

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

DEPARTMENT OF OFFICE OF THE RESIDENT ENGINEER  
POST SRINIVASNAGAR, MANGALURU – 575025 (DK)

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No: 597/2022-23/DM

Date:11/04/2022

## NOTICE INVITING QUOTATIONS

The National Institute of Technology Karnataka, Surathkal (in short - NITK, Surathkal or Institute) is an autonomous Institute of the Govt. of India [under the Ministry of Education] imparting technical and science education. The Institute intends to “**Repairing and providing one-year AMC for the Hitachi make VRF type Air Conditioner at Water Resources and Ocean Engineering building at NITK**”. The materials as listed in the sheet enclosed. In this connection, sealed quotations are invited by the undersigned subject to the terms and conditions enumerated here under from the manufacturers/ authorized dealers/ agencies so as to reach this office on or before 18.04.2022 by 3:00 PM. The quotations shall be opened on the same day if possible.

### Terms and conditions:

1. The intending bidder shall quote his rates in the ‘**Quotation Format**’ enclosed here with either in his letter head or using the same format. He shall sign each page with seal of the firm. Envelope super scripted as Quotation to “**Repairing and providing one-year AMC for the Hitachi make VRF type Air Conditioner at Water Resources and Ocean Engineering building at NITK**” Due on 18-04-2022 3:00PM” and addressed to as “The Resident Engineer, NITK, Surathkal, Post Srinivasnagar, Mangaluru – 575025” be sent so as to reach this office on or before the due date mentioned.
2. The GST registration number and the PAN number of the bidder shall be mentioned in the quotation. Quotation without this information will not be accepted.
3. Quotation may be dropped in the Tender Box kept in the office or may be sent by post/ courier. It is the responsibility of the bidder to make sure that the quotation is delivered in time. The quotations received after the due date will not be entertained.
4. Freight of Rate [F.O.R] – NITK, Surathkal.
5. The rate quoted shall be valid for 90 days for its acceptance.
6. The bidder must send complete technical specification of the spares along with the quotation.
7. No advance payment will be made. The payment shall be made only after successful completion of work. No interest will be paid for delayed payments if any.
8. **The bidder should visit the site and check the condition of VRF Air conditioner, analyse the spare parts required for repair the unit and quote the rates accordingly.**
9. The rate quoted should be firm. No claim for enhancement of rate is admissible after opening of the Quotations.
10. Terms and conditions stipulated in this Notice inviting conditions are binding on the bidder.
11. The bidders should quote rates in the **quotation format** enclosed along with this document.
12. The AMC will start after completion of repair work and successful working of above mentioned VRF type air conditioner.

## **Scope of work for the contractor**

### **Annual Maintenance Contract.**

- 1) AMC shall be on-site comprehensive maintenance, which includes preventive as well as corrective maintenance. The firm awarded with the maintenance contract shall carry out preventive maintenance of equipment on a quarterly basis as per requirement and shall maintain the proper record thereof.
- 2) The comprehensive maintenance shall be carried out primarily at the premises of NITK on all working days during office hours or even beyond office hours or on holidays depending upon exigency of work as and when so required. In case, the service provider feels that the equipment cannot be repaired at the site, they will carry and deliver the equipment at their own cost and get it repaired within 24 hours. The firm shall maintain proper service call sheets which will be duly signed by the Engineer and the concerned official of the department.
- 3) The agency shall ensure that the equipment is retained in its original or higher configuration and form. In the event of any downward alteration to the equipment by the agency or any attachment made thereto, the agency shall pay for any repair/replacement and adjustments required to restore the equipment to its original state. The faulty equipment parts replaced must be new and equivalent in performance of existing parts.
- 4) It shall be ensured that all the equipment is operational under a controlled power supply and all defective equipment if any shall be rectified/replaced without any additional cost to the NITK.
- 5) AMC shall cover each part of the air conditioning system and accessories including plastic body and parts, outdoor unit body, indoor body, outdoor unit compressor base, painting for the outdoor body if it needs, replacement of any part necessary for keeping the air conditioning system active and free from any defects/disturbance, any unscheduled call for corrective and/or preventive maintenance services, taking appropriate measures/steps in time to set right the malfunctioning of the system.
- 6) Service providers may depute/engage a suitable team to visit the site before bidding if required to fully understand the job and ascertain the difficulties that may be encountered during the execution of the work. The sites visits shall be entirely at the service provider's own cost and expense.
- 7) Service Provider shall depute OEM Authorized Service Engineer/ technically competent service engineer/engineers along with skilled helpers at Buyer's premises to ensure proper upkeep of the Centralized Air Conditioning system and quick resolution of the fault during the AMC period.
- 8) The Service Provider shall be responsible to take all precautions to ensure the safety of the deputed/ engage engineer/technician/labors/workers at work. The Service Provider will supply his labors/workers with the safety equipment as per rules. The person engaged by a service provider shall be given appropriate awareness on OH&S (Occupational Health and Safety), that person who will carry out jobs affecting OH&S shall be properly trained and made competent for the job performed by them.
  - a. If the service provider brings its own equipment to carry out of job inside the plant such equipment shall be subject to hazard identifications and risk assessment prior to commencement. During emergencies which may be faced in the plant service provider personnel should move to the nearest emergency assembly points.
  - b. The Service Provider shall not demolish, remove, or alter structures or Buyer facilities on the site without the prior written approval of the Buyer. The Service Provider shall clean/dispose of all the debris and other material accumulated due to servicing/ maintenance of the Centralized Air Conditioning System. The installation/ re-installation of the Centralized Air Conditioning System is NOT covered under the scope of the AMC.
  - c. During the routine servicing, the contractor should service centralized air conditioning system including water washing of filter, drain tray and pipe cleaning, Evaporator brush cleaning, oiling/greasing of all Fans/pumps, checking of current consumption, checking of output performance, testing of gas pressure, checking of fans, checking of fan motor and blades, water pump motor if necessary, water/chemical

washing of Condenser Coil, checking of water level in chiller/cooling tower, water for boiler, etc as applicable.

9)As and when required the service provider shall report to the representative/ Engineer in charge designated by the buyer about the performance of the Centralized Air Conditioning System.

10)The Service Provider shall undertake to arrange genuine spares parts of the Centralized Air Conditioning Systems as and when required.

- a. The Service Provider shall ensure the availability of the spare parts in their stock. In case some of the major spares are not available with Service Provider, the same shall be arranged within seven days.
- b. Service Provider shall maintain the confidentiality of any information related to the Centralized Air Conditioning System under AMC. Service Provider shall be required to take appropriate measures to maintain confidentiality obligations by its personnel engaged.
- c. The AMC service shall be commenced maximum within 7 days of award of contract.

11)Complaints regarding the non-functioning of air-conditioners/ heaters are to be attended to within one day from the time of reporting the complaint.

12)On award of the service order, the Service Provider would prepare a report regarding taking over of the Centralized Air Conditioning System before the commencement of the AMC Service. It shall be the responsibility of the Service Provider to make the Centralized Air Conditioning System work satisfactorily throughout the contract period, also to hand over the Centralized Air Conditioning System to the department in working condition on expiry of the contract. Any damage to the Centralized Air Conditioning System in the contract period due to improper Maintenance practice to be rectified/ replaced by the Service Provider without any extra cost and expenses.

13)Service Provider shall maintain register indicating details of equipment being maintained and details of rooms/place where they are installed. During AMC the Service Provider shall carry out 12 numbers of services per year as per contract.

14)During AMC the Service Provider shall also carry out one number of preventive maintenance (overhauling) services per year.

15)No work will be undertaken on closed holidays and beyond office hours on any day except by prior approval/direction of the Buyer.

16)Service Provider shall have the facility to enable user department to register complaints either through telephone or by E-mail at user premises. Proper record of the complaints shall be maintained by the Service Provider/ Support Engineer/ call center for each consignee location/ User Premises.

17)Service Provider shall ensure availability of suitable instruments/tools for their service Engineer to examine and repair the Centralized Air Conditioning systems.

19)Breakdown calls shall be attended free of charge.

20)The preventive maintenance (overhauling) may cover the following as applicable:-

1. Checking the cooling coil condition and cleaning with water/chemicals.
2. Water/chemical cleaning of the entire body and flush down any accumulated dirt/sludge from the drain pipe and drain pan.
3. Tightening of all screws, fasteners.
4. Checking all the electrical parts and wiring and repair of such parts. Oiling of all the moving parts.

5. Checking the play (gap) of condenser motor and if required, refurbishing/replacing defective worn-out parts.
6. Checking cooling effect and if it is found that gas is less the same has to be topped up.
7. Cleaning/ replacement of filters.
8. Servicing of remote control and microprocessor controls.
9. Repair of damaged insulation of refrigeration duct/piping.
10. Any other requirement as per the specific scope of service provided by the Buyer.
11. Repair of fan and water pump including motor winding.
12. Checking wiring/cable for signs of overheating.
13. Checking and repairing all water pipes leakage.
14. Checking the AHUs for corrosion and cleaning the same.
15. Checking the blower blades for defects and cleaning if required.
16. Checking air flow and moisture eliminator/humidifier.
17. Checking the Units, mountings /anti-vibration pads, and replace if required.
18. Any other activity/ work as specified by the buyer under Specific scope / buyer-specific specialized activities/ work requirements.

21) Apart from the overhauling, timely routine services are also to be carried out which shall cover the following works as applicable: -

- a. Dust cleaning of the entire unit by water/ air blower and cloth.
- b. Cleaning of filters.
- c. Checking/ tightening of all the screws/fasteners.
- d. Checking and tightening of electrical contact points and parts and if required, replacement of the defective parts.
- e. Checking the oil level in the compressor.
- f. Checking liquid sight glasses to determine if there is any refrigerant shortage.
- g. Inspect the unit piping and coils for visible signs of leaks.
- h. Inspecting the entire system for unusual conditions such as noise, vibration, etc.
- i. Checking oil pump discharge pressure in accordance with the system pressure.
- j. Checking the system operating pressure and temperature to ensure proper operating conditions.
- k. Checking chilled water flow by checking pressure drop across the chiller.
- l. Checking cooling tower fans & fan motor.
- m. Comparing the chilled water temperature at full load with the chilled water temperature control.
- n. Inspecting and adjusting, if required, all safety controls.
- o. Inspecting all operating control and sequence of operating.
- p. Changing the oil in the oil sump, renewing the filter, and checking oil temperature control.
- q. Inspecting starter contacts arc shield, transformer, and motor terminals check the connection in the starter, tighten motor terminal control circuit terminals.

- r. The compressor will be checked for its proper functioning and if any defect is found, the same will be rectified.
- s. The entire refrigeration system will be checked for any leak and attended to if necessary.
- t. Safety controls such as pressure cut-outs will be tested for proper functioning and in case of any malfunctioning, they will be either repaired or replaced accordingly.
- u. Chilled water pumps, condenser water pumps, and their respective motors will be checked for proper functioning.
- v. Servicing, rewinding, and repairs of the blower motor.
- w. Inspection and cleaning of the chilled water-cooling coil.
- x. Any leak/repairs in the chilled water-cooling coil will be attended.
- y. Repairs to refrigerant piping due to system problems will be attended.
- z. De scaling of cooling coil.
- aa. Checking of AHU for noise and vibration.
- bb. Checking of alignment of pulleys/ replacement if required.
- cc. Checking belt tension, replacement if required.
- dd. Checking of AHU drain and cleaning as and when required.
- ee. Checking of motor Amps.
- ff. Greasing bearings if required.

22. Service Provider shall maintain the log sheet which will include a number of Services provided during the contract period with time and dates of receipt as and when complaints are received from end-user departments and part of the equipment got repaired or replaced, with its proper model number and necessary details.

23. All the spares and tools and tackles are to be recorded in the Spares taken outside the premises also to be recorded with a serial number of spare and in and out date and time.

24. Periodic/ Routine Maintenance shall be as per industry standard/ Maintenance manual of the Centralized Air Conditioning system. The parts/ components/ sub-assemblies used for repair/replacement by the Service Provider will be of the same make and functional capability as originally available in the system.

25. Service Provide shall be responsible for the verification of new part(s) from Buyer/ Buyer's nodal officer before fitting to The removed part is to be handed over to the Buyer/ Buyer's nodal officer. In case the service provider notices any part is missing same is to be brought to the notice of the Buyer/Buyer's nodal officer or otherwise, responsibility shall be of the service provider.

26. Defective spare compressors/condensers are to be replaced with new compressors/condensers and repairing of the old compressors is not permitted. Whenever new compressors/condensers are used, the service provider has to produce an original invoice and Warranty Card of the new Compressor/ condenser to the Buyer/ Buyer's nodal The compressor/ condenser being replaced should match with the original star rating of the air conditioner.

27. All the consumable articles/parts such as material required for cleaning of Centralized Air Conditioning system and machinery, repairs, and maintenance will be provided by the Service Provider at no extra charge to the Buyer.

28. In case of delay in attending to problems, breakdown of Centralized Air Conditioning system due to improper handling by the Service Provider's personnel then penalties for violation of Service Level Agreement shall be levied as indicated in the Penalty Clauses.

29. After carrying out a repair when required certificate regarding equipment working condition should be obtained from the concerned Buyer/ Nodal Officer.

30. Service provider shall provide a minimum warranty of 6 months for the replaced part from the date of such replacement /repair.

31. Service Provider, as per need and requirement of the Department, may ensure appropriate deployment of the manpower and experienced and trained manpower (electrician/operator/engineer/labor, etc.) shall be provided for maintenance.

32. The Buyer shall inform the Service Provider if any dedicated manpower is absent. The Service Provider shall provide alternate within 2 hours as applicable. The dedicated manpower provided by the service provider shall attend to their duty at the designated place/area only. They should not wander unauthorized places/areas of the buyer. The dedicated manpower provided by Service Provider shall not share any documents/information to any outside unauthorized Violation of the same will render immediate termination of contract and no payments will be made to the Service Provider along with forfeiture of Performance Security. Service Provider shall be wholly responsible in case of failure and will be liable to be prosecuted under the jurisdiction of the local court.

33. Successful Service provider has to obtain policies to cover Third-party/Fire/Workman Compensation Insurance cover of suitable amount for each location/site/building policy which shall remain in force till the contract, period and extension if No payment shall be released if the insurance lapse during the contract period.

34. The buyer shall not be responsible for any injury partial or permanent or death of any worker/dedicated manpower at the site due to accident or any other reasons or by personal negligence of the staff of the contractor. The buyer will remain indemnified by the service provider on this account.

35. First Aid Box shall be arranged by the Service Provider at the site of work at their cost.

36. The service provider shall be solely responsible for payment of wages/salaries and allowances to his personnel that might become applicable under any government order. The buyer shall have no liability whatsoever in any manner.

**Monthly Preventive maintenance checklist**

SI No	Description of work	SYS-1	SYS-2	SYS-3	SYS-4	SYS-5	Remark
<b>A</b>	<b>IDU</b>						
1	Check visible signs of oil/leakage						
2	Clean air filters						
3	Clean evaporator coils						
4	Ensure coil drain is not clogged						
5	Check operation of room sensor						
6	Check drain line for leakage						
7	Check abnormal noise in blower/motor						
8	Check air leakage through panel/canvas						
9	Check fresh air leakage in return air path						
10	Canvas temperature (Degree Celsius)						
11	Return air temperature (Degree Celsius)						
12	Check if electrical wires are burn or dis coloured						

13	Check all nut bolts/screws are in proper place											
14	Room temperature (Degree Celsius)											
<b>B</b>	<b>ODU</b>	<b>ODU1</b>	<b>ODU2</b>	<b>Remark</b>								
1	Check visible signs of oil/leakage											
2	Check for undue vibration of compressor											
3	Check for abnormal noise in fan/motor											
4	Check tightness of all electrical connections											
5	Check if electrical wires are burn or dis colored											
6	Check all nut bolts/screws are in proper place											
7	Check fan operation											
8	Clean condenser coil blower/water/film comb											
9	Check the structures for sturdiness											
10	Suction pressure (Psig)											
11	Discharge pressure (Psig)											
12	System input voltage on load(volts)											
13	Compressor (amps)	R										
		Y										
		B										
14	Condenser motor 1 amps											
15	Condenser motor 2 amps											
16	Ambient temperature (Degree Celsius)											

- Completion Certificate: Work Completion certificate shall be issued only after completion of work in all respect and to the entire satisfaction of NITK.
- The vendor will liaison on behalf of NITK, with other different OEMs for repairing of equipment(s) and all other accessories during warranty period.
- Annual Maintenance of the entire system after the will be undertaken as per the terms and conditions mentioned in the tender and any other condition agreed upon as per the terms.

Sd/-  
Resident Engineer  
NITK, Surathkal

**Name and Address of the Bidder:**

**Contact No:**

**GST registration number: -**

**PAN number: -**

**Date: -**

**No: -**

**QUOTATION**

To

The Resident Engineer,  
Office of the Resident Engineer,  
N.I.T.K., Surathkal.

<b>Sl. No</b>	<b>Description of the items</b>	<b>Quantity</b>	<b>Rate without tax in Rs / each</b>	<b>GST</b>	<b>Amount with tax in Rs.</b>
1	Repairing and servicing of VRF type Air Conditioner by replacing the parts Inverter PCB, Cement Resistor, Electrolytic capacitor supporting to inverter PCB, Diode module, Transistor module, Noise filter and servicing by cleaning the filter, evaporator coil and lubrication of all moving parts and other accessories etc complete as required (Including refrigerant gas, pressure testing, vaccumizing, remote etc)	1 Job			
	<b>Machine details:</b> VRF Air Conditioners Make : Hitachi Power rating: 440V,50 Hz, Outdoor Unit Capacity:8 HP Nominal Cooling capacity: 21.0kW Ceiling mounted 3 numbers of 4 way Cassette type Indoor unit with compact cooling coil capacity 2TR.				
2	Fully comprehensive Annual Maintenance Contract (including all spares) charges for one year	1 Job			
	<b>Grand Total Amount</b>				

**Seal and signature of the Bidder**