



Phone & Fax : 0376-2320074
 E-mail : hrhpowiet@gmail.com
 Website : www.powietjrt.org

GOVT. OF ASSAM
OFFICE OF THE PRINCIPAL, HRH THE PRINCE OF WALES INSTITUTE OF
ENGINEERING & TECHNOLOGY, JORHAT

Ref: No. POW/NEQIP/2016/ 1716-E

Date: 27-07-2016

NOTICE INVITING TENDER (NIT)
FOR SUPPLY & INSTALLATION OF MACHINES & EQUIPMENTS TO HRH THE PRINCE OF
WALES INSTITUTE OF ENGG. & TECH. UNDER AICTE-NEQIP-II PROGRAM

The Principal, HRH The Prince of Wales Institute invites quotation for supply & Installation of Machines & Equipment as per details at ANNEXURE-IV, in **Two Bids** to reach the undersigned on or before 20-08-2016.

| Sl. No. | Reference no. | Items | Qty | EMD (Rs.) in the form of DD (to be submitted with Technical Bid) | Tender Document Fee (Rs.) in the form of DD (to be submitted with Technical Bid) |
|---------|---|---|--------------------|--|--|
| 01. | POW/NEQIP/2016/1716-E Date: 27-07-2016 | Supply & Installation of Machines & Equipments to be installed at POWIET, Jorhat | One package | @2% | 500.00 (non-refundable) |

(1). Last date & Time for Submission: 20 /08/2016 (14.00 HRS)

(2). Date/Time for Opening of Tech. Bids: 23/08/2016 (14.30 HRS)

After evaluation of technical bids, financial bids of the successful bidders will be opened on a later date which will be notified in the Institute website

Venue of Bid Opening: At Office of HRH The Prince of Wales Institute, Jorhat, Assam

BID INSTRUCTION:

01. Quotations will have to be submitted in TWO Bids. The address of the firm submitting the quotation and the Officer to whom the quotation is addressed must appear distinctly on sealed covers. Further, on sealed cover, the following are to be written:

QUOTATION FOR SUPPLY & INSTALLATION OF MACHINES & EQUIPMENTS TO POW INSTITUTE, JORHAT UNDER AICTE-NEQIP-II.

NIT REF NO., Dt.....

02 Submission of Compliance Certificate: Duly filled and signed Compliance Certificates (as per formats at **Annexure I(A & B)** are must with the Technical bid.

03. Bid not transferable: The bid documents are not transferable and the seal and signature of the authorized official of the firm must appear on all the papers and envelopes submitted.

QUALIFICATION REQUIREMENTS

1. The Bidder should be a firm of reputation having sufficient expertise and experience in the subject tender with sound warranty / service support capability and authorization from manufacturers.
2. The Bidder has to Quote for all the items in the NIT. Bidders who do not Quote for all the items are subject to be disqualified.
3. Sealed quotations must be affixed with court fee stamps of Rs. 8.25 (Rupees eight and paisa twenty five) only without which no quotation will be accepted.

NIT TERMS & CONDITIONS:

01. **Rates:** Rates quoted in the **Price Bid** should be **on DOOR DELIVERY at POWIET, Jorhat basis**, as per details below:

| Sl. No. | Particulars | Price/unit |
|---------|--|------------|
| 1. | Basic Price (per unit) with installation and commissioning | |
| 2. | Total | |
| 3. | Taxes (pl. give break up) | |
| 4. | Grand Total for door delivery of the item at POW Premises | |

Bidders shall indicate their rates in clear/visible figures as well as in words and shall not alter/overwrite/make cutting in the quotation. In case of a mismatch, the rates written in words will prevail.

02. **Validity of Quotation:** Quoted rates must be valid for **90 days** from the date of quotation.

03. **Warranty:** The quoted equipment and components must be warranted for a minimum of one Year or period specified against the item.

04. **Literature a must:** All the quotations must be supported by the printed technical leaflet/ literature and the specifications mentioned in the quotation must be reflected/ supported by such printed technical leaflet/literature. The model and specifications quoted should **invariably be highlighted** in the leaflet/literature for easy reference.

05. **After Sales Service:** Vendors should clearly state the available nearest after sales service facilities in the region, without which their offers will be rejected.

06. **Dealership Certificate:** Dealers or Agents quoting on behalf of Manufacturer must enclose valid dealership certificate.

07. **Earnest Money:**

Refundable earnest money deposit (EMD) @ 2% on Total Quoted Price through demand draft drawn in favour of “The Principal, Prince of Wales Institute, Jorhat”, payable at Jorhat, will have to accompany the technical Bid. The EMD of unsuccessful bidders shall be returned after award of contract. EMD of the successful bidder will be released on submission of the Performance. Offers received without Earnest Money or valid Certificate shall be summarily rejected.

08. **Performance Bank Guarantee (PBG):** In case of items with order value of Rupees Five Lakhs (INR 5,00,000/-) and above, the successful bidder shall furnish an unconditional PBG (as per format at **Annexure II**) for 5% of the Purchase Order value from a scheduled Bank of India, after receiving the purchase order. Where the PBG is obtained by a foreign bank, it shall be got confirmed by a Schedule Indian bank and shall be governed by Indian Laws and be subject to the jurisdiction of courts at Guwahati. The PBG shall guarantee that,

- (a) The Vendor guarantees satisfactory operation of the Equipment & components against poor workmanship, bad quality of materials used, faulty designs and poor performance.
- (b) The Vendor shall, at his own cost, rectify the defects/replace the items supplied, for defects identified during the period of guarantee.
- (c) This guarantee shall be operative from the date of installation till 60 days after the warranty period.

09. **Delivery:**

a) **Time Limit:** Maximum within 2-4 Weeks from the date of issue of the purchase order.

b) **Safe Delivery:** All aspects of safe delivery shall be the exclusive responsibility of the vendor. At the destination site, the package will be opened only in the presence of POWIET user/representative and vendor's representative. The intact condition of the package and the seal/indicators for not being tampered with, shall form the basis for certifying the receipt in good condition.

c) **Insurance:** The supplier is to establish 'All Risk Transit Insurance' coverage till door delivery at POWIET, Jorhat, Assam.

d) **Part Delivery:** Acceptance of part delivery shall be a prerogative of the institute.

10. **Conditional tenders not acceptable:** All the terms and conditions mentioned herein must be strictly adhered to by all the vendors. Conditional tenders shall not be accepted on any ground and shall be rejected straightway. Conditions mentioned in the tender bids submitted by vendors will not be binding on POWIET, Jorhat.

11. **Road Permit:** POW Institute will not provide any Road Permit to the Vendors.

12. **VAT deduction at source:** In case of suppliers within Assam, VAT deduction at source, as per Order/ notification of the Govt. of Assam will be applicable.

13. **Late and delayed tender:** Late and delayed tender will not be considered. In case any unscheduled holiday occurs on the prescribed closing/opening date the next working day shall be the prescribed date of closing/opening.

14. **Payment:** Payment will be released only after successful completion of installation and acceptance, Demo and Test run etc.

15. **Enquiry during the course of evaluation not allowed:** No enquiry from the bidder(s) shall be entertained during the course of evaluation of the tender till final decision is conveyed to the successful bidder(s). However, the Purchase Committee or its authorized representative may make enquiries/seek clarification from the bidders. In such a case, the bidder must extend full cooperation. The bidders may also be asked to arrange demonstration of the offered items, in a short period of notice.

16. The acceptance of the quotation will rest solely with the Principal, POWIET, who in the interest of the Institute is not bound to accept the lowest quotation and reserves the right to himself to reject or partially accept any or all the quotations received without assigning any reasons.

17. **Force Majeure:**

If the performance of the obligation of either party is rendered commercially impossible by any of the events hereafter mentioned that party shall be under no obligation to perform the agreement under order after giving notice of 15 days from the date of such an event in writing to the other party, and the events referred to are as follows:

- i. Any law, statute or ordinance, order action or regulations of the Government of India,
- ii. Any kind of natural disaster, and
- iii. Strikes, acts of the Public enemy, war, insurrections, riots, lockouts, sabotage.

18. Applicable Law:

- (a) The contract shall be governed by the laws and procedures established by Govt. of India and subject to exclusive jurisdiction of Competent Court and Forum in Guwahati/Assam.
- (b) Any dispute arising out of this purchase shall be referred to The Principal, Prince of Wales Institute, Jorhat, Assam and if either of the parties hereto is dissatisfied with the decision, the dispute shall be referred to the decision of an Arbitrator, who should be acceptable to both the parties, to be appointed by the Principal of the Institute. The decision of such Arbitrator shall be final and binding on both the parties.

Principal,
HRH The Prince of Wales Institute, Jorhat, Assam

Encl.: ANNEXURE-I, ANNEXURE-II, ANNEXURE-III & ANNEXURE-IV

Annexure –I
A. COMPLIANCE CERTIFICATE FOR NIT TERMS
(To be enclosed in the Technical bid)

| Sl. No. | NIT Terms and Conditions | Yes/No |
|---------|---|--------|
| 1. | Rate quoted as per instruction | |
| 2. | Validity of quoted rate for 90 days agreed | |
| 3. | EMD submitted (appropriate certificate enclosed) | |
| 4. | PBG term agreed | |
| 5. | Payment term agreed | |
| 6. | Delivery terms agreed | |
| 7. | Warranty period agreed | |
| 8. | Literature: Printed Literature provided | |
| 9. | Dealership / distributorship certificate (in case of dealers/agents) provided | |
| 10. | Sales Service: address of after Sales Service centre in India (for imported goods)/ in the region provided | |
| 11. | Applicable law terms agreed | |

Signature with Seal:.....

Vendor: M/s.....

B. COMPLIANCE CERTIFICATE FOR SPECIFICATIONS
(One for each item must to be enclosed in the Technical bid)

| Item Sl. No. | Specifications as per Annexure-IV | Quoted Item Specs.* | Complied (Yes/No) |
|--------------|-----------------------------------|---------------------|-------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Signature with Seal:.....

Vendor: M/s.....

*** Vendor must quote the parameter specification of the quoted product in this column and not just copy the specification from the tender call document. Failure to do so will lead to rejection of the tender.**

Annexure –II

PERFORMANCE BANK GUARANTEE

To:
The Principal,
HRH The Prince of Wales Institute, Jorhat, Assam

WHEREAS (Name of Supplier)
hereinafter called "the Supplier" has undertaken, in pursuance of Contract No..... dated,.....
20.... to supply (Description of Goods and Services)
hereinafter called "the order".

AND WHEREAS it has been stipulated by you in the said order that the Supplier shall furnish you
with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance
with the Supplier's performance obligations in accordance with the order.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the
Supplier, up to a total of (Amount of the Guarantee
in Words and Figures) and we undertake to pay you, upon your first written demand declaring the
Supplier to be in default under the order and without cavil or argument, any sum or sums within the
limit of (Amount of Guarantee) as aforesaid, without your needing to prove or to
show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....20.....

Signature and Seal of Guarantors

.....
.....
.....
Date.....20....
Address:.....
.....
.....

All correspondence with reference to this guarantee shall be made at the following address:

The Principal,
HRH The Prince of Wales Institute, Jorhat, Assam

Annexure –III

MANUFACTURERS' AUTHORIZATION FORM

No.

Dated _____

The Principal,
HRH The Prince of Wales Institute, Jorhat, Assam

Dear Sir,

We..... who are established and reputable
manufacturers ofhaving factories at-
.....
.....

(address of factory) do hereby certify

that.....
.....

.....(Name of the Authorised Dealer) is our authorized dealer to quote against your
tender enquiry no

.....,

Last Date of Submission is:

No other Company other than (Name
of the Authorized Dealer) is authorized to quote of our products against this Tender Enquiry

No.....

Yours faithfully,

(Name)

(Name of manufacturers)

Annexure –IV
(List of machines, equipment etc of various Departments)

LIST OF ITEMS OF MECHANICAL ENGINEERING (UNDER NEQIP PHASE II), ME Lab-II.

| Sl.No. | Name of items | Specification | Price/ unit |
|--------|---|--|----------------|
| 1 | 4 Stroke 4 Cylinder Diesel Engine Model, 1 no. | The engine will be sectioned to show the internal constructional details. The working of individual part and accessories like Valves, Pistons, pumps, Crank and Camshaft, etc. will be demonstrated. It is provided with Flywheel and it is mounted on a sturdy iron frame. This actual cut section engine helps the student to understand about the parts and the working of the engine very easily. It is specially made dissectible for demonstration purposes. The actual cut section engine will be supplied with key card & very interesting literature regarding working. | |
| 2 | 2 Stroke multi cylinder petrol Engine Test Rig, 1 no. | <p><u>DESCRIPTION:-</u> IC engines are widely used in automobile, domestic and industrial sector. They are classified according to cycle, number of cylinders, arrangement of cylinders, fuel used, type of ignition, valve arrangement, cooling system. Test rigs are used to find out the performance of an IC engine. It consists of an IC Engine, dynamometer, fuel measuring, air intake measuring and various other arrangements.</p> <p><u>EXPERIMENTS:-</u></p> <ul style="list-style-type: none"> • To determine Brake Horse Power • To determine fuel consumption • To determine specific fuel consumption • To determine Brake Thermal Efficiency <p><u>TECHNICAL SPECIFICATION: -</u></p> <ul style="list-style-type: none"> • <u>TYPE OF ENGINE</u> Single cylinder, two stroke, air cooled, Hand start, self lubricating, petrol engine. • <u>TYPE OF LOADING</u> Rope Brake arrangement with the brake drum fitted on the engine shaft and provided spring balance. Electric Brake Dynamometer – The engine is coupled with electrical alternator with resistance loading arrangement. Digital voltmeter and digital ammeter is provided. • <u>FUEL MEASURING SYSTEM</u> Fuel measuring system consists of a fuel tank, a burette and a three way cock arrangement. • <u>AIR INTAKE MEASURING SYSTEM</u> Air tank fitted with orifice and water manometer. | |

| | | | |
|---|-------------------------------|---|--|
| | | <ul style="list-style-type: none"> • <u>EXHAUST GAS CALORIMETER</u> An Exhaust Gas Calorimeter, made of Stainless Steel is provided for calculating heat carried away by exhaust gas. The body of the calorimeter is insulated and thermometers are provided to measure the temperature of water and gas. The whole setup is well designed and supported by a good quality painted rigid M.S. Structure. | |
| 3 | Air Cooled Condenser, 1 no. | <ul style="list-style-type: none"> i) Capacity range: 252.9 KW to 867.0 KW ii) High efficient coil design with latest heat x'fer technology (12 FPI). iii) High quality EC motor. iv) High grade Al fins. v) Standard 2 speed motor. | |
| 4 | Cooling Tower Test Rig, 1 no. | <p>The apparatus consists of a forced draught, counter flow type-cooling tower. A blower supplies cooling air. Air enters the tower at the bottom. Hot water is, obtained from a geyser. Hot water is sprayed over the mesh packing through the nozzles and it flows downwards. Evaporative cooling of water occurs due to the current of air and water gets cooled. This student can study the operation of cooling tower and calculate the energy balance.</p> <p>SPECIFICATION: Cooling tower, fabricated of M.S. Sheets, 200 X 200 mm. cross section, 1.2m. height with Perspex front. Wire mesh packing is provided in the tower. Geyser - 3 Kw Capacity to provided hot water. Centrifugal blower, 1 HP capacity to force air through the tower. Multichannel Digital Temperature indicator to measure temperature at various points. Rotameter to measure inlet water flow. Measuring tank to measure outlet water flow. Calibrated orifice and water manometer to measure airflow. Arrangement to measure dry and wet bulb temperatures of air at 5 intermediate stations. A technical manual accompanies the unit. The unit is provided with anticorrosion an attractive color powder coating.</p> <p>SERVICES REQUIRED: 440V, 32A, AC supply with neutral and earthing connection. Floor space of about 2m. X 1.5m. Water flow of 10 Ht./min. at constant head.</p> | |

| | | | |
|---|--------------------------------------|---|--|
| 5 | Evaporative Condenser, 1 no. | <p>RANGE OF EXPERIMENTS :</p> <ol style="list-style-type: none"> To determine Heat transfer rate of heating & cooling. To calculate Effectiveness of Evaporative cooler. The experiments can be conducted at various values of input & calculation can be made accordingly. <p>EXPERIMENTAL SETUP :</p> <ul style="list-style-type: none"> Duct : 500 x 500 x 800 mm Duct in which evaporative coil is fitted. Evaporative Coil : Hot water is passed through evaporative Coil made of copper. Air Fan with Motor : This suction type air fan is fitted on the top of the duct. Hot water cir. pump : 1/2 HP. 230 V AC hot water circulating pump is used to circulate hot water into the evaporative coil. Cold water Cir. pump : 1/2 HP. 230 V AC cold water circulating Pump is used to circulate cold water which spray on the evaporative coil. Heating Arrangement : Evaporative cooler provided along with geysers. Rotameters: for flow measurement of hot & cold water. Range : 0 - 11 LPM Supply Tank : 300 x 300 x 450 mm storage tank one each for hot & cold water. Set of thermocouples. <p>CONTROL PANEL</p> <ul style="list-style-type: none"> 12 Channel Digital Temperature Indicator Switches for Heaters, pumps & Air fan. 3. Voltmeter : 0 - 250 V. 4. Ammeter : 0 - 15 A. | |
| 6 | Mechanical Heat Pump Test Rig, 1 no. | <p>Aim: -To determine the COP and Tonnage capacity of a Mechanical Heat pump.</p> <p>Apparatus Used: - Compressor, Condenser, Evaporator, Capillary Tube, Ammeter, and Voltmeter.</p> <p>A Heat Pump consists of following components.</p> <ol style="list-style-type: none"> Compressor: - Condenser: - Receiver Tank: - Expansion service: - Evaporator: - Calorimeter: - | |

| | | | |
|---|--|--|--|
| | | <p>Theory: - A mechanical heat pump is mechanical equipment which is used to supply the heat to the system, where it is installed, and maintain its temperature more than that of surrounding. Mechanical heat pump absorbs heat from surrounding (atmosphere). Work input to a heat pump is supplied by compressor. Heat Q₂ is supplied to the room and temperature T₂ is maintained above the T₁ whereas heat Q₁ is absorbed by the surrounding. Hence performance of heat pump is given by</p> <p>Technical Specification: - Compressor = hermetically sealed of 1 Ton. Discharge pressure gauge = 1 nos. Suction pressure gauge = 1 nos Expansion device = Capillary tube Rotameter = For measuring liquid flow of Refrigerant(Digital). Energy Meter= One each for power measurement of compressor Hp/LP cutout= 1No. to suit compressor. Service value needle type= 2 No. Sight Glass = perform liquid flow. Suitable filter.</p> <p><u>CONTROL PANEL:-</u></p> <ul style="list-style-type: none"> • 9 Channel Digital Temperature Indicator. • Main ON/Off Switch. • Voltmeter: 0-250 V. • Ammeter: 0-15A. • Rotary Switch | |
| 7 | Bomb Calorimeter without Gas & Cylinder, 1 no. | <p>Bomb Calorimeter outfit provides a simple and inexpensive method for determination of heat of combustion of organic matter and the calorific value and sulphur content of solid and liquid fuel. The outfit supplied is complete for analysis as per the method recommended by British Standard Institution BS 1016. All parts of the outfit have been finished of petroleum and British Standard Institute.</p> <p><u>SUPPLIED WITH:</u> Calorimeter Vessel with bomb support, Water jacket, Combined Lid for calorimeter vessel and water jacket, Stirrer, Connecting Leads, Connecting tube to connect bomb & pressure gauge, Connecting tube with fine adjustment valve, to connect pressure gauge, pressure gauge on stand, Spanner for oxygen tube connection, Ignition Wire, (2 meters) Nichrome, Cotton Real, stand for bomb lid, Hook for lifting bomb, stainless steel Crucible, Gelatine capsules, Gas release valve, Bomb firing unit, Vibrator, Timer, Benzonic acids. 'O' Ring Big, 'O' Ring Small, 'O' Ring for Stirrer Valve for Bomb, Valve Kay. Complete with Instruction manual</p> | |

| | | | |
|----|---|---|--|
| 8 | Finned Tube Heat Exchanger, 1 no. | <p>The apparatus consists of two concentric tubes. Inner tube consists of copper tube through which hot water flows. It is finned at its outer diameter to increase the heat transfer surface. While the outer tube consists of GI pipe through which cold air flows. The arrangement enables the parallel and counter flow of the air. The inlet and outlet temperatures and the flow measurement enable to find out the heat exchanged LMTD, and effectiveness of the equipment.</p> <p>Specifications: Inner copper tube I.D. 12.7mm. and outer G. I. Pipe I. D. 25mm. approx. and 1m. length. Thermometers - 4 nos. Orifice meter along with manometer. Measuring flask - 1 Lit. Capacity. Geyser-3 kW. Single phase. Services Required 220v, 15A, stabilized single-phase AC supply. Floor area - 3m x 1m x 1m height.</p> | |
| 9 | Parallel flow and Counter flow Heat Exchanger, 1no. | <p>The apparatus consists of two concentric tubes. Inner tube consists of copper tube through which hot water flows. While the outer tube consists of GI pipe through which cold water flows. The arrangement enables the parallel and counter flow of the cold water. The inlet and outlet temperatures and the flow measurement enable to find out the heat exchanged LMTD, and effectiveness of the equipment.</p> <p>Specifications: Inner copper tube I.D, 12.7mm. and outer G. I. Pipe I. D. 15mm. approx. and 1.5m. length. Thermometers - 4 nos. Measuring flask - 1 Lit. capacity. Geyser-3 kW. Single phase. Services required- 220v, 15A, stabilized single-phase AC supply. Floor area - 3m x 1 m x 1 m height.</p> | |
| 10 | Regenerative Heat Exchanger, 1 no. | <p>RANGE OF EXPERIMENTS TO BE CARRIED OUT :</p> <ol style="list-style-type: none"> 1. To determine Heat transfer rate of heating & cooling. 2. To Observe & calculate energy balance. 3. To calculate Effectiveness of heat exchanger. 4. The experiments can be conducted at various values of input & calculation can be made accordingly. <p>EXPERIMENTAL SETUP :</p> <ol style="list-style-type: none"> 1. Heater Assembly. 2. Regenerative Columns. 3. Regenerative material. 3. Rotameter for flow measurement of hot water. Range : 0 - 11 LPM 4. Suitable valves to divert hot & cold air flow. 5. Set of thermocouples. | |

| | | | |
|-----|--|---|--|
| | | CONTROL PANEL : 1. 12 Channel Digital Temperature Indicator 2. Switch for heaters | |
| 11 | Cross Flow Heat Exchanger,1 no. | RANGE OF EXPERIMENTS TO BE CARRIED OUT : 1. To determine Heat transfer rate of heating & cooling. 2. To determine Overall heat transfer coefficient. 3. To calculate Effectiveness of heat exchanger. 4. The experiments can be conducted at various values of input & calculation can be made accordingly. EXPERIMENTAL SETUP : 1. Heater Assembly. 2. Cross Flow heat Exchanger assembly. 3. Encloser shell. 4. Rotameter for flow measurement of hot & cold water. Range : 0 - 11 LPM 5. Flow control arrangement. 6. Set of thermocouples. CONTROL PANEL : 1. 12 Channel Digital Temperature Indicator 2. Switch for heaters. SPACE REQUIRED : 11.5 m.(L)x 1.0 m(W) table SERVICE REQUIRED : 440 v Ac, 3 Phase Supply, 50 Hz Water Supply @160 LPM WEIGHT : @ 90 Kg | |
| 12. | Air Conditioner 1.5 ton with stabilizer, 2 nos. | Rating 5 star, split AC, Anti mild dew running, two direction air vane, highest cooling function, noise level: indoor <41 DB, outdoor <55 DB, Timer, auto-restart, sleep mode, remote control, air swing, dehumidification, dimension 900x292x215 | |

Principal,
**H.R.H.The Prince Of Wales Institute of
Engineering & Technology, Jorhat**