi. Since the work is to be carried out in working AHU's, the shut downs will be planned by CNP as per CNP's convenience.
- xii. CNP will provide only free electricity and water.
- xiii. Firm should give all the final lay out drawings, SLD, drawing/manuals of major switchgear and relay assemblies, Test report etc. in triplicate in hard copy format after completion of work.

13.6.10 Civil works -

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- i. The walls / doors / partitions shall be dismantled / taken out at suitable places in the existing AHU rooms for shifting / installing of New AHUs, if required. These walls / doors / partition are to be rebuilt, made, finished and painted in such a way that they will serve their original purpose and match with the original work.
 - ii. If floor / wall / partition damages during execution of the work, the same shall be repaired and made good as per previous one.
 - iii. The floor surface of AHU shall have a slope in such a way that the water shall not be stagnated over the floor area but shall be drained out by means of providing suitable drain pit & drain pipe line connecting to the nearest drain grid.
 - iv. Water supply for the humidifier unit shall be tapped from the nearest water grid header and the necessary pipes, fittings, valves, strainer etc., shall be provided by the firm.
 - v. One washing place of approximate size 1.5m x 1.5m with water tap for washing the filters of AHUs is to be provided in each AHU room.
 - vi. Foundation of AHU and any other equipment structures and /or substructures as applicable shall be included in the firm' scope.
 - vii. Cable trenches with covers and cable trays wherever required in the AHU rooms and plant room shall be included in the firm' scope.
 - viii. Breaking of walls or making openings in the wall and then again reconstructing the same suitable to new requirements are to be included in the firm' scope.
 - ix. Making provisions for structural support wherever necessary including hoist/ material handling system are to be included in the firm's scope.
 - x. The firm should take necessary permission from Civil Dept CNP for works like breaking / opening of walls, fabrication of structural support for chilled water pipelines, waterproofing of AHU room and connection of drain line to existing drain grid etc.
- 13.6.11 The AHUs will be run for operational trial and after successful operation of the AHUs, the payments will be made as per the payments terms mentioned in the purchase order.
- 13.6.12 The firm will hand over the completed section before moving to another section.

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- 13.7 Documentation and Final Handover - The firm should submit 03 sets of following documents -
- a. Approved GA drawings.
 - b. As-built drawings.
 - c. Design calculations.
 - d. Material Test Certificates (MTCs) (wherever applicable)
 - e. Factory Acceptance Test (FAT) reports (wherever applicable).
 - f. Hydrostatic test certificates (wherever applicable).
 - g. Electrical test reports.
 - h. Air balancing reports.
 - i. FAT Reports.
 - j. Operation & Maintenance (O&M) manuals.
 - k. Spare parts list.
 - l. Warranty certificates.
 - m. Training records.
14. The firm shall provide Technical Service Support as and when required for next 03 years after the warranty period without any financial obligation on CNP.
15. Firm will have to submit valid PVR (Police Verification Report) certificates of their Engineer/ Supervisor/Workmen for entry in to CNP for the work.
16. The firm shall depute their engineers from commencement of HVAC activities at site & till handing over of the project.

Section VIII: Quality Control Requirements

As per technical specification mentioned in Section VII.

The firm to whom the job work has been assigned will ensure and monitor the following:

- i. Firm shall follow all safety & security norms in CNP. A Safety Code will be handed over to the firm. If any damage occurs to the property of CNP due to any accident during the execution of work, the same to be compensated by the supplier. Any injury to the manpower employed by the supplier due to any accident is the entire responsibility of the supplier.
- ii. The firm has to nominate one of the competent supervisors, who in addition to his duty will also be responsible to look after the safety of employees working under them and safety of nearby other plant equipment's. The name, address and mobile number should be informed to the safety department CNP before commencement of the work.
- iii. The contractor will provide personal protective equipment's to his employees to ensure their safety.
- iv. The contractor will ensure that their employees do not smoke inside the factory premises.
- v. The Vehicles such as Hydra Crane, Forklift, Tractors etc. arranged by the firm must have all necessary statutory requirements like Vehicle Registration Certification (RC), Valid Fitness Certificate, PUC and Valid Driver's license.
- vi. All the Machines/Power Tools brought by contractor for their job work should be properly guarded/maintained in proper condition for their safe working.
- vii. For working at height, welding work, gas cutting work, excavation work, working on fragile roof, working on electrical lines or work of similar nature the firm and their contractor will inform the safety dept. CNP in advance and in each case the permit to work will be obtained from the CNP.
- viii. In case of any accident the firm representative will arrange to inform it to the safety department of CNP immediately. The agency will also arrange to inform the Inspector of Factories Nashik.

Section IX: Qualification / Eligibility Criteria

Supply, Installation Testing and Commissioning of Air Handling Units with Accessories on replacement basis.

The following shall be the minimum eligibility criteria for selection of bidders:

1. Experience and past performance:

i. The bidder should have successfully supplied, installed and commissioned at least 12 nos. of Air Handling Units (at least one number having capacity minimum 50000 CFM) in single purchase order/contract in last five year ending on 31.03.2026.

OR

The bidder should have successfully supplied, installed and commissioned Air Handling Units having total minimum capacity 542000 CFM in single purchase order/contract in last five year ending on 31.03.2026.

ii. At least one number of Air Handling Unit for supply should be in successful operation on bid publishing date.

Note :

- i. Copies of PO's and Completion /Experience certificates along with detailed scope of work issued by customers to be provided in support of above.
- ii. Start-ups and Micro and small enterprises are exempted from experience and past performance criteria. In case any bidder is seeking exemption from Experience and past performance criteria, the supporting documents to prove his eligibility for exemption must be submitted for evaluation.

2. Capability, Equipment & Manufacturing Facilities:

The bidder must have an annual capacity to successfully supply, install and commission at least 12 Nos. of Air Handling Units.

3. Financial Standing:

(a) The average annual financial turnover of the bidder during the last three years, ending on 31.03.2026, should be more than Rs.14.08/- Crore as per the annual report (audited balance sheet and profit & loss account) of the relevant period duly authenticated by a chartered accountant/Cost accountant in India.

(b) The Net Worth of the firm should :

- i) Not be negative on 31.03.2026 and
- ii) Not have eroded by more than 30% in the last three financial years ending on 31.03.2026.

Note :

- i. To ascertain this criteria net worth of initial and last financial year shall be compared.
- ii. For MSEs and Start-ups(registered for the tendered item) all financial criteria shall be exempted. However, its capacity and capability may be verified (if necessary) by the CNP, Nashik.

4. Applicability in Special Cases :

a) Applicability to 'Make in India' :Bidders, If the product is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement/ transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phased increase in local content, and who while meeting all other criteria above, except for any or more of sub-criteria in Experience and Past Performance above, would also be considered to be qualified provided: i) their foreign manufacturer who holds intellectual property rights, meets all the criteria above without exemption, and ii) the Bidder submits appropriate documentary proof for technology collaboration agreement/ transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phased increase in local content. Iii) the bidder (manufacturer or principal of authorized representative) furnishes along with the bid a legally enforceable undertaking jointly executed by himself and such foreign Manufacturer for satisfactory manufacture, Supply (and erection, commissioning if applicable) and performance of 'The Product' offered including all warranty obligations as per the general and special conditions of contract.

b) Joint Ventures and Holding Companies: Credentials of the partners of Joint ventures cannot (repeat cannot) be clubbed for the purpose of compliance of PQC in supply of Goods/Equipment, and each partner must comply with all the PQC criteria independently. However, for the purpose of qualifying the Financial Standing Criteria, the Financial Standing credentials of a Holding Company can be clubbed with only one of the fully owned subsidiary bidding company, with appropriate legal documents proving such ownership.

c) Start-up Enterprises: Requirements of Experience & Past performance and Financial Standing would be relaxed for Start-up enterprises as recognized by Department for Promotion of Industry and Internal Trade (DPIIT), subject to their meeting the quality and technical specifications. Such Start-ups maybe either MSE or otherwise

Bidder to furnish stipulated documents support of fulfillment of qualifying criteria. Non submission or incomplete submission of documents may lead to rejection of offer.

Section X: Tender Form

To,
Currency Note Press, Nashik
A Unit of Security Printing & Minting
Corporation of India Limited
Wholly Owned by Govt. of India
Nashik

Ref: Your Tender document No. 6000019761 dated:

We, the undersigned have examined the above-mentioned tender enquiry document, including amendment No. -----, dated ----- (if any), the receipt of which is hereby confirmed. We now offer to supply and deliver..... (description of goods and services) in conformity with your above referred document for the sum shown in the price schedule(s), attached herewith and made part of this tender.

If our tender is accepted, we undertake to supply the goods and perform the services as mentioned above, in accordance with the delivery schedule specified in the List of Requirements.

We further confirm that, if our tender is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of GCC clause 6, read with modification, if any, in Section V –“Special Conditions of Contract”, for due performance of the contract.

We agree to keep our tender valid for acceptance for a period upto -----, as required in the GIT clause 19, read with modification, if any in Section-III – “Special Instructions to Tenderers” or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this tender upto the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period. We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.

We confirm that in case of downloaded Tender Document, we have not changed/edited its contents. We realise that in case any such change is noticed at any stage including after the award of contract, we would be liable to action under clause 44 of the GIT.

We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry.
We also solemnly declare as under:

1. MSMEs Status:

Having read and understood the Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 (as amended and revised till date), and solemnly declare the following:

- (a) Company /Partnership Firm /Proprietary Concern / Society/Trust / NGO/Others (Please Specify):
- (b) Micro/ Small / Medium Enterprise/ SSI/ Govt. Deptt. / PSU/ Others:
- (c) Name of MSME Registering Body (NSIC/ DIC/ KVIC/KVIB etc.):
- (d) MSME Registration no. (with copy of registration):.....
- (e) Udyog Aadhaar Memorandum no.....
- (f) Whether Proprietor/ Partner belongs to SC/ ST or Women category.
(Please specify names and percentage of shares held by SC/ST Partners) :
.....

2. Make in India Status:

Having read and understood the Public Procurement (Preference to Make in India PPP_MII) Order, 2017 (as amended and revised till date) and related notifications from the relevant Nodal Ministry/ Department, and solemnly declare the following:

- (a) Self-Certification for category of supplier:
 - Class-I Local Supplier/
 - Class-II Local Supplier/
 - Non-Local Supplier.
- (b) We also declare that
 - There is no country whose bidders have been notified as ineligible on reciprocal basis under this order for offered product, or Tender Form

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- We do not belong to any Country whose bidders are notified as ineligible on reciprocal basis under this order.

3. Restrictions on procurement from bidders from a country or countries, or a class of countries under Rule 144 (xi) of the General Financial Rules 2017 having read and understood the Order (Public Procurement No. 1) issued vide F.No.6/18/2019-PPD dated 23rd July 2020 (and its amendments if any) by Department of Expenditure, Ministry of Finance under the above provision and solemnly declare the following:

- We do not belong to any Country whose bidders are notified as ineligible under this order

4. Debarment Status: Please state whether business dealings with you currently stand suspended/ banned by any Ministry/ Deptts. of Government of India or by any State Govt:

- Yes (with period of Ban)
- No, We, solemnly declare that neither we nor any of our affiliates or subsidiaries– including subcontractors or suppliers for any part of the contract– do not stand declared ineligible/ blacklisted/ banned/ debarred by any Government Agency anywhere in the world, for participating in its tenders, under that country's laws or official regulations.

5. Penalties for false or misleading declarations: I/we hereby confirm that the particulars given above are correct and complete and also undertake to advise any future changes to the above details. We understood that any wrong or misleading self-declaration by us would be violation of code of Ethics and would attract penalties as mentioned in this tender document, including debarment.

.....
(Signature with date)

.....
(Name and designation)

Duly authorized to sign tender for and on behalf of

.....

.....

SECTION XI: Price Schedule

SUMMARY OF PRICE SCHEDULE (FOR INDIAN BIDDERS): PRICES SHOULD BE ON FOR, CNP, NASHIK ROAD BASIS.

TENDER NO.6000019761

As per CPP Portal

SECTION XII: VENDOR DETAILS
 SECTION XIII: BANK GUARANTEE FORM OF EMD
 SECTION XIV: MANUFACTURER'S AUTHORIZATION FORM
 SECTION XV: BANK GUARANTEE FORM FOR PERFORMANCE SECURITY
 SECTION XVI: CONTRACT FORM
 SECTION XVII: LETTER OF AUTHORITY FOR ATTENDING PRE BID CONFERENCE /
 BID OPENING -
 SECTION XVIII: PROFORMA OF BILLS FOR PAYMENTS
 SECTION XIX: NEFT MANDATE
 SECTION XX: INTEGRITY PACT
 Please [CLICK](https://www.spmcil.com/wp-content/uploads/2024/03/SecXII-XX-PM-3.0-2024-1.pdf) the link for further details
<https://www.spmcil.com/wp-content/uploads/2024/03/SecXII-XX-PM-3.0-2024-1.pdf>

CHECK LIST FOR SUBMISSION OF THE DOCUMENTS

**THREE BID, SINGLE STAGE (THREE PACKETS) TENDER BIDDER'S
CHECK LIST BEFORE TENDER SUBMISSION**

Part I: - PRE QUALIFICATION BID

Sr. No.	Tender Submission Check Points	Check before submission Tick (√) and page numbers
1	EMD Fee / Exemption Document.	
2	Tender Validity 180 days as per the tender.	
3	Signed Undertakings of Unconditional Acceptance, Non-Blacklisting Declaration, Make in India & towards Borders Sharing Criteria as per tender.	
4	GST Registration Certificate and Copy of PAN Card.	
5	Submit Manufacturer's Authorization form (As Applicable)	
6	Submit the documents as per Qualification / Eligibility criteria – Section IX (As Applicable).	
7	Power of Attorney for signing the bid document and contract (if awarded).	
8	Sealed and Signed Integrity pact.	
9	Any other document as per tender, if required.	

Part II: - TECHNO-COMMERCIAL BID

Sr. No.	Tender Submission Check Points	Check before submission Tick (√) and page numbers
1	Tender Document duly Seal & Signed (with corrigendum's, if	

	published) as an acceptance of all section of tender documents including GIT & GCC without any deviation.	
2	Technical Specification - Section VII as per tender. The tenderer, if required; submit detailed techno-commercial offer as per Technical Specifications given in Section VII of this tender document.	
3	Undertaking and acceptance of following:	
a	Delivery Schedule	
b	Pre-Dispatch Inspections Clause	
c	Final Acceptance Test Clause	
d	Warranty Clause	
e	Training clause	
f	After sales Services clause	
g	Spare part list	
h	Payment Terms	
4	Filled, Sealed & Signed Tender Form – Section X (Without mentioning price) and Section XII.	
5	Any other document as per tender, if required.	

Part III: - PRICE BID

Sr. No.	Tender Submission Check Points	Check before submission Tick (√)
1	Price Bid as per Section XI (Price including all taxes & other charges)	

Validate

Print

Help

Item Rate BoQ

Tender Inviting Authority: Ravi Prakash Yadav (Dy. General Manager-Material)

Name of Work: Supply, Installation Testing and Commissioning of Air Handling Units with Accessories on replacement basis

Tender No: 6000019761

Name of the Bidder/ Bidding Firm / Company :								
PRICE SCHEDULE (This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)								
NUMBER #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC RATE In Figures To be entered by the Bidder Rs. P	GST (Rs.)	Total rate per unit (Rs.) (FOR CNP, Nashik) inclusive of GST and Other Charges Rs. P	TOTAL AMOUNT
1	2	4	5	12	13	14	53	55
1	SITC of AHU - 50,000 CFM	17.000	EA	INR			0.00	0
2	SITC of AHU - 37,500 CFM	6.000	EA	INR			0.00	0
3	SITC of AHU - 9,000 CFM	1.000	EA	INR			0.00	0
4	SITC of Humidifier - 210 lb/hr	17.000	EA	INR			0.00	0
5	SITC of Humidifier - 160 lb/hr	7.000	EA	INR			0.00	0
6	SITC of Electrical Panels - Section 1	1.000	EA	INR			0.00	0
7	SITC of Electrical Panels - Section 2	1.000	EA	INR			0.00	0
8	SITC of Electrical Panels - Section 3	1.000	EA	INR			0.00	0
9	SITC of Electrical Panels - Section 4	1.000	EA	INR			0.00	0
10	SITC of Electrical Panels - Section 5	1.000	EA	INR			0.00	0
11	SITC of Electrical Panels - Section 6	1.000	EA	INR			0.00	0
12	SITC of Distribution Panels for all AHUs	3.000	EA	INR			0.00	0
13	Design, SITC of Chilled Water Pumps	3.000	EA	INR			0.00	0
14	Design, SITC of Condenser Water Pumps	3.000	EA	INR			0.00	0
15	SITC of Air Ducting - 24G	3300.000	SQM	INR			0.00	0
16	SITC of Air Ducting - 22G	6200.000	SQM	INR			0.00	0
17	SITC of Air Ducting - 20G	3000.000	SQM	INR			0.00	0
18	SITC of Air Ducting - 18G	7000.000	SQM	INR			0.00	0
19	S&I of Thermal Insulation of Air Ducting	19500.000	SQM	INR			0.00	0
20	S&I of Accoustic Duct Lining Insulation	9250.000	SQM	INR			0.00	0
21	Supply and Fitting of Canvass connection	140.000	EA	INR			0.00	0
22	Supply, Inst. & Testing of Collar Damper	270.000	SQM	INR			0.00	0
23	Supply and Installation of Duct Damper	150.000	SQM	INR			0.00	0

24	S&I- S&R Air Diffuser 600 mm x 600 mm	450.000	EA	INR			0.00	0
25	S&I- S&R Air Diffuser 750 mm x 750 mm	240.000	EA	INR			0.00	0
26	S&I- Grills for Supply & Return Air	50.000	SQM	INR			0.00	0
27	S&I- Motorized Duct Damper	70.000	SQM	INR			0.00	0
28	S&I- Actuator for Duct dampers	134.000	EA	INR			0.00	0
29	S&I- Motorized Fire Duct Damper	113.000	SQM	INR			0.00	0
30	S&I- Actuator for Fire Duct dampers	140.000	EA	INR			0.00	0
31	SLTTC - Electrical Cable 3C x 16 sqmm	640.000	MTR	INR			0.00	0
32	SLTTC - Electrical Cable 3C x 10 sqmm	140.000	MTR	INR			0.00	0
33	SLTTC - Electrical Cable 3C x 04 sqmm	80.000	MTR	INR			0.00	0
34	S&I - Communication Cable 4C x 1.5 sqmm	950.000	MTR	INR			0.00	0
35	S&F - Condensate Drain Pipe - 32 mm	140.000	MTR	INR			0.00	0
36	S&F - Condensate Drain Pipe - 40 mm	90.000	MTR	INR			0.00	0
37	S&F - Condensate Drain Pipe - 50 mm	320.000	MTR	INR			0.00	0
38	S&F - Condensate Drain Pipe - 65 mm	220.000	MTR	INR			0.00	0
39	S&F - Condensate Drain Pipe - 80 mm	160.000	MTR	INR			0.00	0
40	Supply of MS Channel/beam for Pipe&Duct	10000.000	KG	INR			0.00	0
41	SITC- CHW Piping with Insulation- 750 mm	120.000	MTR	INR			0.00	0
42	SITC- CHW Piping with Insulation- 600 mm	150.000	MTR	INR			0.00	0
43	SITC- CHW Piping with Insulation- 450 mm	132.000	MTR	INR			0.00	0
44	SITC- CHW Piping with Insulation- 350 mm	48.000	MTR	INR			0.00	0
45	SITC- CHW Piping with Insulation- 300 mm	240.000	MTR	INR			0.00	0
46	SITC- CHW Piping with Insulation- 250 mm	142.000	MTR	INR			0.00	0
47	SITC- CHW Piping with Insulation- 200 mm	270.000	MTR	INR			0.00	0
48	SITC- CHW Piping with Insulation- 150 mm	60.000	MTR	INR			0.00	0
49	SITC- CHW Piping with Insulation- 125 mm	180.000	MTR	INR			0.00	0
50	SITC- CHW Piping with Insulation- 100 mm	660.000	MTR	INR			0.00	0
51	SITC- CHW Piping with Insulation- 80 mm	172.000	MTR	INR			0.00	0
52	SITC- CHW Piping with Insulation- 65 mm	48.000	MTR	INR			0.00	0
53	SITC- CHW Piping with Insulation- 50 mm	30.000	MTR	INR			0.00	0
54	SITC of Butterfly Valves - Size 600 mm	2.000	EA	INR			0.00	0
55	SITC of Butterfly Valves - Size 450 mm	2.000	EA	INR			0.00	0
56	SITC of Butterfly Valves - Size 350 mm	2.000	EA	INR			0.00	0
57	SITC of Butterfly Valves - Size 300 mm	4.000	EA	INR			0.00	0
58	SITC of Butterfly Valves - Size 250 mm	2.000	EA	INR			0.00	0
59	SITC of Butterfly Valves - Size 150 mm	2.000	EA	INR			0.00	0
60	SITC of Butterfly Valves - Size 125 mm	12.000	EA	INR			0.00	0
61	SITC of Butterfly Valves - Size 100 mm	44.000	EA	INR			0.00	0
62	SITC of Butterfly Valves - Size 80 mm	10.000	EA	INR			0.00	0
63	SITC of Butterfly Valves - Size 65 mm	4.000	EA	INR			0.00	0
64	SITC of Butterfly Valves - Size 50 mm	4.000	EA	INR			0.00	0
65	SITC of Y-Strainer - Size 100 mm	17.000	EA	INR			0.00	0
66	SITC of Y-Strainer - Size 80 mm	6.000	EA	INR			0.00	0
67	SITC of Y-Strainer - Size 65 mm	1.000	EA	INR			0.00	0
68	SITC of Y-Strainer - Size 50 mm	1.000	EA	INR			0.00	0
69	SITC - 3 Way Modulating Valve - 100 mm	17.000	EA	INR			0.00	0
70	SITC - 3 Way Modulating Valve - 80 mm	6.000	EA	INR			0.00	0
71	SITC - 3 Way Modulating Valve - 65 mm	1.000	EA	INR			0.00	0
72	SITC - 3 Way Modulating Valve - 50 mm	1.000	EA	INR			0.00	0
73	SITC - Manual Balancing Valve - 100 mm	17.000	EA	INR			0.00	0
74	SITC - Manual Balancing Valve - 80 mm	6.000	EA	INR			0.00	0

75	SITC - Manual Balancing Valve - 65 mm	1.000	EA	INR			0.00	0
76	SITC - Manual Balancing Valve - 50 mm	1.000	EA	INR			0.00	0
77	SITC - Drain Valve - 40 mm	30.000	EA	INR			0.00	0
78	SITC - Drain Valve - 32 mm	76.000	EA	INR			0.00	0
79	SITC of Temperature Gauge	70.000	EA	INR			0.00	0
80	SITC of Pressure Gauge	70.000	EA	INR			0.00	0
81	SITC of Auto Air Vent	80.000	EA	INR			0.00	0
82	Dismantling & Shifting of Old AHUs	23.000	EA	INR			0.00	0
83	Dismantling & Shifting of CHW Pipeline	5000.000	MTR	INR			0.00	0
84	Dismantling & Shifting of Old Ductings	20000.000	SQM	INR			0.00	0
85	Dismantling & Shifting of Air Diffuser	680.000	EA	INR			0.00	0
86	Dismantling & Shifting- Electrical Panel	18.000	EA	INR			0.00	0
87	Construction-New brick wall with plaster	85.000	CMT	INR			0.00	0
88	Breaking of Wall and shifting of debris	170.000	SQM	INR			0.00	0
89	Water proofing of AHU floor	3000.000	SQM	INR			0.00	0
90	Removal of Existing ceiling & Re-fixing	7000.000	SQM	INR			0.00	0
91	Supply & Inst. of Desk Panel for AHUs	1.000	EA	INR			0.00	0
92	S&I - Communication Cable 8C x 1.5 sqmm	9600.000	MTR	INR			0.00	0
93	PCC Blocks for AHU	470.000	EA	INR			0.00	0
94	SITC of GI Perforated cable tray	2100.000	MTR	INR			0.00	0
95	Standard commissioning of AHU	24.000	EA	INR			0.00	0
Total in Figures							0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only						