



Basic Details

Organisation Chain	National Institute of Technology Andhra Pradesh		
Tender Reference Number	NIT-ANDHRA/2021-22/ESTATE /HVAC PLANT-AMC/01		
Tender ID	2021_NITAP_628665_1		
Tender Type	Open Tender	Form of contract	Supply
Tender Category	Services	No. of Covers	2
Payment Mode	Offline	Is Multi Currency Allowed For BOQ	No
Is Multi Currency Allowed For Fee	No		

Payment Instruments

Offline	S.No	Instrument Type
	1	Bankers Cheque
	2	Bank Guarantee
	3	Demand Draft
	4	RTGS / ECS / NEFT

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Attested copies of all the documents as per Eligibility criteria mentioned in pg 17 of tender documen
		.pdf	CPWD Class-V / State of AP or Telangana Class-V registered on or before 1/4/2016 Certificate copy
		.pdf	ESI registration with competent authority as on 31/12/2020 Certificate copy
		.pdf	Technical bid containing Tender processing FEE and EMD FEE in form of DD or online payment proof
2	Finance	.xls	Financial Bid

Tender Fee Details, [Total Fee in ₹ * - 5,000]

Tender Fee in ₹	5,000	Fee Payable To	Director, NIT Andhra Pradesh	Fee Payable At	Tadepalligudem
Tender Fee Exemption Allowed	Yes				

EMD Fee Details

EMD Amount in ₹	25,000	EMD Exemption Allowed	Yes
EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Director, NIT Andhra Pradesh	EMD Payable At	Tadepalligudem

Work /Item(s)

Title	ANNUAL MAINTENANCE CONTRACT OF HVAC PLANT AT NIT ANDHRA PRADESH, TADEPALLIGUDEM				
Work Description	Annual Maintenance Contract of HVAC plant commissioning at National Institute of Technology- Andhra Pradesh, consisting of HVAC equipment.				
Pre Qualification Details	As per Eligibility Criteria in the tender document				
Tender Value in ₹	8,00,000	Product Category	Air-Conditioner	Sub category	Heating Ventilation and Air Conditioning
Contract Type	Tender	Bid Validity(Days)	90	Period Of Work(Days)	365
Location	NIT Andhra Pradesh, Tadepaligudem	Pincode	534101	Pre Bid Meeting Place	NIT Andhra Pradesh, tadepaligudem
Pre Bid Meeting Address	Room No 005, Sardar Vallabhai Patel Administrative Building, NIT Andhra Pradesh, Tadepalligudem, 534101.	Pre Bid Meeting Date	23-Nov-2021 03:00 PM	Bid Opening Place	NIT Andhra Pradesh

Critical Dates

Publish Date	10-Nov-2021 11:00 AM	Bid Opening Date	02-Dec-2021 03:30 PM
Document Download / Sale Start Date	11-Nov-2021 11:00 AM	Document Download / Sale End Date	02-Dec-2021 03:00 PM
Clarification Start Date	10-Nov-2021 11:00 AM	Clarification End Date	22-Nov-2021 05:00 PM
Bid Submission Start Date	25-Nov-2021 10:00 AM	Bid Submission End Date	02-Dec-2021 03:00 PM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_2.pdf	Financial Bid Format	113.28
2	Tendernotice_1.pdf	Tender Document for Annual Maintenance Contract for HVAC Plants at NIT Andhra Pradesh campus	450.94	

Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	Additional Documents	Financial Bid.pdf	Financial Bid	113.28
2	Tender Documents	Annual Maintenance Contract for Heating Ventilation and Air Conditioning HVAC Plant.pdf	Main Tender Document	450.94	

Tender Inviting Authority

Name	Executive Engineer
Address	Estate Office, NIT Andhra Pradesh, Tadepalligudem, 534101

Tender Creator Details

Created By	Amba Prasad Rao
Designation	Professor
Created Date	13-Oct-2021 04:46 PM

NOTICE INVITING TENDERS

(Open Tenders)

**(FOR ANNUAL MAINTENANCE CONTRACT OF HVAC PLANT AT NIT ANDHRA
PRADESH, TADEPALLIGUDEM)**



National Institute of Technology- Andhra Pradesh,
Chennai - Srikakulam Highway Near Kadakatla,
Tadepalligudem, West Godavari District, Andhra Pradesh-534101.

Proprietary & Confidential:

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Contents:

Description	Page No.
Tender Notice	3
Time Schedule	4
BID	6
STATEMENT RELATED TO BIDS	7
TENDER SCHEDULE	8
SCOPE OF WORK	8
ELIGIBILITY CRITERIA	17
METHOD OF SUBMISSION OF BIDS	18
EVALUATION PROCEDURE	19
PAYMENT	20
TECHNICAL BID	22
EXPERIENCE DETAILS	23
DECLARATION	24
CHECKLIST	25
FINANCIAL BID	26

Newspaper Advertisement

Tender Notice:



NIT Andhra Pradesh, Tadepalligudem

Ref. No.: NIT-ANDHRA/2021-22/ESTATE /HVAC PLANT-AMC/01

Date: 10.11.2021

Box Tenders/Open Tenders are hereby invited from reputed registered Firms/ /Agencies/Contractors/Suppliers for providing the following services at NIT-Andhra Pradesh, Tadepalligudem, West Godavari district.

“Tender for Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem”

To

Tender Box

Central Stores & Purchase Section, Room No. 005, Sardar Vallabhai Patel Administrative Building, National Institute of Technology Andhra Pradesh, Tadepalligudem- 534101, West Godavari District.

Tender Schedules can be downloaded from NIT-Andhra Pradesh website from **10.11.2021** onwards. Bidders need to submit hard copy with relevant documents attested by gazetted officer.

The last date for submission of tenders is 02.12.2021 up to 03:00 PM.

For further details regarding Tender notification & specifications, please visit www.nitandhra.ac.in.

Date: 10.11.2021.

**NIT Andhra Pradesh,
Tadepalligudem.**

Time Schedule of various tender related events

(For Annual Maintenance Contract of HVAC plant at NIT Andhra Pradesh Campus, Tadepalligudem)

Bid Document downloading Start date	10.11.2021
Bid Document downloading End Date	02.12.2021
Pre-Bid meeting	23.11.2021 at 03:00 PM
Last Date and Time for receipt of Bids	02.12.2021 till 03:00 PM
Technical Bid Opening Date/Time	02.12.2021 at 03:30 PM
Financial Bid Opening Date /Time	Will be intimated later
Contact Person	The Executive Engineer, NIT Andhra Pradesh, Tadepalligudem. Email: ee@nitandhra.ac.in
Reference No:	Ref. No.: NIT-ANDHRA/2021-22/ESTATE /HVAC PLANT-AMC/01 Dated: 10.11.2021

Signature of the Bidder with stamp

CLARIFICATIONS

Queries, if any, can be made through e-mail only to ee@nitandhra.ac.in on or before **23.11.2021**. Queries received via any mode other than e-mail id mentioned above shall not be entertained. The queries should only be sent in the following format on the official letter head of the company.

S. No.	Page No. (Tender Ref.)	Clause (Tender Ref.)	Description (Tender Ref.)	Query

If there is any addendum/corrigendum related to tender, it shall only be published on NIT-Andhra Pradesh website (www.nitandhra.ac.in). The Bidders are advised to check NIT-Andhra Pradesh website regularly. No other mode of notice will be given.

The Bidders are requested to submit the bids after issue of clarifications duly considering the changes made, if any. Bidders are totally responsible for incorporating/complying the changes/amendments issued, if any, during pre-bid meeting in their bid.

If the last date of receiving/opening of the bids coincides with a holiday, then the next working day shall be the receiving/opening date.

The Technical Bid along with relevant documents should be attached with original EMD and Tender processing fee. Physical submission of Price bid only shall be considered.

I/C REGISTRAR

NIT-ANDHRA PRADESH

For any clarification and further details on the above tender, please contact.

purchase@nitandhra.ac.in for tender related queries and ee@nitandhra.ac.in for technical queries.

BID

Ref. No.: NIT-ANDHRA/2021-22/ESTATE /HVAC PLANT-AMC/01

Dated: 10.11.2021

Subject: Tender for Annual Maintenance Contract of HVAC plant at NIT Andhra Pradesh Campus, Tadepalligudem.

Sir/Madam,

Bids are invited on the Box/Open Tender platform from the reputed Registered Firms Agencies/Contractors/Suppliers from the experienced premises of Annual Maintenance Contract of HVAC plant. The details of bidding conditions and other terms can be downloaded from the NIT-Andhra Pradesh Website.

The attested copies of all the documents of technical bid, signed undertaking of Bidder should be submitted offline mode only to the Director, NIT Andhra Pradesh, Tadepalligudem, on or before opening of bid.

The participating Bidder/s shall have to pay tender processing fee (non-refundable) and EMD for the amounts specified in the Statement related to bids, in the form of Online Payment in favour of the Director, NIT-Andhra Pradesh, Tadepalligudem.

Further, the Successful Bidder shall furnish a part of a bid as Performance Guarantee specified in the Statement related to bids, to be paid in the form of BG as mentioned in the Tender Schedule.

NIT-Andhra Pradesh, Tadepalligudem, will not accept the tenders from blacklisted companies or undependable suppliers, whose past performance with NIT-Andhra Pradesh was found poor due to delayed and/or erratic supplies and those with frequent product failures, and also against whom there have been adverse reports of sub-standard quality/poor services, as defined in the other parts of the bidding documents.

For any clarification and further details of the above tender, please contact.

purchase@nitandhra.ac.in and ee@nitandhra.ac.in with CC to dr_purchase@nitandhra.ac.in

Signature of the Bidder with stamp

STATEMENT RELATED TO BIDS

Bid Document Fee/ Tender Processing Fee (Non-refundable)	Rs. 5,000/- by way of online payment, amount shall be directly credited to NIT ANDHRA PRADESH current account [Account Name – NIT ANDHRA PRADESH, A/c No. 34999496394, IFSC - SBIN0016305 and Bank Name- State Bank of India as per the details mentioned in the tender. Counterfoil/ receipt/transaction detail for the same has to be enclosed with the tender OR by the way of DD from any Nationalized bank drawn in favor of the Director NIT-Andhra Pradesh, payable at Tadepalligudem.
EMD	Rs. 25,000/- The EMD amount shall be directly credited to NIT ANDHRA PRADESH EMD account [Account Name – NIT ANDHRA PRADESH, A/c No. 35579546371, IFSC - SBIN0016305 and Bank Name- State Bank of India as per the details mentioned in the tender. Counterfoil/ receipt/transaction detail for the same has to be enclosed with the tender OR by the way of DD from any Nationalized bank drawn in favor of the Director NIT-Andhra Pradesh, payable at Tadepalligudem.
Bid Validity Period	90 days from the date of opening of financial bid
EMD Validity Period	90 days from the date of opening of financial bid
Contract Agreement	One years from the date of giving work order
Period of furnishing Performance Guarantee	Within 7days from date of receipt of LOA
Performance Guarantee Value	05 to 10% of contract value as approved by competent authority
Performance Guarantee Validity Period	14 months from the date of commencement of services
Period for signing the order of acceptance	Within 14 days from date of receipt of LOA

Signature of the Bidder with stamp

TENDER SCHEDULE

PREMEABLE:

National Institute of Technology, Andhra Pradesh, is the 31st NIT among the chain of NITs started by the Government of India. NIT Andhra Pradesh is established in the state of Andhra Pradesh in the academic year 2015 – 2016.

NIT Andhra Pradesh, Tadepalligudem, invites sealed tenders under **two bid** system i.e., **technical bid and financial bid** from reputed agencies / companies (no brokers, intermediaries or aggregators) for Annual Maintenance Contract of HVAC plant at NIT Andhra Pradesh, Tadepalligudem, based on the eligibility criteria and general terms and conditions mentioned in this document.

SCOPE OF WORK:

Annual Maintenance Contract of HVAC plant commissioning at National Institute of Technology- Andhra Pradesh, consisting of HVAC equipment's as under.

No. of Visits per Year:

General Visits - 04

Emergency Visits – Whenever required.

a) Chilling Machine (Voltas) 165 TR	03 Nos.
b) Cooling Tower (Bell) BCTI-050XE 980 GPM	03 Nos.
c) Chilled water pump (xylem) 15104BC(P), 15104GB(S)	06 Nos. [03(P)+03(S)]
d) Condenser water pump (xylem) 1510-5G	03 Nos.
e) Air Handling & CSU Units (Make: Edgetech) VTS	24 Nos
f) Electric panels, AHU Control Panels and Boards installed for the equipment	27 Nos.
g) Secondary VFD Panels	01 No
h) Harmonic Filter Panel	01 No

The AMC covers the following: -

1. QUARTERLY PREVENTIVE MAINTENANCE:

WATER IN COOLING TOWER: Check water level before starting the plant. Ensure that the make-up water system is working properly and there is sufficient water in the make-up water, the compressor can stop on the high-pressure cutout.

IN CHILLED WATER SYSTEM: Checkup the water level in the expansion tank and ensure the makeup water system is working satisfactorily.

CHECK CRANK CASE HEATER OF THE COMPRESSOR: It is very important that the crank case heater comes on automatically when the compressor is stopped. This has to be checked on a Every visit without fail. Do not start the compressor unless the crankcase is warm to the physical touch.

OIL LEVEL IN COMPRESSOR: This should be about ½ of the sight glass. If this level is not maintained, it is a positive indication of malfunction in the plant. If the oil level in the compressor goes down, never fill in oil to make up the level. The only correct step is to find out the reason for the poor oil return and rectify it. Be alert to observe any unusual noise and vibration, it may amplify and cause serious problems. Check for overheating of any part of the plant.

LEAK TESTING FOR REFRIGERANT LEAK: A soap solution / or electronic lead detectors should be used to locate the leads. While lead testing, the approach should be finding a leak rather than taking it for granted that there won't be any leak and doing the work of leak test as ritual. Even a minor leakage can lead to lot of problems, such as poor oil return, heating of compressor apart from poor cooling. Further refrigerant is costly and so less lead/no leak becomes a big cost saving center in the operation of the plant.

WATER PUMP & GLANDS: Check for excessive water leak, through the pump land; certain amount of water drip through the gland is necessary to deep the gland cool. However, if the drip develops into regular flow, it is an indication that the gland is not holding well. The gland inputs can be tightened to reduce the lead, when tightening the nuts does not improve the situation; the gland packing has to be renewed. If this is not in time, water consumption will go up and in chilled water pump, a water leak means, loss of refrigeration.

1. Inspect all water pumps
2. Check all seals, glands and pipelines for leaks and rectify as necessary.
3. Re-pack and adjust pump glands as Necessary.
4. Check all pump bearings and lubricate with oil or grease as necessary.
5. Check the alignment and condition of all rubber couplings between pumps and drive motors and rectify as necessary.
6. Check all bolts and nuts for tightness and tighten as necessary.

EXPANSION TANK: Inspect expansion tank, Drain, clean and flush out tanks as necessary.

AIR HANDLING UNITS AND FAN COIL UNITS:

1. Inspect all air handling and fan coil units.
2. Check all air filters and clean or change filters as necessary.
3. Check all water coils, seals and pipelines for leaks and rectify as necessary.
4. Check and re-calibrate modulating valves and controls. Adjust and rectify as necessary to ensure compliance to the original specifications.
5. Purge air from all water coils.
6. Check all fan bearings and lubricate with grease as necessary.
7. Check the tension of all belt drives and adjust as necessary.
8. Check and clean all the condensate pans, trays and drains.
9. Check measure and re-calibrate all sensors if necessary.
10. Check, clean and service smoke detectors. Carry out a system test to ensure that the smoke detector will trip the AHU 's.
11. Check spring vibration isolators for vibration. Rectify if necessary.
12. Coil to be cleaned by (a) spray of high-pressure clean water (not exceeding 30 psi (b) with chemical spray, if necessary.

AIR COOLED PACKAGED UNITS AND PRECISION- COMPUTER AIR-CONDITION EQUIPMENT:

1. Check condenser fan motor load ampere.
2. Check fan and motor mounting brackets.
3. Check shafts and bearings. Lubricate with grease as necessary.
4. Check the tension of all belt drives and adjust as necessary.
5. Check for refrigerant leaks with electronic leak detector.
6. Check electrical terminals and contactors operation and connection for tightness.
7. Check compressor motor current.
8. Check refrigerant line driers and moisture indicators.

AIR DISTRIBUTION SYSTEM:

1. Check operation of all modulating and fixed dampers controlling air flow through unit. Lubricate all damper bearings and linkages as necessary.
2. Carry out space temperature checks on air-conditioned areas with thermo hydrograph. Balance air flow as necessary to compliance with requirements of original specifications. These checks include the calibration of sensors, thermostat, etc.
3. Check noise level of discharged air from diffusers.

VENTILATION:

1. Check adjust as necessary the air flow of all fans are in compliance with the original specifications.
2. Check the tension of all belt drives and adjust as necessary.
3. Check and lubricate all fan bearings.
4. Tighten motor terminals.
5. Check starter contacts.
6. Test and calibrate overload settings.
7. A system check shall be carried out for all Mechanical ventilation (MV), Pressurizations and Exhaust system to verify the performance of the systems.

SWITCH BOARD:

1. Clean and adjust all switch gear, contactors, relays and associated equipment at intervals not exceeding six months.
2. Check and prove operation of thermal over load and protection devices.
3. Check and ensure tightness of all equipment fastenings and cable terminations within switch boards.
4. Vacuum clean all switch board cubicles.

PIPING SYSTEM:

1. Check all piping system for leaks and repair these where they have occurred.
2. Check for damage & deterioration of insulation or sheathings. Rectify as necessary.

CONSUMABLE MATERIALS:

The department shall supply the following consumable materials as and when required :-

3. All oils and greases required for lubrication of compressors, fan bearings, motors bearings, pivots and other moving parts.
4. All refrigerant required for topping up. Refrigerant loss if due to manufacturing defect or due to negligence shall be made good by the contractor.
5. All consumable filter elements/ rolls.
6. All chemicals for the correct chemical treatment of the cooling tower and chilled water system.
7. All carbon brushes required to replace worn brushes in electric motors.
8. All electric contact points required to replace worn electric contact points in switchgears, motor starter gears, electronic control gears and electric relays.
9. All electric fuses required to replace blown fuses.

Just before the expiry of the warranty of the contract, the contractor shall carry out a complete system operability test on all the systems or sub-systems as called for in the contract.

The purpose of the test is to verify that the performance of all the systems or sub-systems in the contract is in accordance to the specifications.

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

The warranty period is deemed to be over if the department or his representative is completely satisfied with the system performance during the test.

CLEAN THE WATER STRAINERS: A clogged strained reduces water flow rate and thus affect the plant performance. Further, if the strainers are not cleaned regularly, the dirt/muck will form a crust and it becomes difficult to clean. This can even puncture strainer mesh, necessitating

replacement of the strainer element. Though the strainer may look to be too small an item, it plays a very important role in keeping the heat exchanger surfaces clean and efficient.

BELT TENSION OR BELT DRIVES:

- a. Check the tension of belts and lighten whenever found loose. A loose belt will reduce transmission efficiency and its own life will be reduced. Further, the drive pulleys can get heated up. Replace belt when it is not possible to tighten them together. In multi belt drives, change the complete set of belts. Select the belts of matched set. If this is not done, the load will be taken only by the smaller length belts, thereby affecting transmission efficiency and belt life.
- b. It is the pressure gauges and thermometers which give us a correct indication of the plant performance and condition. Therefore, ensure that these are in good order.
- c. Check the spray of the cooling tower nozzles.
- d. Drain, clean and refill the cooling tower sump, cooling towers being open, collect lot of dust and muck, hence the necessity to clear once in a week. The cooling tower water may require bleed off due to increased total concentration of the dissolved solids. Check the water hardness periodically.
- e. Analyse the pressure and temperature readings of the plant from the log book and establish that the plant is working satisfactorily. Corrective action should be taken promptly when reading shows even a minor malfunction.
- f. Check various pressures, temperature and current and analyse the readings to ascertain the condition of the plant.
- g. Ensure that the oil return is proper.
- h. Check the crank case heater for proper operation.
- i. Carry out a thorough test for refrigerant leak.
- j. Inspect the condition of the filters. Replace them if they are out of shape.
- k. Check the operation of all safety and operating controls.
- l. Check alignment of belt and direct drives and belt tension.
- m. Inspect the cooling tower for proper operation.
- n. Check all bearing surfaces for abnormal heating and vibration.
- o. Check drains for free flow and clean when required.
- p. Check for abnormal vibration and noise. Check for tightness of all fasteners.
- q. Check cooling coil fins for dirt accumulation. Clean if required.
- r. Check that electrical connections are proper.

CHILLER:

1. Check refrigerant level, leak test with electronic Leak detector. If abnormal, trace and rectify as necessary, Inform department in writing rectification.
2. Inspect level and condition of oil. If abnormal, trace fault and rectify as necessary. Inform department in writing on the rectification.
3. Check the liquid line sight glasses for proper flow.
4. Check all operating pressure and temperature.
5. Inspect and adjust, if required, all operating safety controls.
6. Check capacity control, adjust if necessary.
7. Lubricate vane/ linkage/ bearings.
8. Visually inspect machine and associated components, and listen for unusual sound or noise for evidence of unusual conditions.
9. Check lock bolts and chiller spring mount.
10. Review daily operating log maintained by department 's operating personnel.
11. Providing written report to Department, outlining services carried out, adjustment made, rectification carried out and if the deficiency is of a major nature, arrange with department for shut- down to rectify equipment.

2. HALF YEARLY PREVENTIVE MAINTENANCE:

Keep the heat exchanger surfaces clean. In case of water-cooled condenser, check the leaving temperature difference, if it is more than 12 deg. F or 6.6 0C the water tubes are to be cleaned. The frequency of cleaning the tubes will depend upon the quality of water used. When water used is fairly soft, yearly cleaning will be required. For air cooled condensers check for the LTD at the time of commissioning (during peak summer) and this has to be kept as a guide line. Water under pressure sprayed over the coil is the positive method of cleaning the coil. The water jet the positive method of cleaning the coil. The water jet should be applied in the opposite direction of the air flow.

CHILLER:

1. Perform all functions for monthly check
2. Check all flanges for tightness
3. Change oil in oil sump
4. Replace filter
5. Check oil temperature control
6. Check motor terminals
7. Check connections in starter

Please note that oil filter gasket replacement shall deem to be included in the contract.

1. Check motor earthing, meggar motor and connection wiring on each leg
2. Check motor temperature cut-out, tighten motor terminals.
3. Check starter contacts, arc shield, transformer.
4. Check dashpot oil, clean dashpot and replace oil when necessary
5. Test and calibrate overload setting.
6. Inspect, calibrate and adjust to original specifications all gauges, safety and operating controls including low temperature and high-pressure cutout, oil pressure switch, load limit relay and electrical interlocks.
7. For water cooled condenser systems, inspect condenser tubes for fouling. If fouling exceeds original specifications, the contractor shall carry out cleaning of the tubes at his own expense.
8. For air-cooled condenser coils, dust should not be allowed to accommodate on the condenser coil surfaces. Cleaning should be as often as necessary (approximately every three months) to keep coil clean. Exercise care when cleaning the coil, so that the coil fins are not damaged. Under no circumstances this unit be cleaned with acid based cleaner.

WATER PUMPS:

1. Perform all function for monthly checks
2. Check motor earthing, meggar Motor and connection wiring on each leg.
3. Tighten motor terminals
4. Check starter contacts
5. Test and calibrate overload setting.

EXPANSION TANK:

Inspect expansion tank, Drain, clean and flush out tanks as necessary

AIR HANDLING UNITS AND FAN COIL UNITS:

1. Perform all functions for quarterly checks.
2. Tighten motor terminals
3. Check starter contacts.
4. Test and calibrate overload settings

AIR COOLED PACKAGED UNITS AND PRECISION-AC EQUIPMENT:

Perform all functions listed in the quarterly checks.

COOLING COIL: The temperature difference between the canvas temperature and the evaporator, (or water leaving temperature) is the criteria to determine whether the coils require cleaning. Cooling coils are to be cleaned with water under pressure.

- Lubricate all moving parts.
- Change the compressor oil only if the condition of the same is bad.
- Check and clean the contacts in starters. Replace pitted contacts.
- Some special service must be operated.

REFRIGERANT CHARGING: If the system has lost refrigerant gas due to leads, broken connections, etc., this gas must be replaced in order to ensure proper action. It is important that no gas be added until all leads have been repaired. Shortage of refrigerant may be indicated by any of the following symptoms.

- i) Distinct hissing sound from expansion valve
- ii) Low suction pressure and low condensing pressure.
- iii) Numerous bubbles at the liquid level indicator on the liquid line.
- iv) Presence of oil at the leaking joint, connection, bolt head etc.

TO ADD REFRIGERANT TO THE SYSTEM, FOLLOW THE PROCEDURE BELOW:

- i Back seat the compressor suction shut off valve. Remove the plug from the gauge port. Remove the plug from the gauge port.
- ii Connect the charging line from the refrigerant drum to the gauge port but before tightening the connections, ensure that all air is purged from the line by cracking the outlet valve on the refrigerant drum.
- iii Keep the refrigerant drum in a vertical position with the outlet connection on top so that, only gas can enter the system. Start the compressor. Crack the suction valve off the back seat and open the refrigerant drum valve. Gas will start following into the system. Charge the systems slowly. Stop the charging every two or three minutes allow the system to stabilize and check suction pressure, liquid indicator etc. Repeat this process of charging until the system is fully charged.
- iv Watch the liquid level indicator and the suction pressure gauge. When the bubbles disappear and the suction pressure is normal, close the drum valve, back seat the compressor shut off valve, remove the charging line and plug the gauge port.
- v Check the oil level.

Whenever a system is provided with a charging valve in liquid line, it is recommended that this should be utilized in preference to the gauge port on the suction valve.

PURGING OF NON-CONDENSABLE GASES:

A refrigeration system must be kept free from gases other than the refrigerant. The sources for non-condensable in a system:

- 1) Leakage or air into a system operating at a vacuum through leaky joints or on the packing.
- 2) Residual air in hose connections when adding oil or when charging refrigerant.

- 3) System not properly evacuated after the system has been opened out for repairs.
- 4) Possible non condensable in the gas cylinder itself. To avoid this, always get refrigerant from well-established and reputed suppliers.

Non-condensable gases will cause high condensing pressure. This will reduce the refrigeration capacity, increase the operating cost and cause erratic operation of the system. It is necessary that non condensable gases must be purged from the system as soon as their presence is evidenced. In order to determine whether air is present in the condenser, following procedure should be followed:

Pump down the unit. Run the condenser water pump for approximately half an hour to allow the condenser to cool down. Install a pressure gauge on the discharge service valve. After the water has circulated in the condenser for some time, its temperature and the pressure in the condenser will both be about steady. Determine the saturation pressure, it is clear that the non-condensable gases are present and the system should be purged through the purge valve provided on the top of the condenser.

- 1) Back seat the purge from its outlet connection on this valve.
- 2) Disconnect the gauge from its outlet connection on this valve.
- 3) Slowly turn the valve stem off the back seat from one to two turns. Air will blow off if this is done slowly.
- 4) Run the condenser water pumps and read the pressure in case of discrepancy repeat the purging till the saturation pressure corresponding to the water temperature is obtained.

3. TROUBLE SHOOTING:

Even with a well maintained and operated plant troubles can develop. Many of the breakdowns are caused originally by simple faults. Hence while trouble shooting, look for simple points first. Never jump to conclusion from symptoms only. Analyze all the Symptoms and come to a logical conclusion. A properly maintained log book will help to a great extent to pin point the probable area of trouble. Complete breakdown of a system will not occur all of a sudden. A small defect will develop into a major one, if not detected and rectified in time.

TROUBLE SHOOTING CHART:

Low suction with high superheat:

Suction pressure may be low because of excessive vertical lift; the liquid line may be small; condensing temperature might be low; insufficient refrigerant charge; checked strainer; filter driver; the expansion valve orifice might be plugged; super heat adjustment very high; the valve power assembly might be broken; the service valve in liquid line may be small or not fully opened.

Low suction pressure with low superheat:

The compressor can be oversized, or it may run at high speed; the evaporator may be too small; low air flow resulting from dirty air filters; fan speeds may be less; liquid distribution may be poor in the evaporator; liquid can short circuit along favored path and throttle the valve before all passes are properly charged.

High suction pressure with high superheat:

Unbalance system due to oversized evaporation, under sized compressor; high load on the evaporator.

High suction pressure with low superheat:

The compressor may be undersized; the valve superheat settling may be low, the valve may be held open by foreign material at the seat with liquid flood back; the external equalizer line of the valve may be plugged; moisture in the line may be freezing the valve ioen there may be flash gas in the liquid line and the expansion valve may be oversized.

Low suction pressure:

Liquid line filter dirty; compressor suction strainer dirty; expansion valve blocked; shortage of refrigerant in the system; in correct adjustment in the expansion valve; evaporator dirty; compressor not unloading;

Signature:

Name:

Address Bidder:

Place:

Date:

Stamp:

TECHNICAL SPECIFICATIONS OF THE AIR-CONDITIONING PLANT:

S.No.	Description	OEM	Qty.	Total Capacity
1.	Chiller	Voltas	03 nos.	495 TR
2.	Cooling Tower	Bell	03 nos.	980 GPM
3.	Condenser Pump	Xylem	03 nos.	30KW/40HP
4.	Primary Pump	Xylem	03 nos.	7.5KW/10HP
5.	Secondary Pump	Xylem	03 nos.	15KW/20HP
6.	A.H.U.	Edgetech & Vts	24 nos.	480 TR

PERIOD OF CONTRACT:

The contract shall be initially for a period of **One year**, subject to satisfactory performance of services and compliance of all terms and conditions of the agreement. The contract is extendable by one more year based on satisfactory performance and as per the norms of Government of India. The Competent Authority may allot the contract in full or a part of such contract to the next firm(s) out of the panel available with it at any time in the event of non-compliance or breach of any terms and conditions of this contract by the awarded Bidder or otherwise, if it is deemed fit to do so in the interest of the Institution, in order to ensure effective supply/supervision of these services by more than one Bidder even after the award of contract.

If the Successful Bidder has an existing contract with NIT Andhra Pradesh, for Annual Maintenance Contract of HVAC Plant, it shall stand automatically terminated and the new contract will commence.

Signature of the Bidder with stamp

ELIGIBILITY CRITERIA:

1. Bidder must be a firm/ Proprietor/ company/ Bidder that should be CPWD Class-V / State of Andhra Pradesh or Telangana Class-V registered on or before 1/4/2016.
2. Bidder must have ESI* registration with competent authority as on 31/12/2020.
3. Bidder must have PAN Card on the name of firm/ proprietor/Company as claimed against Clause 1.
4. The bidder should have ISO Certification as on 31/12/2020.
(Enclose self-attested copies of all of the above certificates)
5. The bidder shall have completed 36 months of experience (with or without overlay) in HVAC Maintenance works of on or before 31.12.2020
6. The tenderers should have successfully completed the following work in any organization last 3 years on or before 31.12.2020 and one in which applications are invited should be either of the following: -
 - One HVAC maintenance works costing not less than the amount equal to Rs.6,40,000/- (Rupees Six lakhs Forty thousand only).
OR
 - Two HVAC maintenance works costing not less than the amount equal to Rs.4,00,000/- (Rupees Four lakhs only).
OR
 - Three HVAC maintenance work costing not less than the amount equal to Rs.3,20,000/- (Rupees Three lakhs Twenty thousand only).

The following documents must be submitted in supporting the experience claimed.

1. Should submit relevant work order(s) and satisfactory certificates.
2. The Average annual financial turnover during the last 3 years ending 31st March 2020 should not be less than 25 Lakhs and the same has to be certified with Chartered Accountant along with UDIN number. Without UDIN number the document is treated as Invalid.
3. Should submit income tax returns of the assessment years 2018-2019,2019-2020,2020- 2021 along with financial statements, Profit and Loss Account, Balance sheets, Form26AS of financial years 2017-18, 18-19, 19-20.
4. Each page of the tender document along with all other submitted documents must be duly signed by Authorized signatory with Bidder's signature and seal.

Name and Signature of bidder with seal

METHOD OF SUBMISSION OF BIDS:

1. The bid documents can be downloaded from the Institute website <https://www.nitandhra.ac.in/main/tender>.
2. The bids should be filled in two bid formats with all the required documents as enclosures in separate sealed covers i.e., (a) Part-I Technical bid, (b) Part-II Financial bid
3. Two separate sealed covers should be specifically super-scribed as **(a) "Technical bid for Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem"** and **(b) "Financial bid for Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem"**. Both the sealed envelopes (a) and (b) are to be kept in another Master envelope, which should also be sealed and submitted.
4. The Master envelope should be super-scribed with **"Tender for Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem"** and shall be addressed to The Tender Box, Central Stores & Purchase Section National Institute of Technology Andhra Pradesh, Chennai - Srikakulam Highway Near Kondrupolu, Tadepalligudem, Andhra Pradesh 534101.
5. **Last date for submission of bid documents is 02.12.2021 up to 03:00 PM.**
6. Bids received after the due date and time shall be summarily rejected.
7. Incomplete bids or bids not submitted in prescribed format are liable for rejection.
8. Institute will not be responsible for Postal delay.

Name and Signature of bidder with seal

EVALUATION PROCEDURE:

1. At the first stage, the Technical Bids shall be opened in the presence of Bidders, who may like to be present on **02.12.2021 at 03.30 PM** in Central Stores & Purchase section, **NIT Andhra Pradesh, Tadepalligudem.**
2. A Committee duly constituted by the Competent Authority would evaluate the technical bids submitted by the Bidders.
3. Prior to detailed evaluation, the Institute will determine the substantial responsiveness of each bid to the tender document. A substantially responsive bid is one which conforms to all the terms and conditions of the bidding/tender document and is without any material defects and deviations. Deviations from, or objections or reservations to critical provisions such as those concerning qualification/eligibility criteria, availability of facilities and amenities as needed, availability of government/statutory approvals and clearances, ready and explicit willingness to accept and honor the terms and conditions of contract etc. will be deemed to be material deviations.
4. If a bid is not substantially responsive, it will be rejected by the Institute and may not subsequently be made responsive by the Bidder by correction of the non-conformity.
5. Only those Bidders whose technical bids have been found to be substantially responsive would be evaluated.
6. The Financial bids of those Bidders only shall be opened who qualified in the Technical Evaluation. The Institute will award the contract to the Successful Bidder, whose financial bid is the lowest price bid among all the quoted bids. The decision of the Director, NIT Andhra Pradesh, Tadepalligudem, is final in this regard.
7. The Bidder should quote the price in the financial bid in figures as well as in words.
8. The validity of the bids shall be for a minimum period of 90 days.
9. Tenders with revised/modified rates/offer after opening of the tenders shall be summarily rejected and the entire Earnest Money Deposit (EMD) submitted with the tender shall be forfeited
10. The tender is not transferable under any circumstances.
11. Telegraphic, conditional or incomplete tenders shall not be accepted. Canvassing of any kind, direct or indirect, shall lead to disqualification of the Bidder.
12. Institute reserves the right to reject any or all the tenders at any stage or accept them in part or reject the lowest tender without assigning any reason thereof and the decision of the Institute in this respect shall be final.
13. The Institute reserves the right to cancel the tender process at any stage without assigning any reason.
14. For further details, please contact the NIT Andhra Pradesh Administration on 08818-284710.

PENALTY CLAUSE:

Penalty shall be imposed due to delay in recovering the system to normal working conditions i.e., the system has to be restored to normal working condition within **A DAY** failing to which, penalty of **1000/-** for delay of every 1 hr and maximum up to 10% of the total contract value.

PAYMENT TERMS:

Monthly payment after receiving the work order schedule details certified by the concerned authority

DISCLAIMER:

Even though adequate care has been taken in the preparation of this Tender Schedule the Bidder should satisfy himself that the Schedule is complete in all respects.

NIT-Andhra Pradesh not their employees make any representation or warranty as to the accuracy, reliability or completeness of the information in this Tender Schedule and it is not possible for the NIT-Andhra Pradesh to consider the investment objective, financial situation and particular needs of each party who reads or uses the Tenders Schedule. Certain prospective Bidders may have a better knowledge of the scope of work than others. Each prospective Bidder should conduct his own investigations and analysis and check the accuracy, reliability and completeness of the information in the Tender Schedule and obtain independence advice from appropriate sources.

The Director, NIT-Andhra Pradesh reserves the right to change any or all of the provisions of this request for Proposal. Such changes would be intimated to all parties procuring this request for Proposal.

The Director, NIT-Andhra Pradesh reserves the right to reject any or all the Bids submitted in response to this request for Proposal at any stage without assigning any reasons whatsoever.

JURISDICTION:

Any dispute arising out of the tender / bid document / evaluation of bids / issue of APO shall be subject to the jurisdiction of the competent court at Tadepalligudem only.

Signature of the Bidder with stamp

TIE BREAKING PROCEDURE:

1. The Total Amount quoted in Rupees in the Financial bid for all the categories, shall be the first criteria for deciding the lowest Bidder.
2. In case of a tie in the least quoted price, the following tie-breaking procedure shall be applicable. The contract will be awarded to Bidder, who gets highest points by considering the below aspects.

S. No	Description	Points
1	No. of years of work experience in Government Higher Educational Institutions in Annual Maintenance Contract of HVAC Plant (From 26AS must be submitted for the period of Experience claimed)	2 points per each running year
2	No. of years of work experience in Pvt Institutions/Organizations in Annual Maintenance Contract of HVAC Plant (From 26AS must be submitted for the period of Experience claimed)	0.5 points per each running year

Note: The Bidders must submit the hardcopies of documentary proofs for the above 2 items.

I / we accept all the terms and conditions of the tender notice.

Date:

Place:

Name and Signature of Bidder with Seal

PART-A (TECHNICAL BID)

All the commercial conditions shall also be indicated in this part. Deviations, if any, to our specifications shall be brought out very clearly. Bidders shall mention point-wise confirmation with regard to technical specifications given in our Enquiry.

S No.	Particulars	Details
1	Bidder's name	
2	Registered Office and address	
3	Working Place of the office	
4	Year of Establishment	
5	Type of Firm (Ownership, Partnership, Pvt Ltd or Ltd Co.	
6	Details of ownership (Name and Address of the Board of Director, Partners etc.,)	
7	Name of the authorized signatory who is authorized to sign all the relevant documents (power of attorney, if any to be submitted)	
8	Registration Numbers:	
	Firm Registration No.	
	Service Tax No.	
	GST No.	
	ESI No.	
	Any other registration which is mandatory for such agencies stipulated by Concerned authorities:	
9	Latest ISO certified company	YES/NO
10	PAN Number	
11	Total Annual Turnover for last three years	2018-19: Rs 2019-20: Rs 2020-21: Rs
12	Whether Agency has been blacklisted by any Govt or Semi-Govt. organization or any other organization? If yes, provide details	YES/NO
13	DD Number, Amount and Date of EMD submitted	
14	Bank Particulars	
	Account name	
	Type of A/C: (SB/CA/CC)	
	A/C No.	
	IFS code	
	Name of the Bank	
	Branch	

Enclose all certificates in support of the above statements.

Date:

Authorized Signatory

Name:

Place:

Designation:

Company:

Contact No:

Company Seal:

EXPERIENCE DETAILS

S.No.	Year	Name of the Client	Order No. & Date	Contract value per year	No. of personnel deployed
01					
02					
03					
04					
05					

Signature of the Bidder with stamp

DECLARATION (Annexure – II)

(To be provided on letter head of the Bidder and submit along with technical bid)

I / We _____ do hereby certify that our firm is not blacklisted and no enquiries / cases are pending against us by Govt. of India / Govt. of Andhra Pradesh or by any State Board Universities, since inception of the firm / company.

All the terms and conditions given in the tender draft with

Ref. No.: NIT-ANDHRA/2021-22/ESTATE/HVAC PLANT-AMC/01 DATE: 10.11.2021

“For Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem”, are acceptable to us.

We also certify that the information mentioned in the submitted documents is true and complete in any every respect and explicitly agree that in case at a later date it is found out by the Institute (NIT Andhra Pradesh, Tadepalligudem) that any details provided herein by us are incomplete/incorrect, any contract given to us may be summarily terminated forthwith, our firm may be blacklisted, and that the Institute may also initiate any other legal/penal proceedings, as deemed fit by it.

Authorized Signatory:

Name:

Designation:

Date:

Place:

Company:

Contact No.

Company Seal:

CHECKLIST

(The Bidder may use the checklist below, to ensure that the tender submitted is complete in all respects)

S. No	Particulars	Yes	No
1	Copy of original tender draft downloaded from the NIT Andhra Pradesh website.		
2	Crossed Demand Draft from National Bank towards Tender Processing Fee		
3	Crossed Demand Draft from National Bank towards EMD		
4	Copy of firm registration		
5	Copy of Service Tax certificate		
6	Copy of GST registration		
7	Copy of ESI registration		
8	Copy of PAN card		
9	Copy of Latest ISO Certification		
10	Copy of relevant work order(s)		
11	Copy of Work satisfactory certificate(s)		
12	Copy of Financial turnover certificate issued from Chartered Accountant with UDIN on his letter head.		
13	Copies of Income Tax Saral form>Returns along with Audited financial statements, Profit and Loss Account, Balance sheets, Form 26AS and 3CA&3CB for last 3 years subjected to financial statement submitted to firm/proprietary/company.		
14	Declaration in the format given by the Institute		
15	Financial bid cover		
16	Form 26 AS must be submitted for the period of experience claimed (for each year of work done).		

Note: All the pages of the original bid document along with other hard copies should be serially numbered and attested by the Bidder.

Signature of the Bidder with stamp

PART-2. FINANCIAL BID (On Firm Letter head)

(For Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem)
Ref. No.: NIT-ANDHRA/2021-22/ESTATE/HVAC PLANT-AMC/01 DATED: 10.11.2021

S. No.	Description	Amount Per Annum (In Figures)
1	For Annual Maintenance Contract of HVAC Plant at NIT Andhra Pradesh, Tadepalligudem.	

Offered Price (in words): Rupees _____ only. **(Inclusive of all taxes)**

NOTE:

- TDS & TDS on GST** as per applicability shall be deducted from the gross billed amount to be paid to the contractor.
- The contract shall be awarded to the bidder whose quoted charge is lowest among all the submitted bidders.
- If further tie between firm/Agencies/company the L1 will be finalized by Coin Toss.

Signature of the Authorized Signatory

Name:

Designation:

Address:

Tel./Mobile No.:

E-mail ID:

Date:

Seal of the Firm: