DELIHI METRO RAIL CORPORATION LTD.  
(A Joint Venture of Govt. of India & Govt. of NCT, Delhi)

"Comprehensive Annual Maintenance and Operation Contract of Centralized AC Plant and its equipments installed at DO building and Training institute at Shastri Park Train Depot for 03 Years"

VOLUME-I

* NOTICE INVITING TENDER
* SCOPE OF WORK
* TENDER PRICES AND SCHEDULE OF PAYMENT

TENDER No. E/EM/RC-07/2017
**NOTICE INVITING TENDER (e-TENDER)**

1.1 **GENERAL**

Delhi Metro Rail Corporation (DMRC) Ltd. invites Open e-Tenders (two bids) duly sealed from experienced firms/contractors for the work "Comprehensive Annual Maintenance and Operation Contract of Centralized AC Plant and its equipments installed at DO building and Training Institute at Shastri Park Train Depot for 03 Years".

1.1.1 The details of the Tender are as per following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated cost of work</td>
<td>Rs. 33,95,930/- (inclusive of all taxes)</td>
</tr>
<tr>
<td>Tender Security amount</td>
<td>Rs. 67,919/-</td>
</tr>
<tr>
<td>Cost of Tender (Non-Refundable)</td>
<td>Rs. 5,250/- (Rs 5,000/- plus 5% VAT) Non-Refundable</td>
</tr>
<tr>
<td>Completion period of the Work</td>
<td>Three Years (from day of issue of letter of acceptance)</td>
</tr>
<tr>
<td>Tender documents on sale</td>
<td>From 20.02.2017 to 15.03.2017 (up to 17:30 hrs) on e-tendering website</td>
</tr>
<tr>
<td></td>
<td><a href="https://eprocure.gov.in/eprocure/app">https://eprocure.gov.in/eprocure/app</a></td>
</tr>
<tr>
<td></td>
<td>For further information on this regard bidders are advised to contact 0120-4200462, 0120-4001002 and 8826246593</td>
</tr>
<tr>
<td>Last Date &amp; time of Submission of Tender Online</td>
<td>15.03.2017 up to 17:30 hrs.</td>
</tr>
<tr>
<td>Date &amp; time of submission of tender cost and tender security</td>
<td>16.03.2017 up to 17:00 hrs.</td>
</tr>
<tr>
<td>Date &amp; time of opening of Technical Bid Online</td>
<td>17.03.2017 at 11:00 hrs.</td>
</tr>
<tr>
<td>Date &amp; time of opening of Financial Bid Online</td>
<td>Shall be informed after evaluation of technical bid through website</td>
</tr>
<tr>
<td></td>
<td><a href="https://eprocure.gov.in/eprocure/app">https://eprocure.gov.in/eprocure/app</a></td>
</tr>
</tbody>
</table>
| Authority and place for submission of tender cost, tender security, required documents (if any), seeking clarifications etc. | Sr. DGM/E&M, DMRC Ltd.  
2nd Floor, C-Wing Metro Bhawan,  
Fire Brigade Lane,  
Barakhamba Road,  
New Delhi-110001. |

The tender cost and tender security will be in the form of a Demand draft/ Banker’s cheque drawn on a scheduled Commercial Bank based in India and should be in favour of "Delhi Metro Rail Corporation Limited" payable at New Delhi.

The same should be submitted in original in the office of Sr.DGM/E&M at the above mentioned date, time and address.

**NOTE:** The bidder who fails to submit the tender cost & tender security (in original) within stipulated scheduled deemed to be rejected.
MINIMUM ELIGIBLE CRITERIA:

Work Experiences -

Experienced Firm/Contractor who have completed:

(a) One single work of similar nature of at least 80% value of estimated cost of contract.

OR

(b) Two similar works, each of at least 50% of estimated cost of contract.

OR

(c) Three similar works, each of at least 40% of estimated cost of contract.

in Govt. / Semi Govt. / PSU during last 5 years ending February-2017 are eligible to participate.

NOTE:

(i) Similar Nature of work: CAMC or AMC Central Air Conditioning plant/ HVAC.

(ii) Successful completed portion of ongoing works shall not be considered for qualifying these criteria.

(iii) Following documents shall be considered for evaluating the criteria of work experience:

a. Self attested copies of work order, BOQ along with completion certificate (indicating the name of work, final amount, quantity of work, completion date etc.) issued by the client preferably on their letter head for completed work.

b. Self attested copies of work order, BOQ and latest certificate issued along with completion certificate issued by the client preferably on their letter head for quantum of work executed for work under progress.

Financial Standing (Annual turnover) -

a) Contractor's average Annual Turnover of last three audited financial years should be equal to or more than 80% of estimated cost of work. Tenderer shall submit last three years audited financial statement (Profit Loss Statement) duly attested by certified CA.

b) Applicant must not have been blacklisted or deregistered by any Govt. / Semi Govt. / PSU undertaking during last five years. It should be on non-judicial stamp paper of Rs. 10/- duly attested by Notary.

c) Undertaking on Non-Judicial stamp paper of Rs.10 attested by Public Notary certifying that for applicant not involved in any litigation/arbitration or no case pending in any court against them during the last 05 years.

d) Net worth of applicants should be positive. Tenderer shall submit last three years audited financial statement (Balance sheet) duly attested by certified CA to work out net worth.

The following documents are to be submitted along with the tender (technical bid) -

i) Pan No. as per Income Tax Act.

ii) Sales tax registration certificate.

iii) VAT registration certificate.

iv) Service tax registration certificate.

v) PF registration certificate/ Exemption certificate.

vi) ESI registration certificate/ Exemption certificate.

vii) Organization chart with address, telephone/mobile no. and E-Mail.

viii) Availability of adequate number of qualified and technically competent personnel with relevant experience.

ix) Cost of tender documents in form of Demand Draft.
x) A Memorandum of Understanding (MoU) with OEM i.e. M/s Voltas Limited shall be submitted by the bidder, that OEM shall provide all spares that may be required to undertake the CAMC under Tender No. E/EM/RC-O7/2017 to the firm/ bidder ______________ (Name of firm/ bidder) for the entire period of the contract. In case of M/s Voltas Limited bids, this document is not required. For all other bidders, the MoU shall be signed by authorized representative of OEM.

xi) E-Payment duly filled by contractor. Bank details except Bank key is required to be verified by the Bank on its letter head duly signed and stamped. Bank certificate is to be enclosed along with the tender.

xii) List of work executed with completion issued by the concerned department. The contractor shall submit certificate from client for satisfactory completion of works indicating the contract value, nature of work, duration and the name of the organization for who the work was executed.

xiii) Power of Attorney.

Documentary proof of satisfying eligibility conditions and audited financial data to be furnished along with the application on printed letter heads. Testimonials of satisfactory completion should be obtained from an officer not below the rank of executive engineer.

1.2.4 The tender submission of bidders, who do not qualify the minimum eligibility criteria, shall not be considered for further evaluation and considered rejected. The mere fact that the bidder is qualified as mentioned in sub clause of clause 1.2 shall not imply that his bid shall automatically be accepted. The same shall be subject to the data as required for consideration of tender prescribed in the ITT.

The mere fact that the tenderer is Pre-qualified as shall not imply that his bid shall automatically be accepted. The same should contain all Financial & other details as required for the consideration of tender.

1.2.5 Tender document consists of the following documents:

VOLUME-I
a. Notice Inviting Tender
b. Scope of Work
c. Tender Prices and Schedule of Payment

VOLUME-II
a. Instructions to Tenderers
b. Other terms and Conditions
c. Special Conditions of Contract
d. General Conditions of Contract
e. Bill of Quantities.

Please note carefully the requirements for submitting tenders and the date & time for submittal.

1.3 The tenderers may obtain further information / clarification, if any, in respect of these tender documents from the office of Sr. DGM /E&M, DMRC Ltd. 2nd Floor C Wing Metro Bhawan, Fire Brigade Lane, Barakamba Road, New Delhi-110001

1.4 The intending bidders must be registered on e-tendering portal https://eprocure.gov.in/eprocure/app. Those who are not registered on the e-tendering portal shall be required to get registered beforehand. If needed they can be imparted training on ‘online tendering process’. After registration the tenderer will get user id and password. On login tenderer can participate in tendering process and can witness various activities of the process.

1.5 The authorized signatory of intending bidder, as per Power of Attorney (POA), must have valid class-III digital signature. The tender document can only be downloaded or uploaded using Class-III digital signature of the authorized signatory.
1.6 Tender submissions will be made online after uploading the mandatory scanned documents towards cost of tender documents such as Demand Draft or Pay Order or Banker's Cheque from a Scheduled commercial bank based in India and towards Tender Security such as Bank Guarantee or Demand Draft or Pay Order or Banker's Cheque from a Scheduled commercial bank based in India and other documents as stated in the tender document.

1.7 Tenders shall be valid for a period of as per ITT clause 12.0 from the date of submission of Tenders.

1.8 Tenderer is cautioned that the tender containing any material deviation from the tender document which consists of NIT, Instructions to tenderers, General conditions of contract, Special conditions of contract, Bill of quantities is liable to be summarily rejected as non-responsive.

1.9 DMRC reserves the right to accept or reject any or all proposals without assigning any reasons. No tenderer shall have any cause of action or claim against the DMRC for rejection of his proposal.

1.10 Tenderers are advised to visit the site before offering their rates.

1.11 Bidders shall note that the maximum file size that can be uploaded is 5 MB and in the form of pdf/jpg/jpeg format. All the uploaded files in tender submission should be named properly and arranged systematically.

1.12 The bidders are advised to keep in touch with e-tendering portal https://eprocure.gov.in/eprocure/app for updates. Any corrigendum, addendum etc issued shall be part of this tender document and shall be made available on this e-tendering portal.

Delhi Metro Rail Corporation Ltd
2nd floor, C Wing Metro Bhawan,
Fire Brigade Lane, Barakhamba Road,
New Delhi-110001

Sr. DGM / E&M
SECTION 2

SCOPE OF WORK

2.0 The contractor will execute the work i.e. "Comprehensive Annual Maintenance and Operation Contract of Centralized AC Plant and its equipments installed at DO building and Training institute at Shastri Park Train Depot for 03 Years". The centralized AC Plant is operational since Year-2003.

2.1 TECHNICAL SPECIFICATIONS OF CENTRALIZING AC PLANT AND ITS ASSOCIATED ACCESSORIES

The plant consists of following equipments.

1. Screw chiller with control panel and economizer 02 Nos.
2. AHU with control panel 06 Nos.
3. Chiller water pumps with control panel 03 Nos.
4. Condenser water pumps with control panel 03 Nos.
5. Cooling towers 02 Nos.
6. Hot water generators with main and control panel 01 No.
7. FCU 12 Nos.
8. AHU control panel 06 Nos.
9. Main control, panel 02 No.

2.1.1 Screw Chiller
Capacity -150TR-2nos
Model No. WCFX 15D2BIC, Make Dunham Bush, Malaysia, Compressor Make- HEARD FORD, Model- 1215 NHF6W4 KOENBJOC,
Economizer- Model No. H012243A1 Make- Dunham Bush, Malaysia

2.1.2 Motherboards
The plant operation is carried out with the help of 02 Nos. motherboards, one for each plant installed at a control panel. Model No. NC 2020i, Make Dunham Bush, Operating voltage 12V, calculates the percentage full load capacity of the compressor on discharge pressure, line voltage and current drawn by the compressor. The motherboards comprise of the following analogue /digital inputs.

- Compressor status
- Cooler pressure compressor
- Condenser pressure
- Voltage
- Compressor amperage
- No- Stop
- Low cooler pressure
- High condenser pressure
- Freeze( low water temp)
- Low oil
- No run
- Power loss (power failure)
- Low differential pressure
- Water temp sensor error
- Cooler pressure sensor error
- Discharge pressure sensor error
- Under voltage (High/Low)

2.1.3 Date and Time
2.1.4 AHU with control panel 415V
Plant Room, Fan and Motor capacity RPM 1440, HP 7.5, KW -5.5, Amp-11.2, CFM-10000 Make-ABB
Training School Fan and Motor capacity RPM 1440, HP 7.5, KW -5.5, Amp- 11.2 CFM-8500, 4 Pole, 415V, Make-ABB - 01 No.

2.1.5 Chiller and Water Pump with control panel 415V
Chiller- shell type, Model No.- EF18102H144KAJ, Make- Dunham Bush, Malaysia,
Pump and Motor capacity,RPM 1455, HP20, KW -15, Amp-29.5 Total Head- 30m, Discharge 81 m3/hr, Make- ABB, 03 Nos.

2.1.6 Condenser and Water Pump with control panel 415V
Condenser Model No. CD14102H156HAG Make- Dunham Bush, Malaysia
Pump and Motor capacity RPM 1455, HP25, KW -18.5, Amp-35 Total Head- 40m, Discharge 82 m3/hr, Make- ABB, 03 Nos.

2.1.7 Cooling Towers with control panel 415V
Model TM 117, Make Advance Reinforce Plastic Pvt ltd, and Sump capacity- 2000 L
Fan Motor, Make- Hindustan Electric, RPM- 710, HP-5, KW-3.8, Amp- 8.8,

2.1.8 Hot Water Generators with main and control panel
Vertical Shell type, capacity 204KW, Steps 4.,
Electric panel consisting of MCCB, On/Off toggle switch, starters with HRC fuses, HRC fuse for individual heaters, thermostats, ammeter and voltmeter, contactors MN 65 L&T make,

2.1.9 FCU
HP- 0.5, Ton-02, 12 Nos.
AHU Control Panels consisting of MCCB, contactors, Relays, Rotary switches and on delay timers, Make- Bhartia cutler hammer

2.1.10 Main Control Panel
ACB- 800A -01 No, ACB 630A- 02Nos. make- Control & switchgear

2.2 BRIEF SCOPE:
The contractor will execute the work i.e.“Comprehensive Annual Maintenance and Operation Contract of Centralized AC Plant and its equipments installed at DO building and Training institute at Shastri Park Train Depot for 03 Years” including all spares, materials, tools & labour etc. This scope of work covers operation of centralized AC plant, all types of preventive maintenance schedule of daily, weekly & monthly and breakdown maintenance.
Following items are proposed to be put on Comprehensive Annual Maintenance and Operation Contract
2.2.1 Centralized AC Plant (Voltas make) – 02 nos. including equipments-

i. Screw Chiller (WCX15D2B1C) with control panel and Economiser : 2 Nos.
i. AHU with control panel : 6 Nos.
i. Chiller water pump with control panel : 3 Nos.
i. Condenser water pump with control panel : 3 Nos.
v. Cooling Tower : 2 Nos.
vi. Hot water generator with control panel : 1 No.
vii. FCU : 12 Nos.
viii. Main control panel : 1 No
ix. Pot Strainer : 1 No
x. AHU Control Panel : 6 Nos.
xi. Other Accessories

2.2.2 Schedule of Maintenance:-
A) PREVENTIVE MAINTENANCE:-
Contactor shall strictly follow the Preventive Maintenance Schedule along with checklists as per Technical Specification. However if contractor feels that any other activity is required to be additionally
done for proper maintenance of the system as per the OEM recommendation, he shall carry out the same. Requirement of preventive maintenance indicated in technical specification checklists is the bare minimum. The preventive maintenance is to be carryout for complete HVAC system & its associated accessories installed at Shastri Park Depot as per B.O.Q including replacement faulty spares and consumable items. The Preventive Maintenance is to be carried out in such a manner that overall functioning of the system & functional equipments is not affected.

B) CORRECTIVE MAINTENANCE:
The corrective/breakdown maintenance is to be carried out any time during 24hrs X 365days inclusive of all Sundays & Holidays.
(a) Minor Maintenance:- Inclusive of Repairing and Replacement of all Spares/Components and all other associated accessories which are covered otherwise and attention of all defects other than major defects.
  i. Response Time (Max.) - 04 hours
  ii. Attending Time (Max.) - 08 hours
(b) Major Maintenance: - Detection of Gas leakage, Refilling/Charging of gas Pipefitting, Welding /brazing works, Rewinding of Motors. Basically it covers attention of all types of Major Failures/Breakdowns.
  i. Response Time (Max.) - 04 hours
  ii. Fault Attending Time (Max.) - 48 hours
(Should be in proportion With the Type of Failure)
• Call made before 16:00 Hrs shall have to be attended on same day.
• Call made after 16:00 Hrs shall be attended by 10:00 Hrs on next day.
C) Yearly descaling /cleaning of water- cooled condenser.
D) Repairing/overhauling the components of the equipment at site/in our service station, including replacement of worn out parts as and when required.
E) Replenishing the refrigerant as a result of a leak from the system arising out of standard wear and tear.
F) De scaling /cleaning of chiller when found necessary.
G) Checking condition and setting of panel controls, operating controls, safety controls to ensure optimum performance, reliability and replacement of the same if found necessary.
H) Checking all electrical controls and components (switches, timer, relay and starter) in the chiller, electrical panel and replacement of the same if found necessary.
I) Checking the refrigeration system, motor and starters for performance and ensuring the overall healthy condition of the plant.
Checking the system for leaks and then rectifying leaks, if any.
Taking a set of readings and then evaluating them to ensure satisfactory performance of the plant.

The following Maintenance Services are not Covered Under CAMC of Centralised AC plant
Day to Day/ Routine maintenance and operation of HVAC system.
Firm will not replace the equipment however in case of failure, firm will repair / overhaul the compressor condenser, chiller, motor, cooling tower, cooling tower fillings, heating/cooling coils, fans, FCUs, AHU, Sheet metal parts.
Repair / replacement of electrical main switch/circuit breaker, main incoming cable, fuses and indication lamps.
Repair / replacement of component of main electrical distribution board and distribution power control cabling.
Repair / replacement of chilled water and condenser water valves and water piping, and all kind of masonry/ structural work.
Ducting and its accessories like dampers off all types, Thermal and Acoustic installation, all type of piping and valves, electrical panel, cabling, control wiring, bulbs and fuses.
Building Management System.
Replacing of fine filters and absolute filters.
### DETAIL CHECK LISTS FOR 3-MONTHLY, 6-MONTHLY & YEARLY

#### 3-MONTHLY

<table>
<thead>
<tr>
<th>SN</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1  | Chiller System (2nos.) | 1. Open fan section cover AHU; check belts for wear and tear. Replace if necessary, check bearings and alignment of belt drive. Refit the fan section.  
2. Inspect contacts for chatter marks and clean.  
3. Check if there is a rust spots on sheet panels and intermediate drain trey, amory such spot and patch up with red oxide and paint.  
4. Inspecting the plant/system and carrying out preventive maintenance.  
5. Inspect cables for loose/loaded terminal, rectify if necessary.  
6. Checking the system for leaks and then rectifying leaks, if any.  
7. Taking a set of readings and then evaluating them to ensure satisfactory performance of the plant.  
8. Checking the control and set points for operation and adjusting the settings if necessary.  
9. Check flow switch operation for proper operation.  
10. Checking the electrical control and set points for operation and adjusting the settings if necessary. |
| 2  | AHU Motors | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Check AHU motor mounts for undue vibrations. Replace mounts if necessary.  
3. Inspect cables for loose/loaded terminals, rectify if necessary. |
| 3  | Chiller water pump (3nos.) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary. |
| 4  | Condenser water pump (3nos.) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Inspect contacts for chatter marks and clean. |
| 5  | All pumps, panels and contactors (cleaning and servicing) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary. |
| 6  | Cooling towers (2nos.) | 1. Cleaning cooling tower, sump and filter. |
| 7  | Cooling panel tower and contactors (cleaning and servicing) | 1. Inspect cables for loose/loaded terminals, rectify if necessary.  
2. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary. |
| 8  | Fan Coil unit | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Check FCU motor mounts undue vibrations. Replace mounts if necessary.  
3. Inspect cables for loose/loaded terminals, rectify if necessary. |
| 9  | Centrifugal fan Exhaust fan | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Check Fan motor mounts undue vibrations. Replace mounts if necessary. |
<p>| 10 | Miscellaneous | 1. Regular/scheduled maintenance of all accessories of the plant not mentioned above |</p>
<table>
<thead>
<tr>
<th>SN</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1  | Chiller (2nos.) | 1. Open fan section cover AHU; check belts for wear and tear. Replace if necessary, check bearings and alignment of belt drive. Refit the fan section.  
2. Inspect contacts for chatter marks and clean.  
3. Check if there is a rust spots on sheet panels and intermediate drain tray, ambery such spot and patch up with red oxide and paint.  
4. Inspecting the plant/system and carrying out preventive maintenance.  
5. Inspect cables for loose/loaded terminal, rectify if necessary.  
6. Checking the system for leaks and then rectifying leaks, if any.  
7. Taking a set of readings and then evaluating them to ensure satisfactory performance of the plant.  
8. Checking the control and set points for operation and adjusting the settings if necessary.  
9. Check flow switch operation for proper operation.  
10. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
11. Descaling of condensers/Chiller if deemed necessary.  
12. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary. |
| 2  | AHU Motors | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Check AHU motor mounts for undue vibrations. Replace mounts if necessary.  
3. Inspect cables for loose/loaded terminals, rectify if necessary.  
4. Inspect contacts for chatter marks and clean.  
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary. |
| 3  | All pumps, panels and contactors (cleaning and servicing) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Inspect contacts for chatter marks and clean.  
4. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary. |
| 4  | Cooling tower, panel and contactors (cleaning and servicing) | 1. Inspect cables for loose/loaded terminals, rectify if necessary.  
2. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.  
3. Inspect contacts for chatter marks and clean. |
| 5  | Fan Coil unit | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Check FCU motor mounts undue vibrations. Replace mounts if necessary.  
3. Inspect cables for loose/loaded terminals, rectify if necessary.  
4. Inspect contacts for chatter marks and clean.  
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum, performance, reliability and replacement of the same, if found necessary. |
<table>
<thead>
<tr>
<th>SN</th>
<th>Items</th>
<th>Activity to be performed</th>
</tr>
</thead>
</table>
| 1  | Centrifugal fan/Exhaust fan | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Check Fan motor mounts undue vibrations. Replace mounts if necessary.  
4. Inspect contacts for chatter marks and clean.  
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary. |
| 2  | Chiller System (2nos.) | 1. Open fan section cover AHU; check belts for wear and tear. Replace if necessary, check bearings and alignment of belt drive. Refit the fan section.  
2. Inspect contacts for chatter marks and clean.  
3. Check if there is a rust spots on sheet panels and intermediate drain trey, ambery such spot and patch up with red oxide and paint.  
4. Inspecting the plant/system and carrying out preventive maintenance.  
5. Inspect cables for loose/loaded terminal, rectify if necessary.  
6. Checking the system for leaks and then rectifying leaks, if any.  
7. Taking a set of readings and then evaluating them to ensure satisfactory performance of the plant.  
8. Checking the control and set points for operation and adjusting the settings if necessary.  
9. Check flow switch operation for proper operation.  
10. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
11. Descaling of condensers/Chiller if deemed necessary.  
12. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.  
13. Carry out chemical cleaning of AHU coil.  
| 3  | AHU Motors | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Check AHU motor mounts for undue vibrations. Replace mounts if necessary.  
3. Inspect cables for loose/loaded terminals, rectify if necessary.  
4. Inspect contacts for chatter marks and clean.  
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.  
| 4  | Chiller water pump (3nos.) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Lubricating the bearings of Pump. |
| 5  | Condenser water pump (3nos.) | 1. Checking the electrical control and set points for operation and adjusting the settings if necessary.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Inspect contacts for chatter marks and clean.  
4. Lubricating the bearings of Pump. |
| 6  | Cooling towers (2nos.) | 1. Cleaning cooling tower, sump and filter.  
2. Inspect cables for loose/loaded terminals, rectify if necessary.  
3. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.  
4. Inspect contacts for chatter marks and clean.  
5. Lubricating the bearings of motor. |
### 6. Fan Coil unit

1. Checking the electrical control and set points for operation and adjusting the settings if necessary.
2. Check FCU motor mounts undue vibrations. Replace mounts if necessary.
3. Inspect cables for loose/loaded terminals, rectify if necessary.
4. Inspect contacts for chatter marks and clean.
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.
6. Lubricating the bearings of motor.

### 7. Centrifugal fan/Exhaust fan

1. Checking the electrical control and set points for operation and adjusting the settings if necessary.
2. Inspect cables for loose/loaded terminals, rectify if necessary.
3. Check Fan motor mounts undue vibrations. Replace mounts if necessary.
4. Inspect contacts for chatter marks and clean.
5. Checking the condition and setting of panel controls, operating controls and safety controls to optimum performance, reliability and replacement of the same, if found necessary.
6. Lubricating the bearings of motor.
7. Carry out chemical cleaning of AHU coil.

#### 2.3.1 Operation of the plant and Maintenance Schedules as per check lists shall be in such a way that the comfort conditions are achieved in the building before the office starts functioning i.e. 09.00 AM daily basis excluding Sundays and remain working as per day to day requirement. However, exact time of operation is subject to change.

#### 2.3.2 The plant is subjected to operation up to 9 hrs per day and no extra charge shall be paid to the contractor. The firms/ bidders are advised to quote accordingly.

#### 2.3.3 If the operation of the plant is required to be done on Sunday the permission shall be given by the DMRC at least one day in advance. In lieu of that Sunday contractor has to give compensatory rest to their one staff at a time.

#### 2.3.4 One operator & one helper will be available for 9 hrs. daily during the contract period including holidays. They shall be in proper uniform suitable for the work.

#### 2.3.5 Starting and stopping of the plant shall be done as per requirement of the user. Checking of water in the cooling towers (applicable for water cooled units) shall be done by the firm.

#### 2.3.6 Checking the operation of each equipment and recording the abnormalities observed of the plant, readings in log sheet shall be done by the firm for its normal operating conditions and informing the abnormalities to DMRC’s concerned official & Voltas.

#### 2.3.7 Cleaning of AHU Air filters as and when required shall be done by the firm. Maintain general cleanliness in the plant room shall be done by the firm.

#### 2.3.8 The firm shall provide accommodation, conveyance, uniform, safety shoes, rain Coat, helmet to their operating staff at their cost

#### 2.3.9 Detailed Maintenance Schedules (Daily, Weekly & Monthly) shall be done as per specification/checklists.

#### 2.4 DMRC is an ISO-14001 & OHSAS 18001 certified Organization for Environment, Health & safety. The work is to be carried out as per International Norms/Standards and in such a manner that all premises always look Neat & Clean. Similarly, the waste disposal is also carried out in totally sealed manner without affecting the Environment.
SECTION 3

TENDER PRICES AND
SCHEDULE OF PAYMENT

3.0 Tender Prices

a. Unless explicitly stated otherwise in the Tender Documents, the contractor shall be responsible for the whole works, based on the Bill of Quantities and payment shall be as per accepted rates based on the activities carried out as in the Schedule of work.

b. The rate quoted by the tenderer shall be inclusive of all duties, taxes, fees, octroi and other levies, tools & tackles and labour charges etc.

c. All duties, taxes, fees, octroi and other levies etc shall be applicable as per Indian government statutory norms.

3.1 Schedule of Payment

3.1.1 The payment shall be made based on actual work done as per the accepted rates on quarterly basis after getting it certified by DMRC representative.

3.1.2 The payment shall be made subject to deduction of statutory charges /taxes /duties/ TDS/ levies etc.

3.1.3 The contractor shall have to furnish the proof of compliance on various issues such as EPF, ESI, Payment of wages Act- 1936, Minimum Wages Act- 1948, Workman's Compensation Act- 1923, Contract Labour Act- 1938, Factories Act- 1948 etc. with the bill.

3.1.4 The contract price shall not be adjusted to take into account any change in taxes, duties, levies or introduction of any new tax (including GST which is likely to be implemented shortly) duty or levy till the completion date including the date of extended period of contract.