



DELHI METRO RAIL CORPORATION LTD.

(A Joint Venture of Govt. of India & Govt. of NCT, Delhi)

" Supply, Installation, Testing and Commissioning of Air Washer Units at Khyber  
pass depot Canteen of DMRC "

TENDER DOCUMENT

No. O&M/E&M/UG/2015/KPD/AWU

- \* NOTICE INVITING TENDER
- \* INSTRUCTION TO TENDERER
- \* SPECIAL CONDITIONS OF CONTRACT
- \* OTHER TERMS AND CONDITIONS
- \* BILL OF QUANTITY

SECTION 1  
NOTICE INVITING TENDER

1.1 GENERAL

Delhi Metro Rail Corporation (DMRC) Ltd. Invites sealed e-open tenders in TWO Bid SYSTEM (Technical Evaluation and Financial) from the eligible tenderes as per tender clause 1.2 of NIT for "Supply, Installation, Testing and Commissioning of Air Washer Units at Khyber pass depot Canteen of DMRC"

1.1.1 The details of the Tender are as per following:

Estimated cost of work	Rs. 10,75,435/- inclusive of all taxes
Tender Security amount	Rs. 21509/-
Cost of Tender documents	INR 5250./- (inclusive of 5% DVAT) Non-Refundable
Completion period of the Work	Six(6) months (from 10 <sup>th</sup> day of issue of letter of acceptance)
Tender documents on sale	From 24.07.15 to 19.08.15 (upto 18:00 hrs) on e-tendering website <a href="http://www.tenderwizard.com/DMRC">www.tenderwizard.com/DMRC</a>  Tender document can only be obtained after registration of tenderer on the website <a href="http://www.tenderwizard.com/DMRC">www.tenderwizard.com/DMRC</a> . For further information on this regard bidders are advised to contact 011-49424307, 011-49424365 or 011-23417910
Pre-bid Meeting	N/A
Last date of Seeking Clarification	Upto 18.08.15 at 1500 hrs
Last date of issuing addendum	Upto 21.08.15 at 1500hrs
Last Date & time of Submission of Tender	Upto 21.08.15 at 1500hrs
Date & time of opening of Technical Bid	Upto 21.08.15 at 1530hrs
Date & time of opening of Financial Bid	Shall be informed after evaluation of technical bid through website <a href="http://www.tenderwizard.com/DMRC">www.tenderwizard.com/DMRC</a>
Authority and place for purchase of tender documents, seeking clarifications and submission of	DGM/E&M/UG Delhi Metro Rail Corporation, 2nd floor, B-Wing, Metro Bhawan, Fire Brigade Lane, Barakhamba Road,

completed tender documents	New Delhi –110 001
<p>The tender cost in the form of demand draft and tender security in the form of demand draft / banker's cheque in favor of "Delhi Metro Rail Corporation Ltd" payable at New Delhi.)</p> <p>The same should be submitted in original up to 1500hrs on 21.08.15 in the office of DGM/E&amp;M/UG at above mentioned address.</p> <p>NOTE: Failure of submission of tender cost &amp; tender security (in original) with in stipulated time as mentioned above, leads to rejection of offer submitted by the bidder.</p>	

## 1.2 Eligibility Criteria

### 1.2.1 Work Experience:

- a. Experience of having satisfactorily completed similar works carried out at Govt./Semi Govt organization/PSU during last five years ending last day of month previous to the one in which the Tenders are invited should be either of the following:-

Three similar works costing not less than the amount equal to 40% of the estimated cost put up to the tender.

or

Two similar works costing not less than the amount equal to 50% of the estimated cost put up to the tender

or

One similar work costing not less than the amount equal to 80% of the estimated cost put up to the tender

Similar nature of work means:

- Supply installation testing commissioning of work which includes Air washer/ VRV's/ Air cooled Chiller/ Water cooled chiller.
- NOTE: works related to window/ Split AC will not be considered.

Note:

- 1) Following documents shall be considered for evaluating the criteria of work experience:

Self attested copies of work order, BOQ along with completion certificate (indicating the name of work, final amount, completion date etc) issued by the client preferably on their letter head for completed work from the officer not less than rank of Executive Engineer

- b. Financial Standings:

Applicant should have average Annual Turnover of last three audited financial years not less than 80% of Estimated.

Financial data for latest last three audited financial years has to be submitted by the tenderer along with audited balance sheets.

- c. Self attested copy of VAT/Service tax registration certificate, PAN no.
- d. Applicant must not have been black listed or deregistered by any Govt or Public sector undertaking during last 5 years the contractor has to submit an undertaking on Rs. 10 stamp paper duly attested by Notary in format enclosed in annexure -D

- e. Tenderer shall submit last three years (2012-2013, 2013-2014, 2014-2015) audited financial statement duly attested by certified CA to work out net worth. The net worth must be positive.

1.2.2 The tender submission of bidders, who do not qualify the minimum eligibility criteria stipulated in the clauses 1.2.1 above, shall not be considered for further evaluation and considered rejected. The mere fact that the bidder is qualified as mentioned in sub clause 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 same should contain all Financial & other details as required for the consideration of tender.

1.2.3 Tender document consists of the following:

- a. Notice Inviting Tender
- b. Scope of Work
- c. Tender prices and schedule of payment
- d. Instructions to Tenderers
- e. Special Conditions of Contract
- f. Other terms and condition of Contract
- g. General Conditions of Contract
- h. Content of Bill of Quantities.
- i. Bill of Quantity

1.3 The tenderers may obtain further information in respect of these tender documents from the office of Deputy General Manager /E&M/UG office, 2<sup>nd</sup> Metro Bhawan Fire Brigade lane, Barakhamba Road New Delhi-110001

1.4 The contract shall be governed by the documents listed above along with latest edition of CPWD Specification, IRS Specifications & MORTH Specifications. These may be purchased separately from the market.

1.5 The intending bidders must be registered on e-tendering portal [www.tenderwizard.com/DMRC](http://www.tenderwizard.com/DMRC). 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.

1.6 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.

1.7 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.

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

1.9 Tenderer are advised to visit the site before offering their rates.

- 1.10 Tenders shall be valid for a period of as per ITT clause 11 from the date of submission of Tenders and shall be accompanied with a tender security of the requisite amount as per ITT clause 12.
- 1.11 DMRC reserves the right to accept or reject any or all proposals without assigning any reasons. No bidder shall have any cause of action or claim against the DMRC for rejection of his proposal.
- 1.12 Bidders shall note that the maximum file size that can be uploaded is 5 MB. All the uploaded files in tender submission should be named properly and arrange systematically.
- 1.13 The bidders are advised to keep in touch with e-tendering portal [www.tenderwizard.com/DMRC](http://www.tenderwizard.com/DMRC) for updates. Any corrigendum, addendum etc issued shall be part of this tender document and shall be made available on DMRC website [www.tenderwizard.com/dmrc](http://www.tenderwizard.com/dmrc)

DGM/E&M/UG (Arun Sharma)  
Delhi Metro Rail Corporation Ltd  
2<sup>nd</sup> floor, Metro Bhawan,  
Fire Brigade lane,  
Barakhambha Road  
New Delhi-110001

## SECTION 2 SCOPE OF WORK

The contractor will execute the work i.e. "Supply, Installation, Testing and Commissioning of Air Washer Units at Khyber pass depot Canteen of DMRC"

- 1.0 The scope of work shall comprises the supply, Installation, testing and commissioning of air washer conforming to specifications and in accordance with the schedule of quantities. The Air washer / Scrubber unit shall be connected with existing sheet metal ducting at terrace.
  1. All site preparatory work shall have been carried out prior to the commencement of the installation.
  2. The preparation of all fixings and drilling of any holes required
  3. Electrical wiring connection including cables and wiring accessories between the connection unit or socket outlet shall be provided.
  4. Electrical cables or wiring installed outside the casing and inside the air stream shall be protected by metallic flexible conduit.
  5. Any other minor work required for completion of job shall be in scope of contractor, nothing shall be paid extra.
  6. INTERCONNECTING PIPES: Air washer/Scrubber shall be complete with interconnecting GI piping from pumps to air washer, valves, gauges, fittings, strainers etc.
  7. PAINTING : Shop coats of paint that have become marred during shipment or erection shall be cleaned off with mineral spirits, wire brushed and spot primed over the affected areas, than coated with paint to match the finish over the adjoining shop painted surface.
  8. TESTING: Efficiency of air washer/scrubber shall be computed from the measurements of air flow and dry and wet bulb temperature of air entering and leaving the air washer and ambient temperatures.
  9. Any defects of Workmanship, materials, performance, maladjustment, non-compliance with this specification or other irregularities which become apparent shall be rectified by the Contractor, at its own expense, until the whole Works is free from defects and in full working order to the complete satisfaction of the Engineer
  10. All the material removed from the system shall be handed over to DMRC
  11. The contractor shall also be responsible to repair the defects / faults arise during the defect liability period after the completion of work
  12. Preventive & corrective schedule During Defect liability period.

- a. Preventive maintenance: Shall be carried out as per OEM recommendation / DMRC check list. A complete check list shall be prepared in consultation with DMRC Engineer – in – charge to carry out the preventive maintenance schedule
- b. Corrective Maintenance: The Corrective/Breakdown Maintenance is to be carried out any time during 24 hrs x 365 days inclusive of all Sundays & Holidays.

For Corrective/breakdown condition:

Response Time (Max):	06 hrs
A. To attend the Minor Repair	48 hrs
Attending time (Max.)	48 hrs
B. To attend the Major Repair	
Attending time (Max.)	5 days

However, the decision regarding minor/major maintenance shall be of DMRC, which will be binding on the contractor.

## 2.0, Technical Specification

- 2.1 FILL TYPE AIR WASHER: The air washer shall be draw through type with minimum 90% saturation efficiency with imported cellulose paper pads. The air washer shall be selected & designed for lowering inside temperature by 5–10 °C dependent on ambient conditions.
- 2.2 Housing: Double skinned panels shall be 23 mm thick made of galvanized steel, pressure injected with foam insulation (density 40 Kg / m<sup>3</sup>) with K factor not exceeding 0.02 watt / Mc shall be fixed to 1.5 mm thick aluminium alloy twin box section structural framework with stainless steel screws. Outer sheet of panels shall be made of galvanized pre plasticized sheet of 0.63 mm thick, and inner sheet of 24 gauge plain GI sheet.
- 2.3 The entire framework shall be mounted on an aluminium alloy or galvanized steel (depending on size) channel base as per manufacturer's recommendation. The panels shall be sealed to the frame work by heavy duty gaskets held captive in the framed extrusion. All panels shall be detachable or hinged. Hinges shall be made of die cast aluminium with stainless steel pivots, handles shall be made of hard nylon and be operational from both inside and outside of the unit. Units supplied with various sections shall be suitable for on site assembly with continuous foam gasket.
- 2.4 All fixing and gaskets shall be concealed Units shall have hinged, quick opening access door in the fan section and also in filter section where filters are not accessible from outside. Access doors shall be double skin type.
- 2.5 Motor: TEFC Squirrel cage Induction motor for quiet operation and suitable for 415±10% volts, 50 Hz, three phase AC supply, horizontal foot mounted with class F insulation & IP 55 protection.
- 2.6 Fan: Fan are of centrifugal type, conforming to AMCA Standard & Imported make and are double width, double inlet with Forward- blades. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block .
- 2.7 Canvass Connection: Double layered- fire retardant canvass

- 2.8 Recirculation tank shall be fabricated from 18 gauge stainless steel sheet with all corners welded. The tank shall be complete with double brass strainers, makes-up connection with float, drain and overflow connections.
- 2.9 Fill: Fill shall be of imported cellulose paper pads and of cross fluted configuration assembled in self supporting pads in a light weight construction. The pads shall be able to redistribute the water and shall be impregnated with insoluble antirot salts, rigidifying saturants and wetting agents with built in eliminators. The velocity across the fill shall not exceed 500 fpm (2.52 m/s) and shall not allow carry over of water. Minimum thickness of fill shall be 200 mm and minimum efficiency of pads 90%.
- 2.10 Water Distributor: A FRP distributor shall evenly distribute water on the fill.
- 2.11 Filters Filters section shall incorporate synthetic washable filtes of at least 50 mm thickness in suitable aluminium frame. Velocity of air across the filters shall not exceed 500 fpm (2.52 m/s)
- 2.12 SPRAY TYPE SCRUBBER: The Scrubber shall be with spray nozzles, draw through opposed type with minimum 90% saturation efficiency.
- 2.13 cables/wires : Contractor shall provided FRLS cables/wires of suitable size in consultation & approval with Engineer in-charge.
- 2.13 Housing: Double skinned panels shall be 23 mm thick made of galvanized steel, pressure injected with foam insulation (density 40 Kg / m<sup>3</sup>) with K factor not exceeding 0.02 watt / Mc shall be fixed to 1.5 mm thick aluminium alloy twin box section structural framework with stainless steel screws. Outer sheet of panels shall be made of galvanized preplasticised sheet of 0.63 mm thick, and inner sheet of 24 gauge plain GI sheet. The entire framework shall be mounted on an aluminium alloy or galvanized steel (depending on size) channel base as per manufacturer's recommendation. The panels shall be sealed to the frame work by heavy duty 'O' rings gaskets held captive in the framed extrusion. All panels shall be detachable or hinged. Hinges shall be made of die cast aluminium with stainless steel pivots, handles shall be made of hard nylon and be operational from both inside and outside of the unit. Units supplied with various sections shall be suitable for on site assembly with continuous foam gasket. All fixing and gaskets shall be concealed. Units shall have hinged, quick opening access door in the fan section and also in filter section where filters are not accessible from outside. Access doors shall be double skin type.
- 2.14 Motor: TEFC Squirrel cage Induction motor for quiet operation and suitable for 415±10% volts, 50 Hz, three phase AC supply, horizontal foot mounted with class F insulation & IP 55 protection.
- 2.15 Fan : Fan are of centrifugal type, conforming to AMCA Standard and are double width, double inlet with Backward blades. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block with double skin housing .
- 2.16 Recirculation tank shall be fabricated from 18 gage stainless steel sheet with all corners welded. The tank shall be complete with double brass strainers, makes-up connection with float, drain and overflow connections.
- 2.17 Distribution Plate Distribution plate 24 gauge galvanized sheet steel distribution plate with hot dipped galvanized angle iron frame and minimum 50% free area shall be provided on intake side of air washer.



- 2.18 Scrubber: Scrubber shall be 2 bank air washers with 1/8" (3 mm) bore bronze nozzles with brass plug complete with GI pipes and spray headers. Minimum number of nozzles shall be 1 / sqft of face area. Face velocity not to exceed 500 FPM (2.52 m/s).
- 2.19 Eliminator: Eliminator plates shall be four bend made from 24 gauge galvanized sheet steel or PVC

### 3.0 Manpower deployment

- 3.1 The contractor shall deploy the manpower in consultation with Engineer in-charge and carry out the activities in hygienic manner.
- 3.2 The manpower can also be deployed during OFF days/holidays/night hours as per site requirements for which nothing shall be paid extra.
- 3.3 All the work associated with finishing complete in all respect shall be carried out by contractor for which nothing shall be paid extra.

4.0 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

#### 3.1 Tender Prices

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

b. The rate quoted by the tenderer shall be inclusive of all duties, taxes, fees, octroi and other levies, materials, labour etc. Service tax shall be shown separately in bill of quantity in respective column.

#### 3.1.2 Schedule of Payment

Payment shall be made on 100 % on the completion of work including complete testing & commissioning of work as per accepted rates

Payment shall be subjected to T.D.S as per applicable law.