

BIDDING DOCUMENTS

No. PC/14088/CH&UCHS

Dated 20-02-2023

**SERVICE CONTRACT FOR HVAC SYSTEM (OPERATION,
REPAIR & MAINTENANCE)**

**AT THE CHILDREN'S HOSPITAL & UNIVERSITY OF CHILD HEALTH
SCIENCE, LAHORE FOR THE YEAR 2023-2024**




Name of Procuring Agency:- The Children's Hospital & University of Child Health Sciences,
Lahore
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ANNUAL SERVICE & MAINTENANCE CONTRACT (2023-2024)
FOR OPERATION OF EXISTING HVAC SYSTEM OF THE HOSPITAL (WITHOUT PART)

Single Envelop two stage bids are invited from reputed Firms/Contractors for Annual Service & Maintenance Contract for Operation of Existing HVAC System of the Hospital (Without Parts) on 24/7/365 basis in 03 Shifts including Operation, Maintenance & Servicing.

1. The bids of only those bidders will be considered who meet the criteria and provide the below information;
- a. The firm should have at least 5 years' experience in the Operation & Maintenance of triple energy sources (Sui Gas, LPG gas & Diesel) HVAC System.
 - b. The firm should have registration with Pakistan Engineering Council with Specialized code ME01 (HVAC).
 - c. Details of present and past 05 years Operation & Maintenance Contracts of similar Screw Chillers, their Contract Value along with copies of Contract/Work Order.
 - d. Should have office based in Lahore.
 - e. Registered Name & Address of the company along with phone, fax and email address (copy of registration to be furnished).
 - f. List of technical staff, their qualification/experience and details of in-house facilities.
 - g. National Tax Number and Income Tax Clearance Certificate of last 03 years return.
 - h. Proof of Financial Stability and Bank Certificate of Financial soundness.
 - i. Brief of any litigation/arbitration proceedings in which the Firm has been/is involved.
 - j. Complete profile of the firm.
 - k. Affidavit that the Firm is not Black listed in any Govt. /Semi Govt. Organization.


Prof. Dr. Muhammad Saleem
(FCPS-FACS)(USA), MME-HPE)
Professor of Paediatric Surgery
Medical Director



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1. Details of units/equipment's installed at CH&UCHS are given below;

S No.	Description	Quantity
a.	Steam Absorption Chiller of 520 Tons cooling capacity (Trance USA)	2
b.	Direct Fire Chiller 500 tons (Hitachi)	3
c.	Cooling Tower GPM Capacity (Marley USA)	6
d.	Air Handling Unit (Trance USA)	27
e.	Air Handling Unit (Inpatient)	30
f.	Mini Air Handling Unit	17
g.	Fan Coil Units	8
h.	Low pressure steam boiler (KAWANI USA origin)	2
i.	Condenser pumps GMP	11
j.	Chilled Pump GMP (KSB Make)	13
k.	Secondary Chilled water Pump GMP (KSB Make)	18
l.	Electric Equipment /Electric Panels etc.	2 LOT
m.	Library & main OT AC 18 tons, 40 ton & 250 ton	Each
n.	Air Curtain	20
o.	Boiler	02
p.	Emergency Nursery & Emergency OT (04 ton)	5
q.	OPD Block	Four Floors
r.	Emergency Block	Four Floors
s.	Diagnostics Block	Four Floors
t.	Admin Block	
u.	Indoor	Four Floor
v.	Fan Coil (Emergency Hall)	5

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2. Detailed Scope of Works

Chillers

S No.	Item Description	Daily	Weekly	Monthly	Quarterly	Yearly
a.	Troubleshooting and diagnosis of fault code in the chillers. (in each shift)	X				
b.	Checking/adjustment of pressure drop across the cooler. (in each shift)	X				
c.	Logging of operating data/parameters of machine. (in each shift)	X				
d.	Checking of compressor abnormal noise.	X				
e.	Troubleshooting of motorized chiller's actuators.	X				
f.	Checking of flow switches of chillers.			X		X
g.	Inspection of chiller components, painting and anti-rusting if required.		X			
h.	Checking of transducers, sensors and other controls of chillers & replacement of faulty components.		X			X
i.	Checking of pressure drop across the oil filter and replacement of oil filter if pressure drop exceeds 1.0 Bar.	X				
j.	Checking dehydration filter pressure drop.			X		
k.	Checking of compressors and condensers fan motors Amps at full load.		X			
l.	Checking of electrical resistance of compressors.			X		
m.	Checking of electrical resistance of condenser fan motors.					X
n.	Checking electrical wiring of chillers/components for any sign of overheating			X		
o.	Cleaning of electrical panel/control cards of Chillers.			X		
P.	Checking of liquid Pilot lamp for passage of bubbles and Replacement of dehydration filter on sight of bubbles.		X			


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q.	Cleaning/Washing of condenser batteries on weekly basis including Painting, Greasing and replacement of Evaporator and Compressor Suction Insulation.		X			
r.	Visual inspections of machine for any damage/loosening.			X		
s.	Checking/testing/servicing of refrigerant leakage in the system and adjustment of charge if required.			X		
t.	Adding of chemicals for treatment of chilled water and pipe line as per recommendations of water treatment company.			X		
u.	Checking/servicing/replacement of compressor's contactors if necessary.					X
v.	Checking/servicing of condenser fan motor's contactors for pitted points.					X
w.	Checking of insulation resistance of compressors.					X
x.	Checking of insulation resistance of condenser fan motors.					X
y.	Checking of electrical terminals for tightness.					X
z.	Replacement of compressor oil, Oil filter and Dehydration filter if TAN analysis test arranged annually/as required basis by contractor from PCSIR equals 0.10.					X
aa.	Checking/adjustment of temperature and pressure of chillers. (As per temperature of summer and winter season)					X
bb.	Checking of compressor oil colour.		X			
cc.	Checking of compressor oil level in compressor sight glass (should be b/w 50-90%).	X				
dd.	Checking of chilled water leaving and entering pressure gauges.	X				
ee.	Checking of chilled water leaving and entering thermometer.	X				
ff.	Chilled water treatment/testing.			X		
gg.	Checking of chilled water bypass circuit.		X			


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NB. The scope of maintenance shall include all the guidelines, recommendations of the OEM in the product manuals, its website and other sources of dissemination.

3. Annual Preventive Maintenance

The contractor shall plan shutdown of HVAC system 04 Months before the start of winter season for undertaking complete annual preventive maintenance of HVAC system. However, he will seek prior approval from Children's Hospital for the shutdown in winter season and give 01 Week advance notice stating the shutdown period. Following maintenance will be carried out under the supervision of authorized Maintenance Department/DMS Maintenance.

a. Chillers

- (1) The yearly preventive maintenance mentioned in the scope of work.

b. Chilled Water Pumps

- (1) Checking & replacement of pump strainer.
- (2) Checking & replacement of faulty pump bearings.
- (3) Checking & replacement of faulty motor bearings.
- (4) Checking & replacement of coupling rubber.
- (5) Checking of motor winding insulation with Meggar after disconnection of motor leads from VFD.
- (6) Checking of earthing.
- (7) Checking & tightening of wire connections.
- (8) Painting/anti rusting of pump supports.
- (9) Cleaning/maintenance of air separators.

c. Air Handling Units (AHUs)

- ❖ Flushing & cleaning of finned surface & water tubes of cooling coils.
- (1) Checking & replacement of faulty fan bearing.
- (2) Checking/replacement of faulty motor bearing.
- (3) Checking of belt alignment and tension & mounting bolts.

d. Electrical Panels and Wiring

- (1) Checking & servicing of contactors, overloads, MCCBs, fuses, tightening of wiring connections, replacement of faulty parts if required.
- (2) Checking of wiring insulations.
- (3) Checking of earthing.

e. Piping System

- (1) Cleaning & flushing of chilled water pipe.
- (2) Painting & servicing of all valves, strainers, CFRV.
- (3) Checking/repair of insulation, jacketing & covering of all insulated piping.


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f. Cooling Tower

1. Cleaning & flushing of condenser water pipe.
2. Painting & servicing of all valves, strainers, CFRV.
3. Checking/repair of cooling fans, belts and gear box.
4. Checking/ alignment of fan box.
5. Checking/ Service inlet valve, outlet float valve and handles valve.
6. Checking all water tubs
7. Checking showering holes and cleaning scale weekly basis

g. Boilers

1. Checking safety valve and blow down valve daily basis.
2. Checking blower motor and refractory daily basis.
3. Checking water PH level daily basis.
4. Checking gas valve and gas sensor daily basis
5. Checking PLC and other safety equipment daily basis.
6. Checking boiler tubes chimney flame weekly basis.
7. Painting & servicing of all valves, strainers, CFRV.
8. Checking/repair of insulation, jacketing & covering of all insulated piping.

h. General

Change of compressor oil if required, greasing of bearing and oiling wherever required, and painting of equipment will also be done.

i. Chilled Water Pump Sets

S No.	Item Description	Daily	Weekly	Monthly	Quarterly	Yearly
a.	Troubleshooting of pump sets.	X				
b.	Checking of pump sets for abnormal noise/wear/ampere.	X				X
c.	Checking/replacement of pump set bearings.			X		X
d.	Cleaning of pumps strainers.			X		X
e.	Checking of suction/discharge pressure of pumps.	X				
f.	Checking of secondary pump VFDs.	X				
g.	Checking/replacement of mechanical seal of pumps for leakage.	X				



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j. AHUs

S No.	Item Description	Daily	Weekly	Monthly	Quarterly	Yearly
a.	Troubleshooting of AHUs and its actuators. Repair & replacement of actuators if required.	X				
b.	Checking/servicing/adjustment of AHUs belt alignment & tension/motor amps.			X		X
c.	Cleaning/replacement of pre/back filters.			X		
d.	Cleaning of AHU's strainers.			X		X
e.	Flushing & cleaning of finned surface & water tubes of cooling coils.					X
f.	Checking VFD/VAV of AHUs.	X				
g.	Random water balancing of AHUs.					X
h.	Checking of AHU gauges in each shift.	X				


K. Humidifiers

S No.	Item Description	Daily	Weekly	Monthly	Quarterly	Yearly
a.	Checking of humidifiers/heaters.				X	


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4. Contractor's Responsibilities.

- a. The contractor shall after physical checkup of CHL Stores at both sites recommend the critical spares along with their OEM Part numbers, minimum inventory level which are required to be kept in stock by CHL for routine maintenance and servicing of HVAC system.
- b. The contractor will specify 04 months before the start of winter season, the Spare parts/consumables etc. along with their quantity and specification which are required for annual preventive maintenance so as to give sufficient lead time to CHL for its procurement.
- c. The contractor shall be responsible for maintaining including yearly and 3rd party inspection of both boiler annual inspection from boiler inspection wing boiler board Lahore.
- d. The contractor shall be responsible for maintaining & submitting daily report to Maintenance Department.
- e. The contractor shall be responsible for efficient operation and maintenance of above HVAC system mentioned in scope of work.
- f. The Contractor shall be responsible for all kinds of (filter washing) schedule submitted in Maintenance Department.
- g. The contractor would also ensure economical consumption of materials and spares supplied by CHL. All efforts should be made to repair old parts for its re-use. New part should only be substituted when the old part cannot be satisfactorily repaired & re-used.
- h. The contractor shall be responsible for maintaining Lighting System and all type of Plumbing work of HVAC system.
- i. The contractor will arrange tools and instruments for its technicians which are required for operation, maintenance, and servicing, overhauling and minor repair of above equipment's.
- j. The contractor shall be responsible for cleaning all AHU, Mini AHU, Fan Coils, Plant Rooms and Cooling Towers.
- k. The contractor shall supply safety belts, hard hats, ladders for his workers. In case such safety equipment is not provided by the contractor and not worn/used by his workers while performing their duties, the Employers shall deduct 1% of gross amount from contractors Bill for that month.
- l. The contractor staff will maintain log of chillers, chilled water pumps Suction/Discharge Pressure in each shift as per CHL's approved format and take confirmatory signatures from DMS maintenance.
- m. The contractor shall maintain a Register for each Equipment/System and record with dates the works of servicing, maintenance & overhauling being carried out by his staff. The contractor shall take confirmatory signatures from DMS maintenance for the work done.
- n. The contractor will record and monitor the temperature and humidity of all the rooms and RF Rooms in each shift.
- o. The contractor supervisor shall submit weekly report to CHLO's rep regarding the overall performance of above equipment's and pin point any action to be taken by the employer.
- p. Contractor should supply miscellaneous items required for maintenance work e.g. cotton waste, cloth nitrogen gas cylinder and acetylene cylinder.


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- staff will be provided 02 days for arranging security clearance.
- q. The contractor shall make himself available to the employer representative whenever asked for and shall reply all communications within 2 days of their receipt.
 - r. Contractor shall handover defective part to DMS maintenance. The contractor shall maintain a Register to record new parts taken from DMS maintenance and defective parts handed back and take confirmatory signature from DMS maintenance.
 - s. For the purpose of identification and security, all employees of the contractor shall be issued proper identity cards by the contractor.
 - t. The contractor shall maintain daily attendance register of his Employees and submit the same daily to DMS maintenance for his signatures who may if required physically verify the same. The contractor will submit alongwith his monthly bill the monthly attendance record of his Employees duly verified by DMS maintenance for adjustment/deduction of amount due to shortage of his manpower.
 - u. Contractor shall arrange chemical dosing of chilled water and testing of chilled water Nitrite, Iron Level, TDS and PH on monthly basis from PCSIR. Cost of such tests shall be reimbursed to him on production of cash memo.
 - v. Water balancing of chillers/AHUs if required will be done by the Contractor annually on payment of extra charges by CHL subject to prior approval of charges by CHL.
 - w. Contractor shall carry out maintenance of above Equipment in the presence of DMS maintenance.
 - x. Minor repair works e.g. rewinding of pump/AHU motor, control card of Split ACs, repair of chilled water piping /duct leakages etc will be done by the Contractor from local market on payment of extra charges subject to the prior approval of repair charges by CHL.
 - y. The contractor shall be responsible for operation of chillers, AHUs, Chilled water pumps, VAV devices, Fresh/Exhaust Air Fans through HVAC BMS. He will be
Also responsible for manual operation of above equipment's in case of defect in HAVCA BMS.
 - z. Uptime of 95% will be acceptable in case of breakdown beyond 95% contract validity will be extended.

Morning	Evening	Night
IPEC register Engineer 1 Supervisor 1 AC Mechanic 1 Electrician 1 Mechanical Technician 2 Operator 3 Helper	2 Operators 2 Helpers	2 Operators 2 Helpers


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5. **Terms and Conditions**

a. The contractor will ensure proper functioning of AC plants/units(mentioned in scope of work). In case of unsatisfactory functioning / major failure / breakdown of compressor / cooler / condenser etc the contractor shall pay for the damage/losses subject to the condition that the joint investigation of CHL and Contractor's senior officers reveal that such damage/loss has occurred due to the default on the part of Contractor's staff.

- (1) The contractor will be responsible for the insurance of their workman under the law against any accident/injury as third party insurance against any damage, losses or injury which may occur to property or any person.
- (2) The contractor shall indemnify and keep indemnified the Employer against all losses and claims for injury or damages to any person or any property whatsoever which may arise out of or in consequence of the performance of the contract against all claims, demands, proceedings, damages, costs, charges & expenses whatsoever in respect of or in relation thereto.

6. **Bills Certificates and Payments**

The contractor shall submit his bills to the employer's representative at each site during 1st week of every month along with the attendance sheet of deputed contractor's staff and stating the work carried out during the preceding month duly verified by CHL Designated Verification Committee. The contractor shall be paid monthly on the certificate of employer's representative.

DMS maintenance representative shall have the power to make necessary adjustments in the bill and issue a certificate within 02 days of receipt of bill by him.

1. **Payment of Taxes**

a. The contractor shall be responsible for the payment of all taxes announced by the Govt of Pakistan and Taxes on services arising out of the contract (8% income tax and 16 % PST).

2. **Termination**

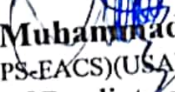
- a. CHL shall have a right to terminate the contract by giving a notice of 30 days to the contractor. In the opinion of CHL the contractor's performance is unsatisfactory or the contractor fails to abide by any of the condition of the contract.
- b. CHL shall also have the right to terminate the contract by giving a notice of 30 days if it decides to discontinue the services of the contractor due to any


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reasons other than those mentioned above.

3. **Schedule of Prices**

Charges for 24/7/365 basis Operation, Maintenance, Servicing and Overhauling Work of HVAC system including Annual Preventive Maintenance according to the condition of Contract and Scope of Work/details of work mentioned above.
(Estimated Cost **Rs. 6957500** per annum)


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Technical Evaluation

Part-1

Pre Qualification -(Bid Evaluation)

Evaluated by Purchase Committee

Evaluation Parameters	
Sr.No	
1	Complete Package / Tender
2	Original Receipt of Tender
3	Duty Sign Stamp Documents with complete package received from CHL
4	2% Bid Security /CDR attached with technical bid
5	Bid Validity
6	Valid NTN
7	Valid Sales Tax Certificate
8	Valid PEC registered with specialization code of ME-01
9	Minimum 5 year experience related to HVAC
10	03 Years Hospital experience
11	Last three years return
12	Affidavit from bidder
Remarks:	


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Part 2 (70 mark required for Technical Eligibility)

Sr.No	Description	Category Points
1	5 years HVAC experience	10
	6-10 years HVAC experience	15
	11 or above years HVAC experience	20
2	3 year Hospital HVAC experience	5
	Detail of current contracts HVAC (Institution)	10
3	1-3 inst	15
	4 or above	10
4	Financial status 10 million or above	3
5	Audit account 3 years	5
6	Certifications (ISO:9001:2008)	
7	Technical / Engineering Capacities for HVAC system	12
	1 DAE = 1 mark	
	1 Technologist = 1.5 marks	
8	1 PEC registered Engineer = 2.5 marks	10
9	Specific tools for HVAC	10
10	Spare part and backup for installed base inventory	
	Management systems (Service records/ Installed base management / others) in place	10
Grand Total/ Status		100


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