

Two Bid Tender Document

Purchase of Open Top Chamber for FRI



Forest Research Institute

P.O. New Forest

Dehradun-248006

Sl.No.-----

Forest Research Institute

(Indian Council of Forestry Research & Education)

Post- New Forest, Dehra Dun – 248006, Uttarakhand, India

Phone: 0135-2224205; Fax: 0135-2756865

Website: <http://fri.icfre.gov.in> Email: po_fri@icfre.org

TENDER NO: X- 64 /12-13/Purchase

DUE DATE FOR PRE-BID CONFERENCE : **February 19, 2013 at 11:00**
A.M. venue Purchase office, FRI (Main Building)

DUE DATE FOR SUBMISSION OF TECHNICAL & FINANCIAL BIDS: **6th March, 2013 at 1.00 P.M.**

DUE DATE FOR OPENING OF TECHNICAL BIDS : **6th March, 2013 at 2.30 P.M.**

OPENING DATE FOR FINANCIAL BIDS : **8th March, 2013 at 3.00 P.M.**

CONTENT OF TENDER PAPER

THIS PAPER INCLUDES THE FOLLOWING DOCUMENTS:-

1. Tender Notice (Chapter I)
2. Terms & conditions (Chapter -II)
3. Description of the items, specification (Chapter III)
4. Schedule of Price(Chapter IV)
5. Agreement (Chapter V)
6. Format for Bank Guarantee (Chapter VI)

Issued to M/S

(DEEPAK MISHRA)
Purchase Officer

**Forest Research Institute
(Indian Council of Forestry Research & Education)
Post- New Forest, Dehra Dun – 248006 Uttarakhand, India**

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**TENDER No. X- 64 /12-13/Purchase
BIDDING DOCUMENT Chapter-1 Instructions to Bidders**

Sealed Tenders are invited from the reputed firms for the purchase of following item for this Institute:-

Sl.	Name of equipment	Tender No.	EMD
1.	Open Top Chamber	Tender No.X-64/12-13/ Purchase	80,000

The details of the above items and other Terms and Conditions, etc. are available in the tender documents, obtainable from the Purchase Officer, Forest Research Institute, Dehradun-248006, on payment of Rs.227.00 (Rs.277.00, if tender is required by Speed post) (including 13.5% Uttarakhand Trade Tax), by CROSSED DEMAND DRAFT in favour of the Accounts Officer, FRI. Pre-bid Conference for finalization of technical specifications has been arranged at the Purchase Section on February, 19th, 2013 at 11:00 A.M. The Tenders (both technical and financial bids) should reach this office on or before 6th March, 2013 up to 1.00 PM., out of which the technical bids will be opened on the same day at 2.30 PM. in the presence of the tenderers or their authorized representatives, if any. The financial bids will be opened on 08th March, 2013 at 3.00 PM at Purchase office, FRI Main Building. Any or all tenders can be rejected by the Director, FRI without assigning any reason. The tender forms and specifications are also available at web site <http://fri.icfre.gov.in/>. The tender form downloaded from above web sites must include Rs.227/- as tender fee along with the tenders submitted.

**(DEEPAK MISHRA)
PURCHASE OFFICER**

To,

M/s

Chapter-2: Conditions of Contract

Terms and Conditions

Pre-bid conference: A pre-bid conference has been arranged with the users for finalization of technical specifications of the equipment. Bidders are requested to take part in the Pre-bid conference at scheduled date and time. The modified specifications, if any, after Pre-bid conference will be available at the websites and also can be obtained from the office of Purchase officer. After Pre-bid conference no changes will be accepted in the desired specifications. If no party attends the Pre-bid conference then listed specifications will be considered as final.

The proposals must consist of three separate sealed envelopes as follows:

The **First envelope** must enclose following documents and must be marked in bold letter as “QUALIFYING DOCUMENTS & EMD”

- a. A brief description of the organization and an outline of recent experience in assignments of a similar nature.
- b. Proof of registration with Directorate of Industries or equivalent,
- c. Proof of Sales Tax Registration,
- d. PAN.
- e. EMD will be as follows (liable to be forfeited if wrong information is furnished)

Sl.	Name of equipment	Tender No.	EMD
1.	Open Top Chamber	Tender No.X- / 12- 13/Purchase	80,000

- f. Tender fee
- g. The bidding firm must possess an experience of at least five (05) years, in the field of supply, support and maintenance of the equipment. (Enclose copies of the supportive documents OR supply orders).

The **Second envelope** must enclose the Technical proposal and must be marked in bold letter as “TECHNICAL PROPOSAL”.

The **Third envelope** must enclose the Financial proposal and must be marked in bold letter as “FINANCIAL PROPOSAL”.

TECHNICAL PROPOSAL

During the preparation of technical proposal, in addition to technical details of the equipment along with **original catalogue and other literature**, the tenderer must give particular attention to the following:

- i) Users list and supportive documents from the users for the satisfactory performance and after sales service.

- ii) Information about suitably trained technical staff along with well established service network must be furnished.
- iii) On hand training proposal for the staff of the Institute at site.
- iv) All specifications should be certified and guaranteed for genuineness and that the model of the equipment is not going to be obsolete in near future (supportive documents from the Principal to be enclosed).
- v) Availability of spares/parts for next five years to be ensured (supportive documents from the Principal to be enclosed).
- vi) In absence of original catalogue and other literature the tender would be considered as invalid.

FINANCIAL PROPOSAL

The financial proposal must be submitted in the format as per the price schedule (chapter 4). Full details of business terms and conditions, e.g. packing and forwarding, delivery period, VAT/Sales Tax/Trade Tax (whether provincial or Central), other Taxes/Charges, if any, the validity period of quotation, discount, free delivery, packing or any other information relevant to the items may please be indicated clearly. Prices must be quoted F.O.R. Dehradun.

SUBMISSION OF PROPOSAL

Financial and Technical Proposals and an envelope containing the qualifying documents and EMD should be sealed in three separate envelopes and then sealed in a counter envelope. The proposals should be clearly distinguished by writing on the cover "Qualifying Documents", "Financial Proposal" and "Technical Proposal". The outer envelope must be clearly marked "DO NOT OPEN EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE" and "TENDER FOR EQUIPMENT".

The proposal must contain no interlineations or overwriting except as necessary to correct errors made by the concerned themselves, in which cases such corrections must be initialled by the person or persons signing the proposal. Your completed proposal must be delivered on or before the stated time and date.

PROPOSAL EVALUATION

A three-stage procedure will be adopted in evaluating the proposals

- (i) Checking of qualifying documents. This will be the first envelope, which shall be checked, and disqualification amongst these documents will lead to rejection of the proposal *in toto*,
- (ii) A technical evaluation of the qualified firm on the basis of the qualifying documents will be carried out prior to opening the financial proposal,
- (iii) A financial evaluation. Firms will be ranked using a combined technical / financial score as indicated below.

Technical Proposal

The evaluation committee appointed by the client will carry out its evaluation applying the evaluation criteria and point system as specified below. Each responsive proposal will be attributed a technical score (St.).

The points given to technical evaluation criteria are

i)	Firms relevant experience (including similar jobs in hand)	15
ii)	Technical specifications of the equipment	70
iii)	After sales Service /spares availability	15
Total		100

The technical proposal should score at least 70 points out of 100 to be considered for financial evaluation.

Financial Proposal

The evaluation committee will determine if the financial proposals are complete and without computational errors. The lowest financial proposals (Fm) will be given a financial score (Sf) of 100 points. The financial scores of other proposals will be computed as follows $S_f = 100 \times F_m / F$ (Where F is amount of financial proposal).

Proposal will finally be ranked according to their combined technical (St) and financial (Sf) scores using the formula $S = St \times T\% + Sf \times F\%$.

The weight (T%) given to the Technical Proposal is 60%

The weight (F%) given to the Financial Proposal is 40%

General Terms & Conditions

The offer will be subject to the following terms and conditions: -

1. Please note that FRI, Dehra Dun has Custom Duty Exemption and Excise Duty Exemption Certificate. This may be kept in consideration while quoting the rates.
2. The stores are required to be delivered in full and within 90 days after acceptance of the offer.
3. The offer should be firm and open for acceptance till 120 days from the stipulated date of opening. Price escalation will not be allowed.
4. Full details of business terms and conditions, e.g. packing and forwarding, delivery period, VAT/Sales Tax/Trade Tax (whether provincial or Central), other Taxes/Charges, if any, the validity period of quotation, discount, free delivery, packing or any other information relevant to the items may please be indicated clearly.
5. Full specifications, details and information regarding the articles to be supplied, such as make, size, etc. along with **original catalogue**, etc. to be furnished with the offer. The list of users of goods of similar or same nature in the country should also be enclosed. The offer would not be considered fit if these details are not provided.
6. Normal terms of payment will be 100% payment within 30 days after receipt and acceptance of goods in satisfactory working condition after installation. Other terms of payment should be clearly spelt in the offer.
7. The tender should accompany a DEMAND DRAFT/FDR of **value as specified in Clause of Chapter 2 (EMD)** as Earnest Money, payable to the Accounts Officer, Forest Research Institute, Dehradun, which will be refunded, without interest, if the offer is not accepted. In case the offer is accepted but not honored by the tendered; the Earnest Money will be forfeited. The Earnest Money will also be forfeited, if wrong information is given in the tender to influence the tender cost.
8. The Tenderer should also specify regarding Dealership/Proprietary item and copy of the latest certificates from the principal should be produced with the tender.
9. Freight, forwarding charges, if any, should be mentioned in the offer. In case of import being done by this institute, the FOB prices should be mentioned.
10. The stores are required to be delivered to the consignee concerned and the consignee will do inspection and verification of the goods.
11. The tenderer should quote on their printed letter-head paper, indicating thereon Sales Tax/Trade Tax No., Registration No., Fax No., Telex No., Telephone No., E-mail, etc.
12. **Two year on site comprehensive WARRANTY** for all the items and works to be given OR (as specified in specifications)
13. **Performance Bank Guarantee:** The supplier will have to submit a PBG or Performance security in the form of Bank Guarantee or FDR @ 5% of total order value from a commercial bank in an acceptable form within 21 days of issue of supply order. Performance security should remain valid for a period of 24 months beyond the date of completion of all contractual obligations of the supplier including the warranty obligations. Failure to abide by the contractual obligation will liable to forfeit the Performance Bank Guarantee.
14. Any or all tenders can be rejected by the Director, FRI without assigning any reason. It cannot be challenged in any court.
15. Disputes, if any, will be under the jurisdiction of Dehradun Court, Uttranchal, India.

(Deepak Mishra)
PURCHASE OFFICER

CHAPTER III (Description of the items and specifications)

Tentative specification for Pre-bid conference

A brief description of technology

Open Top Chamber to study the response of crop plant to elevated CO₂: Open Top Chambers (OTCs) is an innovative and cost effective approach to investigate effects of elevated CO₂ concentrations on the growth dynamics and yield response of plants. The accuracy of the results depends on the system adopted and its maintenance of the desired CO₂ levels with near natural and variable conditions for other parameters. CO₂ gas is supplied to the chambers and maintained at set levels using manifold gas regulators, pressure pipelines, solenoid valves, rotameters, sampler, pump, CO₂ analyzer, PC linked Program Logic Control (PLC) and Supervisory Control and Data Acquisition (SCADA). The data base generated by OTCs will be more realistic for impact assessment analysis of rising atmospheric CO₂ on plant for developing models to predict the responses for future climatic conditions. Six Open Top Chambers for elevated CO₂ study is built with high quality multi layered Polycarbonate sheets (3 to 4mm thickness) of 3X3X4 mt. dimensions with GI structure with proper foundation and grouting. A suitable door of 6ft X3 ft size is provided in each chamber. Multilayered clear polycarbonate sheet with 80-85% light transmission level is used for OTC structure. Flat and angle aluminum and rust free screw to be used for mounting of polycarbonate sheet. OTC supporting structure is made up of square pipes (stainless steel pipes). Welding at four corners and inclination of 30° at top is provided to protect against high winds and moderate vibrations. Sealing of OTC is achieved using aluminum angles, plates at the top, corners and center along with gaskets. Door is sealed using U type gaskets with overlapping of sheets to prevent loss of CO₂ through doors. Convex surface at the bottom covered with high quality polycarbonate (which should not crack when exposed to sunlight over the period of time) to arrest the diffusion of CO₂ through vertical surface should be provided. The purpose of this brief is to introduce the technological development in order to maintain accurate CO₂ concentration inside the OTCs automatically to study the response of plants to elevated levels of CO₂ or any other gas of interest. Details and make of Humidifier unit, compressor unit, software, data logger, CO₂ monitor etc need to be provided.

Detailed Specification of OPEN TOP CHAMBER (OTC) WITH CONTROL AND AUTOMATION SYSTEM	Quantity
<p>Construction and Development of OTC Chamber 1: Ambient CO₂ (Control) Chamber 2: Elevated CO₂ Chamber 3: Elevated Temperature (Ambient + 4 °C) Chamber 4: Elevated CO₂ + Elevated Temperature Chamber 5: Elevated Temperature + Simulated Humidity Chamber 6: Elevated CO₂ + Elevated Temperature + Simulated Humidity</p> <ul style="list-style-type: none"> • Each OTC should have independent monitoring / control facilities for CO₂, Temperature and humidity and on line data logging and control to be provided through PC on real time basis. • Infrared heating element will be provided with the system. Heating control will be done automatically from the PC based controller. Size should be 2 ft with reflector and imported infrared tube. • Details on Humidifier unit may please be provided. • Details on compressor unit to generate pressurized air to push CO₂ to chamber particularly during winter and if required during night hours to be provided 	6
<p style="text-align: center;">Supply of CO₂ Gas source</p> <ul style="list-style-type: none"> • 10 Cylinders of 47 lit capacity with 60 kg pressure with 30 kg CO₂ gas • CO₂ manifold with 4 cylinders connecting capacity with individual preheated option and regulator • Refilling gas charges for the cylinders for 12 months by the supplier @ two cylinders /week 	12 months supply
<p style="text-align: center;">Control panel</p> <p>Suitable control panel is to be provided to accommodate SCADA, hardware & computer and other accessories. There is a need for mentioning of software to be used.</p>	01
<p style="text-align: center;">Control and automation system</p> <p>A suitable OTCs control to be provided for control/ monitor of Temperature, humidity CO₂ level and data acquisition facilities to be provided on real time basis through PC. Memory back up to be provided for data storage and free up gradation software to be provided. License software and dongle or hardware lock of SCADA to be provided with the system. Graphical view of data presentation option to be provided with the control system.</p>	1

<p align="center">Temp. and humidity sensor with transmitter</p> Power supply 12~36V DC Humidity working range 0..100%RH Humidity sensing element Polymer humidity capacitor Output for humidity 0~5V DC or 0~10V DC or 4~20mA Accuracy of humidity +-2%RH(10-95%RH, at 25Celsius); <+-5%RH(-40..80Celsius) Repeatability +-0.3%RH Sensitivity for humidity 0.1%RH Drift rate per year +-0.5%RH	07
Pu tubing	1 set
Solenoid valve with 230 V or 24 DC power supply	10
PC for data acquisition platform PC with 18.5 inch LDC monitor, I- TB HD, 4 GB RAM	01
UPS for 3 hours backup	01
Installation, commission and maintenance of the OTC limited to warranty period of five years for trouble free operation.	Free
Cable Tray with necessary support to be provided to lay cable from OTC to control room	Complete
<p align="center">CO₂ Monitor</p> Non dispersive infrared absorption (NDIR) method with outputs: analog 4 to 20mA and 0-10 DC Measurement range :- 0-3,000 ppm display Warm-Up time :- < 60 second > Voltage output: - 0-10vdc,4-20Ma Power supply - 24vdc Accuracy :- +- 75ppm or+- 5% of reading whichever is greater Zone LED :- Green:<800ppm> Yellow:<800-1200ppm> Red:>1200ppm Sound Alarm:- 70db@10cm	7
Digital timer with real time clock combination and multiple time interval setting option	
Instrumentation and power cable	

<p>Data scanners</p> <ul style="list-style-type: none"> • 8 channel data logger required for data logging on real time basis. The system should be capable to log data of temp and humidity at different time interval. • Data store capacity of 5000 reading of all eight channels. • Built-in memory saturation, scrolling around & on line printing. • Maximum 8 analogue input with any combination. • RTD (PT-100), 4 - 20mA, 0 - 10V, • Automatic cold junction compensation for thermocouples. • Automatic wire length compensation for long wire RTD inputs. • Very high accuracy 0.25%, with software linearization. • Temperature sensor break, 'open' indication. • Under Range 'under' & over range 'OuEr' indication for 4 to 20 mA & 0 - 10VDC linear input. • Easy on-line field calibration by user by front keys. 	04
<p>Control room: Construction of Control Room 14 ft X14ft X10ft with 10inch wall, split 1.5 Ton AC with electrifications and a shade of 8 ft X 8X8ft to be provided for keeping CO₂ cylinders</p>	01

**(DEEPAK MISHRA)
PURCHASE OFFICER**

Chapter-4: Price Schedule

(To be utilized by the bidders for quoting their prices)

Item with detail specifications	Cost per unit	Taxes, if any	Total cost in figure and words

Name/Seal of the Tenderer

Chapter-5: Agreement

The Supplier _____ agrees to accept the terms and conditions of this bidding document in letter and spirit.

Name/Seal of the Tenderer

Chapter-6: Format for Bank Guarantee

To

Forest Research Institute

P.O. New Forest

Dehradun

Your Order No. _____ for the supply and delivery of _____ has been accepted by M/s _____.

In accordance with the terms of payment of the said order, we have agreed to pay the balance of 5% of the contract price of the supplier, furnishing you with an acceptable Performance Bank Guarantee for 5% of the total contract value, viz Rs. _____ for the due performance by the Supplier of all its contractual obligations and to be valid for a period of 24 months for the date of bank guarantee for this purpose you have agreed to accept our guarantee.

In consideration thereof, we hereby guarantee payment of and undertake to pay Rs. __ and remit to you on demand and without demur the sum of Rs. _____ being 5% of the total value of the contract on receipt of your intimation that the Supplier has committed a breach of any of its contractual obligations.

This guarantee shall be valid for a period of 24 months from the date of Installation of the equipment in satisfactory condition or 27 months from the date of dispatch of the last lot of consignment whichever is earlier, and in any event shall expire on _____, you shall have the right to file/make your claim on us under the guarantee for a period of sixty days from the said date of expiry.

This guarantee shall not be revoked without your express consent and shall not be affected by your granting time or any other indulgence to the supplies or by any change in the constitution of the Bank or the supplies or for any other reason whatsoever.

Not with standing anything, contained herein above our liability under this guarantee is restricted to Rs. _____ and this guarantee will remain in force up to and inclusive of _____ - unless an action to enforce a claim under the guarantee is filed against us within sixty days from the date of expiry i.e. on or before _____, all rights under the guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

Signatory Bank with Seal