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Room No - 40  
Dhruva, RRMD,  
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Mumbai - 400085

सत्यमेव जयते

GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE  
RESEARCH REACTOR MAINTENANCE DIVISION

## TENDER NOTICE

Tender Notice No: RRMD/TN-38/2018

Date: 07/08/2018

Sub: Tender enquiry for saddling of Earthing strip, construction of new earth pit and servicing of battery bank job in CF, P4 and Cirus, BARC.

Sealed tenders are invited for and on behalf of the President of India by the Head, RRMD BARC, Trombay, Mumbai-400085 from experienced vendors for saddling of Earthing strip, construction of new earth pit and servicing of battery bank job in CF, P4 and Cirus, BARC.

### 1.0 Description of the work:

- 1.1 Supply and installation of new saddles on existing earthing strips.
- 1.2 Supply and installation of terminal link box.
- 1.3 Supply and installation of Cast Iron cover over existing earthing pit chambers.
- 1.4 Construction of new earth pits chambers.
- 1.5 Replacement of rubber grommet of all cells of CF Battery banks.
- 1.6 Supply and installation of one relay in Cirus ACVR.

Note : All the jobs shall be carried out as per the attached technical specification.

### 2.0 Terms and conditions:

- 2.1 The offer should be valid for consideration for 60 days from due date of the offer.
- 2.2 Contractor should start the job within 1 month after receipt of work order.
- 2.3 The work completion period shall be 6 months. For any delay in work, contractor is liable for penalty @ ½ % per week (max 5 %) for any delay in work.
- 2.4 On completion of the work to our satisfaction, payment would be released on submission of bills in triplicate along with an advance stamped receipt.
- 2.5 The vendor should also clearly reply in his tender to “whether the contractor / vendor has any relative working in BARC or the contractor himself is an ex-employee of BARC or the contractor has any ex- employee of DAE on his payroll”.
- 2.6 The employees deputed at site by the contractor should have a valid police verification certificate.
- 2.7 Contractor shall make valid vigil passes (SEP/LEP) for its employees deputed at site, for allowing entry to site.
- 2.8 Contractor has to follow the safety requirements as mentioned in the tech spec. clause no 1.2.3.
- 2.9 Contractor should mention their valid PAN No. and GST Reg. No. in the quotation, failing which the offer shall be rejected.

### 3.0 Instructions to Tenderers:

- 3.1 Tenderers should submit documents in support of their technical capabilities.
- 3.2 Price quoted shall be filled up in the same format given in the Schedule-B with GST and no other charges will be payable.

- 3.3 Tender shall be submitted in the sealed cover in the vendor's standard company format quoting our **Tender no.** on the envelope and addressed to 'Head, RRMD, BARC, Trombay, Mumbai-400085 and submitted in the RG office, DHRUVA'. The offers should be submitted so as to reach RG office, on or before 23 August, 2018 up to 1500 Hrs. Tender is to be sent only through registered post or speed post only to, AO, RG Office, DHRUVA, BARC, Mumbai 400085. Hand delivery or courier of tenders will not be accepted.
- 3.4 Tenders shall be opened after that in front of Tender opening committee in RG.
- 3.5 Shri Mayank Kothiyal / Shri. Sanju Verma may be contacted on phone no. 25596272 / 25594296 from 10 AM to 5 PM to arrange entry permit for the site visit.
- 3.6 Tenderer shall visit the site and take full stock of job, before sending their quotation.
- 3.7 The acceptance of the tenders will rest with Head, RRMD who does not bind himself to accept the lowest offer, and reserves to him the authority to reject any or all the tenders received without assigning any reason.
- 3.8 Quotation received after the due date and time shall be summarily rejected.

Thanking you,

Yours faithfully,

Sd/-

P Sumanth

Head, RRMD

(For and on behalf of the President of India)

Enclosures: Schedule –A & B

Schedule –A

Tender Notice No: RRMD/TN- 38 /2018 Dated 07/08/2018

Name of Work: Saddling of Earthing strip, construction of new earth pit and servicing of battery bank job in CF, P4 and Cirus, BARC.

Sl. No.	Description	Qty	Unit	Rate
1.	Water	As required	Liter	Free
2.	Electricity	As required	KWH	Free

Schedule – B

Tender Notice No: RRMD/TN- 38 /2018 Dated 07/08/2018

Name of Work: Saddling of Earthing strip, construction of new earth pit and servicing of battery bank job in CF, P4 and Cirus, BARC.

Sr no.	Description	Unit	Qty	Unit Rate in Rs/-		Combined	Total
				Supply	Installation		
1	SS Clamping of horizontal and vertical earthing strip as per detailed specifications	1	Job				
2	Supply and Installation of terminal link	20	Nos.				
3	Supply and Installation of Earth pit chamber covers	44	Nos.				
4	Construction of new Earth pits as per detailed specifications	10	Nos.				
5	Supply and installation of 14 watt LED bulb	100	Nos.				
6	Supply and installation of earth fault relay	1	No.				
7	Battery bank job	2	Banks				
8	Supply of Electrical Insulation tape Steelgrip PVC Tape Self Adhesive (Pack of 30 Rolls) 1.80cmx7mx0.125mm (Multicolor)	10	Pack		--		
9	Supply of Hydrometer	10	No		--		
10	Digital multimeter TRMS, make Fluke/Megger/Hioki,, model-115.	2	No.		--		
11	Digital clamp meter for AC & DC current, make Fluke/Megger/Hioki, model 317	2	No.		--		
	Total				--		
	GST 18 %				--		
	Net				--		
	In words						

Signature of the contractor with seal

Note:

1. The prices shall be quoted in numerals and words as well. All pages of this form shall be signed with seal. No correction/ over writing is acceptable.

## Detailed Tech Spec

### 1. Earthing strip Job: CF & P4

#### 1.1 Introduction

##### 1.1.1 P4

Height of reactor Building is 17 meters, service building is 10 m and attach lab is 15 meters. Overall vertical strip is 135 meters. There is no direct strip of 17 meters. The maximum direct vertical length is around 12 meters, remaining direct vertical strips are only 10 meters and less. Overall horizontal strip is 336 meters at different heights/buildings: 10 meters, 15 meters and 17 meters.

##### 1.1.2 CF

Height of reactor building is 22 meters. Overall vertical strip is 100 meters. There are four direct strips of 22 meters each. Special arrangements are to be done for this. Remaining 12 meters is in 2 parts of height 6 meters each. Overall horizontal strips is 250 meters. These horizontal strips are at different platforms of: 22 meters, 16 meters and 10 meters. Apart from this, there is 30 meters of strip, fixed with metal staircase. This has to be either drilled or welded.

#### 1.2 Methodology

1.2.1 The saddling of strips has to be done. Firstly, spacer has to be fixed on the wall and on that spacer, saddle will be fixed. All material saddle, spacer, screws shall be required length, size and of Stainless Steel.

1.2.2 Horizontal saddles shall be 1 meter away and vertical saddles around 2 feet away. All saddles and screws shall be of Stainless steel. The contractor has to bring all the required material (saddle, spacer, screws) sufficient for the complete scope of job.

1.2.3 All the necessary arrangements of scaffolding, supports, safety gears and other shall be arranged/brought by the contractor.

##### 1.2.4 Safety Requirements:

Industrial Safety Undertaking will have to be signed after discussion between Contractor/Supervisor of concerned works contract & Safety Officer/Coordinator of Reactor Group. The contractor or executing agency shall adopt adequate safety measures as per the Job Hazard Analysis (JHA) control measures suggested. The personal protective equipment to contract workers, supervisors & engineers shall be supplied by the contractor at his cost.

General Requirement: All workers, supervisors & engineers of the contractor shall wear necessary protective clothing, safety belts with harness, helmets & canvas/safety shoes properly laced & follow the safety requirements strictly, while working at site.

For working at Heights: All the persons should be physically, mentally fit & to work in heights, medical fitness certificate should be furnished for all workers. The responsibility of all safety precautions related with a particular job at site primarily lies with the Contractor. The contractor & his persons shall strictly observe all security and safety regulations prevailing at the site. The contractor & his team working at the site shall follow the safety measures as mentioned in "Safety with scaffolding" of GCC & other safety measures at site as per "Construction Safety Manual" available at [www.tenderwizard.com/DAE](http://www.tenderwizard.com/DAE) or [www.barc.gov.in](http://www.barc.gov.in). All the workers, supervisors & engineers of the contractor shall have proper medical certificates issued by the competent authorities.

Safe industrial practices for entering & working in confined spaces are to be followed by Contractor & his team, wherever applicable.

Safe industrial practices are to be followed for use of portable ladders & step ladders by Contractor & his team, wherever applicable.

All workers should be insured at the cost of the contractor for risk of working at BARC & no claim will be payable by BARC.

### 2. Terminal link boxes

Twenty numbers of terminal link boxes are also to be replaced with new one. The older one has to be removed and the supplied one are to be installed in their place. The new boxes shall be of FRP construction, IP 54, complete with copper links. The nut bolts used in the boxes shall be of brass. The size of boxes shall be similar to the old boxes.

### 3. Earth pit chamber covers

Supply and installation of Cast Iron cover of size 500x500mm for 44 numbers of existing earth pits, along with necessary masonry work.

### 4. New Earth pits:

Construction of new earth pits chambers, which include supply of brick, cement, sand, etc and masonry work. The pits shall be plastered after brick work. The dimensions of pit shall be as detailed below:

Innersquare size of the chamber (before plastering): 470x470mm,

Wall thickness: 230mm (double brick type)

Height of chamber: 1 foot (underground) + 1.5 foot (above ground)

And the chamber should be suitable to install the C.I. cover of size 500x500mm supplied above.

5. Hydrometer:

Industrial grade hydrometer with heavy duty glass float, suitable for measuring specific gravity of Lead acid cells of 1000 AH.

Scale : 1.100 – 1.350 with .005 Subdivisions

6. Earth fault relay:

One electromagnetic earth fault relay type CAEM, shall be supplied and installed in one new ACVR in Cirus. The required wiring inside ACVR as per EIC instruction is in the scope of contractor.

Type	Battery Earth Fault relay
Version number	3
Battery / DC rating	125 VDC
IR value in KΩ at 1 mA tapping	51 K ohm
Burden in watts at rated voltage	6 Watts
Operating voltage band	70 VDC to 150VDC
Case 1D:	H: 233 mm, W:170 mm, D : 203 mm

7. Battery Bank job

For two numbers of 48 VDC Battery banks, having 24 cells each of 750AH, thorough cleaning of cells terminations and replacement of terminal nut bolts is in the scope. The detailed job is as follows:

- i. Disconnection of all the intercell connectors.
- ii. Replacement of nut and bolts, supplied by the department.
- iii. Removal of sulphation, proper cleaning of intercell connectors and terminals.
- iv. Cleaning of vent plugs in Luke warm DM water.
- v. Supply and replacement of all Rubber Grommet and pillar rings red and blue.
- vi. Supply and application of 10 kg battery grade petroleum jelly.
- vii. Supply of cotton chindi, 10 kg.
- viii. Reconnection of all the intercell connectors of cells and to make battery bank ready for service.

Any miscellaneous job arising in between is in the scope of contractor

8. LED bulb

LED Bulb Base	B22
Power Consumption	14 W
Cool Daylight	(6500-7500K)
Light Color	White
Lumen	1400
Duty	Continuous
Replacement warranty	2 years
Guaranteed Life	17,000 Hours
Preferred make	Binay/Philips/Eveready/Havels/Pyrotech/CG

The retrofitting of 5 feet tubelight fitting has to done as per instruction and arrangement of 2 bulbs is to be made in the fitting. The removal of fitting, re-installation of the same, modification in fitting/circuitry is to be done by contractor, including arrangement of scaffolding.

9. Digital Multimeter TRMS

- a. Voltage: DC: 600 volts; AC: 600 volts; DC Accuracy: ± 0.5% + 3 digit; AC Accuracy: ± 1% + 3 digit
- b. Current: DC: 10 amps; AC: 10 amps; DC Accuracy: ± 1% + 3 digit; AC Accuracy: ± 1.5% + 3 digit
- c. Resistance: 40 M ohm; Resistance Accuracy: ± 0.9% + 3 digit
- d. Capacitance: 10 mF; Capacitance Accuracy: ± 1.9% + 2 digit
- e. CAT III 600 volts safety rated
- f. 6000 count true RMS measurements
- g. AC/DC current, AC/DC voltage, resistance, frequency, capacitance measurements
- h. Diode and continuity test with buzzer
- i. Min/max/average to record signal fluctuations
- j. Large white LED backlight to work in poorly lit areas
- k. Long battery life with auto power off
- l. 3 year warranty and calibration certificate
- m. Preferred make : M/s Fluke/Megger/Hioki, model 115 of Fluke or equivalent.

10. Digital clamp meter TRMS

- a. Voltage: DC: 600 volts; AC: 600 volts; DC Accuracy: 1% + 4 digit; AC Accuracy: 1.5% + 5 digit

- b. Current: DC: 600 amps; AC: 600 amps; AC Accuracy: 1.5% + 5 counts
- c. 600 amps AC/DC current measurement
- d. Unique 40 A low frequency measurements capability with 0.01 A resolution
- e. Special filter circuit to enable accurate measurement of PWM output
- f. Additional measurement of resistance and continuity check feature
- g. Data hold features with large, easy to read backlight display
- h. 1 year warranty and Calibration certificate
- i. Preferred make : M/s Fluke/Megger/Hioki, model 317 of Fluke or equivalent.