

**Indian Institute of Technology, Kanpur**  
**Civil Engineering Department**  
**Request for Proposal**

The Director, Indian Institute of Technology Kanpur (IITK) invites proposal in two bid (technical & financial) format from reputed firms as follows: -

Sl.No.	Name of Work	Bid Security (in Rs.)	Last Date and time for Submission of tender	Date and time for opening of Technical Bid
1.	Design, Engineering, manufacture, work testing, supply, transportation to site, off-loading, including all site handling, construction of required foundation, installation, commissioning, site acceptance test and hand over of Steam Generator (Boiler). (Details as per Volume II of Tender Document)	50,000/-	13.09.2017 upto 1700 hrs  <b>Revised 25.09.2017 upto 1700 hrs</b>	14.09.2017 at 1500 hrs  <b>Revised 26.09.2017 upto 1700 hrs</b>

The firms with at least three years relevant experience in above said work are eligible to participate. The proposal duly completed in all respect should be submitted in sealed cover duly marked, so as to reach undersigned on or before 1700hrs on 13.09.2017 (**revised before 1700hrs on 25.09.2017**). The tender document with eligibility criteria and other details may be downloaded from [www.iitk.ac.in](http://www.iitk.ac.in). The Institute reserves the right to accept or reject any offer or all the offers without assigning any reasons thereto.

**No. CE/2017-18/0135, dated: 17.08.2017**

**Dr. SN Tripathi,**  
**Civil Engineering Department,**  
**Indian Institute of Technology Kanpur.**  
Email: [snt@iitk.ac.in](mailto:snt@iitk.ac.in)  
Phone: 0512-259 7845



## Volume I (General)

### INSTRUCTIONS TO BIDDERS

#### A : GENERAL

##### **1. Eligibility and Experience of the Bidder:-**

Bidder should have capability to provide specialist engineering services to Indian and International Companies.

IITK to evaluate the bidder's capabilities and its decision shall be final.

##### **2.0 Tender Fee**

2.1 The bidders shall be able to create the bid only after payment of tender fee. The payment of tender fee through electronic payment gateway can be made using credit cards. In case of any subsequent reversal of credit against credit card payment would lead to rejection of bids submitted by such bidders.

##### **2.2 Refund of tender fee**

In the event a particular tender is cancelled by IIT K, total tender fee which is inclusive of taxes will be refunded to the concerned Bidder.

##### **3. Transfer of Bidding Document**

The Bidding document is non-transferable.

##### **4. Cost of Bidding**

4.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and IITK will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

4.2 It is in the bidder's interest to visit the site and understand the local conditions. IITK shall not be held responsible for any cost implications because of local conditions or for bidder not visiting site.

#### B: THE BIDDING DOCUMENT

##### **5. Content of Bidding Documents**

5.1 The services required, bidding procedures and contract terms are described in the bidding document.



5.2 The bidder is expected to examine all instructions, forms, terms and specifications in the bidding documents. Failure to furnish all information required as per bidding documents will be at the bidder's risk. Tenders not complying with tender conditions and not conforming to tender specifications may result in the rejection of its bid without seeking any clarifications.

### **C. PREPARATION OF BIDS**

#### **6.0 Language and Signing of Bid**

6.1 The bid prepared by the bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the IITK shall be written in English language.

6.2 Bidder is advised to note that the prices are to be quoted in the price Bid attached with the Bid. The price quoted anywhere else other than price bid in a separate envelope shall result into disqualification of the bids.

The bid and all attached documents should be signed by the bidder as a token of acceptance. A power of attorney to be submitted that allow the signatory of the bid to submit the bids.

6.3 The bids can only be submitted in the name of the Bidder in whose name the bid documents were issued by IITK. The bid papers, duly filled in and complete in all respects shall be submitted together with requisite information. It shall be complete and free from ambiguity.

6.4 The bidder should indicate at the time of quoting against this tender their full postal/ telegraphic/Email addresses and name of contact persons with their mobile nos.

6.5 The bid including all attached documents shall be signed by duly authorized representative of the bidding company. Power of attorney for the signatory, issued by the bidding company should be submitted along with other documents as per tender conditions in physical form in sealed envelope.

6.6 The bidder shall clearly indicate their legal constitution and the person signing the bid shall state his capacity and also source of his ability to bind the Bidder.

6.7 The power of attorney or authorization, or any other document consisting of adequate proof of the ability of the signatory to bind the bidder, shall be annexed to the bid with unpriced bid folder. IITK may reject outright any bid not supported by adequate proof of the signatory's authority.

6.8 The Bidder, in each tender, will have to give a certificate in its offer, that the terms and conditions, as laid down in this bidding document are acceptable to it in toto.

6.9 Any interlineations, erasures or overwriting shall be valid only if they are initialed by the person or persons signing the bid.

#### **6.10 Joint venture / consortium bids:-**

(a) In view of the diversity of nature of work involved as covered by the Bidding Documents, it is anticipated that some of the intending bidders may pool their resources and experiences to form



Consortia/Joint Ventures. In their own interest, the bidders are advised to investigate the capabilities, availability of expertise and resources such as construction equipment, experienced personnel, financial soundness, past experience and concurrent engagements of constituting partners/members of the consortium/joint venture.

- (b) The leader of the Consortium can submit bid on behalf of consortium of bidders. Memorandum of Understanding between the Consortium members duly signed by the Chief Executives of the consortium members must accompany the bid which should clearly define role/scope of work of each partner/member and should clearly define the leader of consortium. *In case of award, such MOU shall be kept valid through the entire contract period, including extensions, if any.* The following provisions should also be incorporated in the MOU executed by the members of the Consortium/Joint Venture:-
- (i) The leader of the consortium/joint venture on behalf of the consortium / joint venture shall coordinate with IITK during the period the bid is under evaluation as well as during the execution of works in the event contract is awarded and he shall also be responsible for resolving dispute/ misunderstanding/undefined activities, if any, amongst all the consortium/ joint venture members.
  - (ii) Any correspondence exchanged with the leader of consortium/joint venture shall be binding on all the consortium/joint venture members.
  - (iii) Payment shall be made by IITK only to the leader of the consortium/joint venture towards fulfillment of contract obligations
- (c) **Constitution of Consortium:** If during evaluation of bid, a consortium leader proposes any alterations/changes in the constitution or replacement or inclusion or expulsion of any partner(s)/ member(s) of the consortium which had originally submitted the bid, to derive some advantages/benefits based on any development(s) having come to his knowledge at any time, the bid of such a consortium shall be liable for rejection unless such a change is agreed to by IITK in writing.
- (d) **Signing of Contract:** In the event of award of contract to the consortium/joint venture, the contract may be signed by the leader.

## 7.0 Compliance with the Requirements of Bid and All Other Tender Conditions:

IITK has to finalize its purchase within a limited time schedule. Therefore, it may not be feasible for IITK to seek clarifications in respect of incomplete offers.

Prospective bidders are advised to ensure that their bids are complete in all respects and conform to IITK's terms, conditions and bid evaluation criteria of the tender. Bids not complying with IITK's requirement may be rejected without seeking any clarification.

## 8.0 Documents Comprising the Bid

8.1 The bid prepared by the Bidder shall comprise the following components, duly completed:

- a) Bidder is advised to note that the prices are to be quoted in the price Bid in a standard proforma along with detailed break-up.



- b) Bid Security: EMD of Rs. 50,000 to be submitted along with bid.
- c) Undertaking that the services to be rendered by the Bidder conform to the requirements of bidding documents.
- d) The documentary evidence of conformity of the services to the bidding documents may be in the form of literature, drawings and data.
- e) Bidder to sign Non Disclosure Agreement with IITK . Any technical document, drawings in the form of soft or hard copy shall not be disclosed to anybody out side the working team. All the hard copies shall be destroyed immediately after the use.
- f) The bidder should submit a declaration to the effect that neither the bidder themselves, nor any of its allied concerns, partners or associates or directors or proprietors involved in any capacity, are currently serving any banning orders issued by IITK debarring them from carrying on business dealings with IITK.

## 9.0 Price Schedule

9.1 Bidder is advised to note that the prices are to be quoted in the price Bid in sealed in a separate envelope, clearly indicating 'PRICE BID'

### 9.2 Bid Prices

9.2.1 The bidders shall indicate on the appropriate price schedule the net unit prices

9.2.2 Prices quoted by the bidder shall be firm during the bidder's performance of the contract and not subject to variation on any account.

9.2.3 Discount: Bidders are advised not to indicate any separate discount. Discount, if any, should be merged with the quoted prices. Discount of any type, indicated separately, will not be taken into account for evaluation purpose.

### 9.3 (a) Concessions Permissible Under Statutes

Bidder, while quoting against this tender, must take cognizance of all concessions permissible under the statutes including the benefit under Central Sales Tax Act, 1956, failing which it will have to bear extra cost where Bidder does not avail exemptions/concessional rates of levies like customs duty, excise duty, VAT/sales tax etc. IITK will not take responsibility towards this. However, IITK may provide necessary assistance, wherever possible, in this regard.

Bidders must also consider benefits of CENVAT credit under the CENVAT Credit Rules 2008 as amended from time to time, for excise duty, service tax etc against their Input materials/Services, while quoting the prices. Similarly, the benefits of input VAT credit against their Input materials, under the relevant VAT Act of the State, should also be duly considered by the Bidders while quoting the prices.

**Government of India's guidelines on GST shall be complied.**

9.3 (b) Undertaking to provide necessary documents, for enabling IITK to avail Input VAT credit and CENVAT credit benefits (wherever applicable),



Further, the Bidders shall undertake to provide all the necessary certificates / documents for enabling IITK to avail Input VAT credit and CENVAT credit benefits (wherever applicable), in respect of the payments of VAT, Excise Duty, Service Tax etc. which are payable against the contract (if awarded). The Contractor should provide tax invoice issued under rule-4A of Service Tax for the Services; and tax invoice issued under Central Excise rule-11 (indicating education cess and Secondary & Higher Education Cess) for Excise Duty and tax invoice under respective State VAT Act for VAT separately for the indigenous goods.

#### 9.4 **Income Tax Liability**

The bidder will have to bear all Income Tax liability both corporate and personal tax.

#### 9.5 **Service Tax Liability**

The bidder will have to pay all Service Tax liability, as applicable. The applicable Service Tax amount shall be paid to the account of Govt of India,

The Bidder should quote the applicable Service Tax, clearly indicating the rate and the amount of Service Tax included in the bid and the description of the respective service (as per Service Tax rules) under which the Service Tax is payable.

In the contracts involving multiple services or involving supply of certain goods or materials (which should be consumable in nature) along with the services, the Bidder should give separate break-up for cost of goods and cost of various services, and accordingly quote Service Tax as applicable for the taxable services. Contracts involving supply of goods / material which are not consumable in nature would be considered as Works Contract and not Service Contract.

In case the Services Tax is not quoted explicitly in the offer by the Bidder, the offer will be considered as inclusive of all liabilities of Service Tax. IITK will not entertain any future claim in respect of Service Tax against such offers.

In case, the quoted information related to various taxes and duties subsequently proves wrong, incorrect or misleading:-

a) IITK will have no liability to reimburse the difference in the duty/tax, if the finally assessed amount is on the higher side.

b) IITK will have the right to recover the difference in case the rate of duty/tax finally assessed is on the lower side.

The Service Provider should have a valid Service Tax registration certificate with the concerned authorities of Service Tax department and a copy of such registration certificate should be submitted along with the offer.



**Government of India's guidelines about GST shall be complied by the bidder.**

### **10.0 Bid Currencies**

Bidders should quote firm prices in Indian rupee only. Prices quoted in any other currency shall not be considered.

### **11.0 Mode of Payment**

IITK shall make payments only through Electronic Payment mechanism (viz. NEFT/RTGS /ECS). A successful Bidder should invariably provide the following particulars along with their offers:

1. Name & Complete Address of the Supplier / Contractor as per Bank records.
2. Name & Complete Address of the Bank with Branch details.
3. Type of Bank account (Current / Savings/Cash Credit).
4. Bank Account Number (indicate 'Core Bank Account Number', if any).
5. IFSC / NEFT Code (11 digit code) / MICR code, as applicable, along with a cancelled cheque leaf.
6. Permanent Account Number (PAN) under Income Tax Act;
7. TIN/Sales Tax Registration Number (for supply of Goods) and Service Tax Registration Number (for supply of Services), as applicable.
8. e-mail address of the vendor / authorized official (for receiving the updates on status of payments)."
9. For receiving payment through NEFT / RTGS, the bank/branch in which the bidder is having account and intends to have the payment should be either an NEFT enabled bank or SBI branch with core banking facility

### **12.0 Concessional Rate of Customs Duty/Excise Duty/ Sales Tax/GST**

- 12.1 IIT K is partially/fully exempted from payment of customs/excise duty IITK shall provide necessary documents for the same on request.
- 12.2 As the above statutory provisions are frequently reviewed by the Govt., the bidders are advised to check the latest position in their own interest and IITK will not bear any responsibilities for any incorrect assessment of the statutory levies by any bidder.

### **13.0 Vague and Indefinite Expressions**

Bids qualified by vague and indefinite expressions such as "Subject to availability" etc. will not be considered.

### **14.0 Period of Validity of Bids**

- 14.1 The Bid shall be valid for acceptance for the period of 90 Days and shall not be withdrawn on or after the opening of bids till the expiration of the validity period or any extension agreed thereof.



14.2 In exceptional circumstances, prior to expiry of the original bid validity period, the IITK may request the bidder for a specified extension in the period of validity. The requests and the responses shall be made in writing. The Bidder will undertake not to vary/modify the bid during the validity period or any extension agreed thereof. Bidder agreeing to the request for extension of validity of offer shall be required to extend the validity of Bid Security correspondingly.

## 15.0 Bid Security

15.1 The Bid Security is required to protect the IITK against the risk of Bidder's conduct which would warrant the security's forfeiture.

15.2 The Bid Security shall be acceptable in any of the following forms:

- i) Bank Draft in favor of The Director, IITK valid for 90 days from its date of issue.
- ii) Bank Guarantee in the prescribed format valid for 90 days beyond the date of required validity of offer.

The bidders will give Bank Guarantee from any of the following categories of Banks:

- (a) Any Scheduled Bank incorporated in India, Bank Guarantee issued by foreign branches / foreign offices of such Scheduled Banks be counter guaranteed by the Indian Branch of any Scheduled Bank incorporated in India.

OR

- (b) Any Branch of an International Bank situated in India and registered with Reserve Bank of India as scheduled foreign bank.

OR

- (c) Any foreign Bank which is not a Scheduled Bank in India provided the Bank Guarantee issued by such Bank is counter guaranteed by any Branch situated in India of any Scheduled Bank incorporated in India.

15.3 IITK shall not be liable to pay any bank charges, commission or interest on the amount of Bid Security.

15.4 The Bid Security shall be forfeited by IITK in the following events:

- a) If Bid is withdrawn during the validity period or any extension thereof duly agreed by the Bidder.
- b) If Bid is varied or modified in a manner not acceptable to IITK during the validity period or any extension of the validity duly agreed by the Bidder.
- c) In case at any stage of tendering process, it is established that bidder has submitted forged documents/certificates/information towards fulfillment of any of the tender/contract conditions.





15.5 The Bid Security of unsuccessful Bidders will be returned on finalization of the bid. The Bid Security of successful bidder will be returned on receipt of Security Deposit/Performance Bond (Performance Security).

## **16.0 Bid Submission**

The bid along with all appendices and copies of documents should be submitted to IITK.

All the documents shall be signed by the authorized signatory of the bidder.

1. The power of attorney or authorization, or any other document consisting of adequate proof of the ability of the signatory to bind the bidder, in original.
2. Non Disclosure agreement signed by the same signatory who signs the bid.

If Bidder fails to submit original documents with the same content as in the copies submitted in the un-priced bid folder (through e-bidding portal) and in accordance with the bidding document, irrespective of their status/ranking in tender, the bid will be rejected.

**The offers of the bidders indicating/disclosing prices in Technical bid or at any stage before opening of price-bid shall be straightaway rejected.**

16.1 As per Government of India's policy registered SME/ MSME are excluded from Bid Security / EMD.

## **17.0 Deadline for Submission of Bids**

17.1 The duly completed bid shall reach to IITK on or before the time permitted for the bidding.

17.2 No bid can be submitted after the submission dead line is reached.

## **18.0 Late Bids**

18.1 Bidders are advised in their own interest to ensure that bid are submitted well before the closing date and time of the bid.

## **19.0 Modification and Withdrawal of Bids**

19.1 No bid may be modified after the dead line for submission of bids.

**20.1** The bidding company shall fulfil the following terms and conditions:

- It should be ISO 9001 14000 certified
- Manufacturer or their authorised dealer can participate
- Minimum 10 years of experience in manufacturing, sales and service for the kind of equipment proposed to be supplied



20.2 The bidder shall provide full details of technical specifications of item offered (not limited to MDS) along with product information catalogues showing model, make, type, constructional details, materials etc. to facilitate speedy evaluation of the quotation. Without the detailed information as and when requested the Institute reserves the full right to reject any offers for further evaluation.

## **21.0 Opening of Bids**

21.1 The Technical bid will be opened at **1500 Hrs. (IST)** on the date of opening as indicated in "Invitation for Bid". The Bidder or his authorized representative may be present at the time of opening of bid on the specified date, but an authority must be forwarded to this office along with bid and a copy of this letter must be produced in the office by the person attending the opening of bid. Unless this letter is presented by him, he may not be allowed to attend the opening of bid.

21.2 In case of unscheduled holiday on the closing/opening day of bid, the next working day will be treated as scheduled prescribed day of closing/opening of bid, the time notified remaining the same.

21.3 The opening of price bids of short listed bidders shall be conducted on the day specified for opening of price bids in presence of bidders' representative.

## **D. EVALUATION OF BIDS**

### **22.0 Evaluation and Comparison of Bids**

22.1 Evaluation and comparison of bids will be done by IITK and or its authorised representatives.

#### **22.2 CLARIFICATIONS OF BIDS:**

22.2 During evaluation of bids, Purchaser may at its discretion ask the Bidder for clarifications/ confirmations/ deficient documents of its bid. The request for clarification and the response shall be in writing and no change in the price of substance of the bid shall be sought or permitted.

### **23.0 Unsolicited Post Tender Modifications:**

23.1 Unsolicited post-tender modification will lead to straight away rejection of the offer.

23.2 In case certain clarifications are sought by IITK after opening of bid then the reply of the Bidder should be restricted to the clarification sought. Any bidder who modifies his bid (including all modifications which have the effect of altering his offer) after the closing date, without any specific reference by IITK, shall render his bid liable to be ignored and rejected without notice and without reference to the bidder.

### **24.0 Examination of Bid**

24.1 The IITK will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished,



whether the documents have been properly signed and whether the bids are generally in order.

24.2 IITK will determine the conformity of each bid to the bidding documents. Bids falling under the purview of "Rejection Criteria" of the bid Evaluation Criteria of the bidding document will be rejected.

24.3 It is not mandatory on IITK to accept the lowest bidder.

## **25.0 Specifications:**

25.1 The Bidder must note that its Bid will be rejected in case the tender stipulations are not complied with strictly or the services offered do not conform to the required specifications indicated therein. The lowest Bid will be determined from among those Bids which are in full conformity with the required specifications.

## **26.0 Contacting IITK**

No bidder shall contact the IITK on any matter relating to its bid, from the time of the opening of technical bid to the time the contract is awarded.

## **27.0 Award Criteria**

IITK will adopt a two-stage procedure in evaluating the bids: i) technical evaluation and ii) financial evaluation. The weightage of technical evaluation will be 60 % and of financial evaluation will be 40 %. If required, technical evaluation of the bidder's resources would be undertaken by the client by visiting the bidder's premises. Technically qualified bidders will be evaluated for their financial bids. Each bid will be ranked using a combined technical and financial score and the contract will be awarded to the bidder with the highest score.

## **28.0 IITK's Right to Accept Any Bid and to Reject Any or All Bids.**

28.1 IITK reserves the right to reject, accept or prefer any bid and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for IITK's action

## **29.0 Notification of Award (NOA)**

29.1 Prior to the expiration of the period of bid validity, IITK will notify the successful bidder in writing that its bid has been accepted.

29.2 The notification of award will constitute the formation of the contract.

29.3 Upon the successful bidder's furnishing performance security the contract shall be signed between the parties.

## **30.0 Mobilization Period**



The successful bidder shall be required to submit the profile of the concerned personnel to be associated with the work within 15 days from the issue of NOA by IITK and mobilize the concerned personnel for commencement of the work within 05 (five) working days from the date of intimation by IITK.

### **31.0 Performance Security**

- 31.1 Within 30 (thirty) days from the date of issue of LOA/NOA by IITK, the successful Bidder shall furnish the Performance Security in form of Bank guarantee equal to 10% of price bid rates valid a period of completion of work.
- 31.2 Failure of the successful Bidder to comply with the requirement of clause 31.1 above shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.
- 31.3 The Performance Guarantee will be returned within 60 days of completion of contract in all respect/delivery period as per contract / supply order.

### **32.0 Correspondence**

- 32.1 All the correspondence shall be addressed to Prof. S.N. Tripathi, Department of Civil Engineering, IIT-Kanpur, Kanpur 208016, **Email: [snt@iitk.ac.in](mailto:snt@iitk.ac.in), Phone No. : 0512-2597845**
- 32.2 All correspondence from Bidders/ contractor shall be made to the office of the Purchase Authority from where this tender has emanated.
- 32.3 All correspondence shall bear reference to bid number.

### **33.0 Unsolicited Communications**

In case any bidder makes any unsolicited communication in any manner, after bids have been opened, the bid submitted by the particular bidder shall be summarily rejected, irrespective of the circumstances for such unsolicited communication.

### **34.0 Submission of forged documents:**

Bidders should note that IITK may verify authenticity of all the documents/certificate/information submitted by the bidder(s) against the tender. In case at any stage of tendering process or Contract/PO execution etc., if it is established that bidder has submitted forged documents/certificates/information towards fulfillment of any of the tender/contract conditions, IITK shall immediately reject the bid of such bidder(s) or cancel/terminate the contract and forfeit EMD/SD submitted by the bidder.

The bidder shall be required to give an undertaking on the company's letter head and duly signed by the signatory of the bid, that all the documents/certificates/information submitted by them against the tender are genuine. In case any of the documents/certificates/information submitted by the bidder is found to be false or forged, action as deemed fit may be initiated by IITK at its sole discretion.

**BIDDING DOCUMENT ACKNOWLEDGEMENT PROFORMA**

Dated:

Prof. S.N.Tripathi,  
Civil Engg. Dept.,  
IIT Kanpur,  
Kanpur – 208016

Dear Sirs,

We hereby acknowledge receipt of a complete set of Bidding Documents consisting of Annexure (along with their Appendices) enclosed to the "Invitation for Bid" pertaining to providing of Engineering Procurement Construction Commissioning for National Aerosol Facility against Tender NO. **CE/2017-18/0135**.

We have noted that the closing date for receipt of the tender by IITK is **September 25, 2017 at 1500 hrs. (IST)** and opening **September 26, 2017 at 1500 hrs. (IST)**.

We guarantee that the contents of the above said Bidding Documents will be kept confidential within our organization and text of the said documents shall remain the property of IITK and that the said documents are to be used only for the purpose intended by IITK.

Our address for further correspondence on this tender will be as under :

.....  
.....

**Email ID :**

**TELEPHONE NO ;**

**Name & Designation:**

Authorized Signatory

**Seal of Company:**

**BID SUBMISSION PROFORMA**

Tender No:

Contractor's Address:

\_\_\_\_\_

\_\_\_\_\_

Prof. S.N.Tripathi,  
Civil Engg. Dept.,  
IIT Kanpur,  
Kanpur – 208016

Dear Sirs,

1. I/We hereby offer to supply the services detailed in schedule hereto or such portion thereof as you specify in the Acceptance of Tender at the price given in the said schedule and agree to hold this offer open till \_\_\_\_\_ 90 Days from the date of submission\_\_\_\_\_.

2. I/We have understood and complied with the "Instructions to Bidders" and accepted the "General Terms and Conditions" for providing goods and services and have thoroughly examined and complied with the specifications, drawings, Special Conditions of Contract and am/are fully aware of the nature of the service required and my/our offer is to provide services strictly in accordance with the requirements.

.....

.....

**Email ID:**

**TELEPHONE NO;**

**Name & Designation:**

**Seal of Company:**

Authorized Signatory

**BID SUBMISSION AGREEMENT PROFORMA**

No.

Dated:

To,

Prof. S.N.Tripathi,  
Civil Engg. Dept.,  
IIT Kanpur,  
Kanpur – 208016

**Sub: PURCHASE OF BIDDING DOCUMENTS**

**Ref: Tender No. : CE/2017-18/0135**

IITK and the Bidder agree that the Notice Inviting Tenders (NIT) is an offer made on the condition that the Bid would be kept open in its original form without variation or modification for a period of \_\_\_\_\_ (state the number of days from the last date for the receipt of tenders stated in the NIT) days AND THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT. They further agree that the contract consisting of the above conditions of NIT as the offer and the submission of Bid as the Acceptance shall be separate and distinct from the contract which will come into existence when bid is finally accepted by IITK. The consideration for this separate initial contract preceding the main contract is that IITK is not agreeable to sell the NIT to the Bidder and to consider the bid to be made except on the condition that the bid shall be kept open for \_\_\_\_\_ (so many) days after the last date fixed for the receipt of the bids and the Bidder desires to make a bid on this condition and after entering into this separate initial contract with IITK. IITK promises to consider the bid on this condition and the Bidder agrees to keep the bid open for the required period. These reciprocal promises form the consideration for this separate initial contract between the parties.

If Bidder fails to honour the above terms and conditions, IITK shall have unqualified, absolute and unfettered right to encash/forfeit the bid security submitted in this behalf.

**Name & Designation:**

**Seal of Company:**

**Authorized Signatory**

**Proforma of Bank Guarantee towards Bid Security**

Ref. No.....

Bank Guarantee No.....

Dated.....

To,

Prof. S.N.Tripathi,  
Civil Engg. Dept.,  
IIT Kanpur,  
Kanpur – 208016

Dear Sirs,

1. IIT Kanpur has floated a Tender No. **CE/2017-18/0135** and M/s \_\_\_\_\_ having Head/Registered office at \_\_\_\_\_ (hereinafter called the 'Bidder' which expression shall unless repugnant to the context or meaning thereof mean and include all its successors, administrators, executors and permitted assignees) have submitted a bid Reference No..... (ENTER HERE BID REFERENCE NUMBER OF THE BIDDER AND NOT TENDER NUMBER) and Bidder having agreed to furnish as a condition precedent for participation in the said tender an unconditional and irrevocable Bank Guarantee of Indian Rupees (in figures)\_\_\_\_\_ (Indian Rupees (in words)\_\_\_\_\_ only) for the due performance of Bidder's obligations as contained in the terms of the Notice Inviting Tender (NIT) and other terms and conditions contained in the Bidding documents supplied by IITK which amount is liable to be forfeited on the happening of any contingencies mentioned in said documents.

2. We (name of the bank)\_\_\_\_\_ registered under the laws of \_\_\_\_\_ having head/registered office at \_\_\_\_\_ (hereinafter referred to as "the Bank" which expression shall, unless repugnant to the context or meaning thereof, include all its successors, administrators, executors and permitted assignees) guarantee and undertake to pay immediately on first demand by IITK, the amount of Indian Rs. (in figures) \_\_\_\_\_ (Indian Rupees (in words) \_\_\_\_\_ only) in aggregate at any time without any demur and recourse, and without IITK having to substantiate the demand.



Any such demand made by IITK shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by the Bidder.

3. The Bank confirms that this guarantee has been issued with observance of appropriate laws of the country of issue.

4. The Bank also agrees that this guarantee shall be irrevocable and governed and construed in accordance with Indian Laws and subject to exclusive jurisdiction of Indian Courts of the place from where tenders have been invited.

5. This guarantee shall be irrevocable and shall remain in force upto \_\_\_\_\_ which includes thirty days after the period of bid validity and any demand in respect thereof should reach the Bank not later than the aforesaid date.

6. Notwithstanding anything contained hereinabove, our liability under this Guarantee is limited to Indian Rs (in figures) \_\_\_\_\_ (Indian Rupees (in words) \_\_\_\_\_ only) and our guarantee shall remain in force until (indicate the date of expiry of bank guarantee) \_\_\_\_\_.

Any claim under this Guarantee must be received by us before the expiry of this Bank Guarantee. If no such claim has been received by us by the said date, the rights of IITK under this Guarantee will cease. However, if such a claim has been received by us by the said date, all the rights of IITK under this Guarantee shall be valid and shall not cease until we have satisfied that claim. In witness whereof, the Bank, through its authorized officer, has set its hand and stamp on this ..... Day of..... At.....

-----

(Signature)

Full name, designation and  
official address (in legible letters) with Bank stamp.

WITNESS NO. 1

-----

Attorney as per Power of

Signature  
Full name and official address (in legible letters)

Attorney No.....

Dated .....

WITNESS NO. 2

\_\_\_\_\_  
(Signature)  
Full name and official address (in legible letters)

**INSTRUCTIONS FOR FURNISHING BANK GUARANTEE TOWARDS BID SECURITY**

1. The Bank Guarantee by Indian Bidders will be given on non- judicial stamp paper/franking receipt as per stamp duty applicable at the place where the tender has emanated. The non-judicial stamp paper/franking receipt should be either in name of the issuing Bank or the bidder.
2. The expiry date as mentioned in clause 5 & 6 should be arrived at by adding 30 days to the date of expiry of the bid validity unless otherwise specified in the bidding documents.
3. The bidders will give Bank Guarantee from any of the Scheduled Bank incorporated in India

**PROFORMA FOR UNDERTAKING**

The bidder shall give the following undertakings :

We hereby undertake that all instructions and conditions of this tender are acceptable to us unconditionally.

We confirm our prices are firm during the entire duration of the contract .

We confirm to the mobilization all our resources from the date of acceptance of LOI .

We confirm acceptance of Duration of the contract period clause indicated in the bid.

We confirm that our bid includes all Taxes, duties, levies cess etc.

We confirm that our Bid is complete covering all the Scope of Work.

We hereby undertake to provide all the necessary certificates/ documents for enabling IITK to avail Input VAT credit and CENVAT credit benefits (wherever applicable), in respect of the payments of VAT, Excise Duty, Service Tax etc. which are payable against the contract (if awarded), along with documentary evidence for payment of Excise Duty and Service Tax.

**We confirm that Government of India's rules and regulations about GST shall be applicable.**

We hereby undertake that none of our allied concerns, partners or associates or directors or proprietors involved in any capacity , are currently serving any banning order.

Signature & Seal of Bidder

**VOL - II**

**TECHNICAL SPECIFICATION FOR BOILER**

**NATIONAL AEROSOL FACILITY**



**INDIAN INSTITUTE OF TECHNOLOGY KANPUR**



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

#### FOREWORD

This outline specification is intended to cover steam generators of the once-through Coil type design for an output capacity range of 0.01 – 0.5 tonnes/hour of saturated steam at 6 bar (g) design pressure and operating on liquid fuel.

The generic requirements are included in Sections 3 to 6 of this document. Data sheets are included for the provision of information by the package supplier. The completed sheets should be returned with the tender, so that the data may be checked for compliance and bid comparison.

The boiler package shall be built in modules so that the installation time at site will be minimised to the highest extent.



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

## 1.0 SCOPE

### 1.1 INTRODUCTION

This specification covers the design, engineering, manufacture, works testing, supply, transportation to site, off-loadings (including all site handling), construction of foundation and support structure, installation, commissioning, site acceptance testing and hand-over of a steam generator and associated equipment.

The scope of equipment and services required by the steam generator's vendor shall be as described in subsequent clauses of the specification. Any additional items, not specifically mentioned, but required for the safe and efficient operation of the boiler, or to be in compliance with Local or National legislation, are deemed to be inclusive, should they lie within the defined termination points of the boiler vendor's contract.

The boiler shall be of the fully automatic, packaged type of design, suitable for unattended operation. This does not include daily/weekly/monthly maintenance, operation, or water treatment inspection and/or routine service attention.

The design, materials and construction of the boiler shall be subject to inspection by an insurance company/inspection agency nominated by the Purchaser at the contract stage.

### 1.2 BOILER RATING & OPERATION

Boiler data sheet shall state the required boiler capacity as an actual design steam flow at the boiler stop valve for given steam pressure and steam temperature conditions. The Boiler is expected to be operated continuously for approximately 4-5 hours at the rated conditions. **A non-IBR boiler will be preferred subject to the extant statutory requirements.**

### 1.3 EXTENT OF SUPPLY

The minimum scope of the boiler package supplier is as follows. It is boiler vendor's responsibility to include any item system required to make the package complete and functional as per required process parameters and guarantee run.



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

- 1.3.1 Basic boiler comprising support frame completed with all internals, all insulation, cladding and painting.
- 1.3.2 Fuel oil system, fuel oil pumps, burner, burner controls, valves, filter and on package fuel oil pipe work complete with spill/return line terminating with a non-return valve.
- 1.3.3 Forced draught fan with silencers and motor, combustion air ducting.
- 1.3.4 Boiler feed water pump complete with valves and strainer.
- 1.3.5 Fabrication, supply and installation of various associated tanks etc. (feed water tank, fuel tank, etc.) which are required for the operation of the boiler. Installation
- 1.3.6 Construction of foundation, galleries, raised platforms, ladders etc. required for the installation of the boiler system, sub-systems and auxiliaries as per the layout provided by the user.
- 1.3.7 Boiler control panel, burner management system, & instrumentation complete with cabling /tubing from the device to the on-package control panel. This panel shall also contain the electric motor starters for fans and feed pumps motors.
- 1.3.8 All piping and pipe supports within the battery limits
- 1.3.9 Ladders and galleries (when requested, or where necessary) to allow safe access for operation and maintenance.
- 1.3.10 Exhaust system: Flue gas ductwork, insulation, cladding, barometric & back-draught dampers and outside chimney & silencer. Main and pilot gas pressure regulation and/or steam safety shut-off valves.
- 1.3.11 Testing at the manufacturer's works/ facilities.
- 1.3.12 A pressure reducing station (PRS) / pressure control valve (PCV) on the steam header to reduce and maintain steam header pressure when steam generation pressure is higher than the pressure required by users.
- 1.3.13 Steam flow meter
- 1.3.14 Blow down vessel complete with auxiliary equipment
- 1.3.15 Safety valve silencer
- 1.3.16 All the critical signals from the boiler package are to be duplicated in PLC.
- 1.3.17 Commissioning spares and list of two years operational spares and all standard installation, operation and maintenance manuals.
- 1.3.18 Packaging ready for truck transportation (i.e. packed, ex- works).
- 1.3.19 Delivery to site and placing the package into final position including transportation, insurance, labour, rigging to off-load the boiler (including all sub-systems and auxiliaries as mentioned above). Installation of any items within the scope of supply that are delivered separately from the boiler

package. Commissioning and hand-over of the finished boiler and associated equipment, including operator training on site.

**N.B. Itemized cost for the above-mentioned scope of supply should be provided.**

**1.4 TERMINATION POINTS**

- Feed water supply: Feed Water Tank.
- Fuel oil supply: Fuel Oil Tank
- Steam discharge: outlet of stop/stop-check valve.
- Electrical supply: terminals within the boiler’s control panel
- Boiler exhaust gas discharge: Stack.
- Blow down discharge: blow down pit
- Excess water: steam trap outlet or steam separator water level control valve outlet

**1.5 SPECIFIC EXCLUSIONS**

Any equipment / parts / system required to make the boiler package complete and safe and meet design parameters shall be supplied by the boiler supplier. Boiler vendor may quote price for any recommended optional items.

Any exclusion needs to be specified separately. Vendor giving complete package shall be preferred.

**2.0 STANDARD SPECIFICATIONS**

The latest edition of an international standard such as ASME, BS/EN or Pressure Equipment Directives (PED) shall be complied with.

Design Codes For Pressure Parts	:	ASME SEC I / EN-12952
Boiler Performance Testing	:	BS 845 (Part I): 1987 ASME PTC 4.1: 1964
Unfired pressure vessels	:	ASME Sec VIII Div. I / (EN-13445)
Boiler and Combustion Systems	:	NFPA 85 - 2001
Piping	:	ASME B 31.1/ EN 13480
Deaerator	:	ASME PTC 12.3 - 1977, HEI
IEC 60034	:	Motors
IEC 60204-1	:	Safety of machinery Electrical equipment of Machines





## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

IEC 60364	:	Requirements for fixed electrical installations
IEC 61439-1:2009	:	Low voltage switch gear and control gear Assemblies
ISA	:	International society for Automation
IBR	:	Indian Boiler Regulations

In case of conflict between any of the codes/ standards mentioned above, the following order of precedence shall govern:

1. Equipment data sheets
2. This specification
3. Other project specifications
4. Codes and standards

### 3.0 BASIC DESIGN

For purpose of assessing the boiler thermal design, an overall thermal efficiency at full load shall not be less than 93 % for HSD fired boiler, based on net calorific value of the fuel at Maximum Continuous Rating (MCR).

#### 3.1 FEED WATER SYSTEM

3.1.1 Feed water quality available at the locations is provided in the data sheet. The Boiler manufacturer to design the system as per FEED water quality and if further treatment is required it is boiler vendor's responsibility to generate the same quality of Boiler Feed Water.

#### 3.1.2 Feed water tank

Feed Water Tank shall be complete with all necessary fittings, relief valves, instruments and controls for pressure and water level, etc. Water level controller shall be of displacement type indicating control and shall also have low-low level safety trip for BFW pump drive. Feed Water Tank outlet nozzle shall be provided with vortex breaker. Feed Water Tank shall act as de-aerator if required. The steam inlet line to Feed Water Tank shall be provided to meet BFW specifications. Non-return valve is to be provided to prevent backflow of water from de-aerator into the steam line due to over-pressure or high level.

#### 3.1.3 Feed Water Pumps

Feed water pump with drive motor and associated accessories such as spacer coupling, coupling guards, holding down bolts, foundation bolts etc. shall be provided.

The feed pump to the boiler should preferably be a packless/glandless pump suitable for modulating operation fully aligned with the modulating control system of the burner.



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

#### 3.2 FUEL AND BURNER SYSTEM

##### 3.2.1 Forced draft fan

- The vendor shall furnish combustion air blower for the boiler.
- Blowers shall provide with variable inlet vane control dampers and outlet shut off damper.
- It is preferred to have forced draft fan motor with VSD.
- Silencer shall be supplied with FD fan to limit the noise at specified level.

##### 3.2.2 Burner Assembly

The steam generator should be equipped with a pre-assembled fully integrated burner system, including all control and safety equipment. The burner system shall consist of burner, fuel pressure regulators, fuel pressure switches, burner fuel safety shut-off valves, fuel quantity regulating system, flame detection cell and combustion controller. Diesel oil fired units should have a fuel pump and inlet fuel filter included in the boiler vendor package.

The burner shall be equipped with a self-checking flame detection system.

The burner shall be automatic, PLC controlled.

All combustions systems shall be tested individually in their total configuration and shall at least meet the following requirements:

- The maximum carbon monoxide content shall be in accordance with the local regulations but shall not exceed 150 ppm.
- The solids (particulate) in flue gases leaving the boiler shall be in accordance with the local regulations, but in any case shall not exceed 50 mg/Nm<sup>3</sup> when firing oil and 5 mg/Nm<sup>3</sup> gas fired.

##### 3.2.3 Chimney

Chimney shall be self-supporting type, fabricated from mild steel of suitable thickness (design data to be provided). The height of chimney shall comply with the statutory requirements of local authorities and smoke nuisance regulations.

Chimney shall be complete with cat ladder, platform, painter's trolley etc. as required, and duly painted inside / outside as required, with heat resistant paint. Lightning protection shall be provided. Aviation lamp shall be provided, two earthing terminals shall be provided at the base of the chimney.

- Chimney shall comply with local emission regulation norms for the prevention and control of water / air pollution
- A cowl shall be provided on top of the chimney to prevent rain water from entering inside the chimney.



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

#### 3.3 WATER SEPARATOR

The separator shall have a blow down connection and adequate protection against over pressure (safety valves). The separator should have a continuous water removal system.

#### 3.4 BLOW DOWN SYSTEM

Automatic blow down system shall be preferred over manual system.

#### 3.5 ECONOMIZER

The boiler shall be equipped with bare type economizer mounted directly to the boiler.

#### 3.6 STEAM HEADER/ BOILER DRUM

On the basis of the process requirements, the vendor should provide complete design details for the same.

#### 3.7 CHEMICAL DOSING SYSTEMS

Vendor shall elaborate on type of chemical dosing system offered in proposal.

Vendor shall offer FRP/HDPE/PVC tanks, piping connections for easy handling and to avoid corrosion. The tanks shall be provided with bottom drain and hinged lids. Each tank shall be provided with calibrated translucent measure pot attached to the tank and shall provide 1 day storage requirement.


The dosing pump shall be positive displacement, plunger type; variable stroke with electric motor drive through suitable gear box, manual stroke adjustment. The design capacity and discharge pressure shall be coordinated with feed system requirement.

Material of construction for all wetted parts shall be SS 304.

#### 4.0 CONTROL AND INSTRUMENTATION

4.1 The following fittings, accessories, and instrumentation shall be supplied:

- One plus one pressure relief valve. The size of the valve(s) must be suitable to discharge the maximum quantity of fluid which can be supplied to the equipment without causing a rise in vessel pressure of more than 10 % above design pressure.
- A boiler main steam stop/check valve, preferably 90 degree angle type.
- Coil drain, feed water shutoff and check valves.
- Separator drain(s) and trap(s) valves.
- Continuous water emptying system and a blow down system.
- Temperature and pressure switches and gauges. The boiler shall have double pressure switches to allow for on line testing of each pressure switch.

	<h2 style="margin: 0;">NATIONAL AEROSOL FACILITY</h2>
<h3 style="margin: 0;">TECHNICAL SPECIFICATION FOR BOILER</h3>	

4.2 The following parameters shall have alarms and trips as a minimum requirement. The necessary signal initiating devices, relays, flashers and other accessories for the proper operation of the equipment shall be provided for the following conditions.

The automation system should also have sufficient number of hard-wired I/O's for information exchange with the central plant control system. This will be over and above the 10% spare I/O's that has to be supplied along with the system.

DESCRIPTION	INSTRUMENTS FOR	ALARM	TRIP
<b>Feed Water System :</b> Feed Water Level	High / Low/ Low - Low	Yes / Yes / Yes	-/-/Yes
Feed Water Pressure	High / Low	Yes / Yes	-
Feed Water Temp.	Low	Yes	-
Feed Water Pressure	Low	Yes	-
Feed Water Flow	Low	Yes	Yes
Blow-down valve open		Yes	Yes
<b>STEAM :</b> Steam Temperature	High / Low	Yes / Yes	Yes/-
Steam Pressure	High / Low	Yes / Yes	Yes/-
Steam Flow	High / Low	Yes	Yes
<b>AIR :</b> FD Fan Flow	High / Low	Yes /Yes	- / Yes
FD Fan Pressure	High / Low	Yes / Yes	- / Yes
<b>Exhaust GAS :</b> Exhaust Pressure	High / Low	Yes / Yes	Yes / -
Exhaust Gas Temperature	-              High / Low	Yes / Yes	Yes / -
<b>FUEL SUPPLY PRESSURE</b>	High / Low	Yes / Yes	Yes / Yes
<b>STACK TEMPERATURE</b>	High	Yes	Yes
<b>BURNER:</b> Individual Burner Failure		Yes	Yes

4.3 Boiler shall have the following minimum control and display with the plant PLC.

**4.3.1 Boiler Control to PLC:**

- Steam flow rate (SLPM or kg/hr)
- Temperature and pressure of the steam at steam generator outlet.
- ON/OFF status
- Fuel supply status
- Boiler failure or trip indication

**4.3.2 PLC to boiler control:**

- ON/OFF command
- Emergency stop
- Steam flow rate as input (SLPM or kg/hr)
- Operating/Delivery pressure as input
- Boiler outlet temperature as input



## **5.0 MATERIALS OF CONSTRUCTION**

- 5.1 All materials of construction used in the manufacture of the boiler should conform to the requirements of the appropriate Sections of the relevant Indian and International Standard (IBR/ASME I/II, EN 12952, PED).
- 5.2 Seamless tubing shall be for pressure parts in all cases, and where this is not available, seamed pressure welded tubing must be verified to be free of longitudinal weld defects before being formed into its final configuration. Copies of materials certificates and test certificates for all welded pressure parts must be included in the document file supplied with the boiler

## **6.0 INSULATION AND CLADDING**

- 6.1 Insulation should be designed to limit the surface temperature of cladding to 60°C.
- 6.2 Cladding shall be of aluminum or a proprietary equivalent with a minimum thickness of 1 mm.

## **7.0 WELDING**

All assembly welding must be carried out to the highest standard available to ensure that the construction is defect-free when complete. Full penetration welds should be used and single sided welds should be avoided throughout the construction.

The welding procedure specification and procedure qualification records shall be made available to the Purchaser for review and approval.

## **8.0 PAINTING**

The external surface for all stationary equipment shall be prepared and painted as per Painting specification or Manufacturing standard.

## **9.0 ELECTRICAL**

For electrical requirements, refer standard codes & guidelines, latest revision as applicable.

## **10.0 SPARE PARTS**

Mandatory spares and spares required for Two years normal operations shall be provided with the boiler package.

## **11.0 INSPECTION AND TESTING**

- 11.1 The whole of the works supplied under the contract shall be subject to inspection by purchaser or his authorized representative during manufacture, erection and after completion.
- 11.2 All appliances, apparatus, supervision, labor and services necessary to carry out the tests shall be provided by the supplier as part of the tendered price, unless otherwise specified.
- 11.3 Tests at manufacturer's works shall comprise testing of auxiliary equipment such as pumps, fans etc. All equipment, whether specifically noted or not, shall be subject to tests in accordance with the relevant European, American ISO, or National standards acceptable to the purchaser. Where no



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

appropriate standard is available, tests shall be carried out in accordance with the maker's standard practice which must meet with the approval of the Client.

- 11.4 Unless otherwise specified, the noise level from the boiler and its auxiliary package equipment shall not exceed 80 dB (A) when measured at 1 meter distance from the unit.
- 11.5 Fourteen days' notice shall be given in writing of the readiness of boiler package for test or inspection. Every facility shall be provided by the boiler supplier and his Sub-Contractor(s) to enable the client to carry out the inspections and witness the tests.
- 11.6 No equipment shall be packed, prepared for shipment, or dismantled for the purpose of packing for shipment, until it has been satisfactorily inspected and approved for shipment.
- 11.7 As a minimum, following tests/inspection shall be carried out:-
- i. Material test certificate review for pressure parts of boiler and major parts of all bought out components.
  - ii. Visual inspection & dimensional check of all items in scope of supply.
  - iii. Witness of hydro testing of all pressure containing parts and water fill test of atmospheric tanks/vessels.
  - iv. Radiography for the boiler drum/ steam header and the welded joints on drum as well as at nozzle fixing pads.
  - v. Review of NDT test reports for boilers.
  - vi. Manufacturer's performance certificate review for items such as pumps, blowers, fans & burners.
  - vii. Panels (Electrical and instrumentation) witness of sequence test, function test, high voltage test and identification of makes of components.
  - viii. Type test certificate review for motors.
  - ix. Check for alignment of chimney segments and D P test of welds for chimney.
  - x. Witness of fire test for boiler.
  - xi. Review of dynamic balancing certificate for rotors of pumps and blowers/fans.
  - xii. Noise and vibration level test.
  - xiii. Calibration of instruments and pop-up test of pressure safety valve

## 12.0 DELIVERY AND INSTALLATION

### 12.1 Transport :

- 12.1.1 The basic tender price shall include all equipment and services up to finished, packed, ex- works condition exclusive of subsequent transportation costs.



## NATIONAL AEROSOL FACILITY

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#### 12.2 Erection and Commissioning

- 12.2.1 The boiler vendor shall be responsible for the safe and efficient operation of the boiler and equipment.
- 12.2.2 The boiler vendor shall submit fully comprehensive schedules of pre- commissioning checks for each item of the boiler and equipment provided.
- 12.2.3 The date for the final commissioning must be agreed with the Purchaser. All test equipment, tools, materials, consumables, manual labor, spare parts, foundation etc. required during the commissioning shall be provided by the boiler vendor and shall be included in the base price.
- 12.2.4 The commissioning will not be considered complete until all equipment, including instrumentation and controls, operate continuously to the reasonable satisfaction of the Purchaser. After this, the boiler shall be steamed for 4 weeks of reliability run. Satisfactory completion of the reliability run allows the Acceptance Test to be completed.
- 12.2.5 The boiler vendor's commissioning engineer shall instruct the Purchaser's operating personnel in the safe operation and maintenance of the plant.

#### 13.0 **GUARANTEES**

##### 13.1 Mechanical, Electrical, Instrumentation, etc.

Vendor shall guarantee against defective materials and workmanship for a period of three years from the date of commissioning and handover of the equipment/facility/service.

##### Performance

The boiler shall be guaranteed for satisfactory performance at all operating conditions as mentioned in data sheet. Performance test on boiler shall be carried out in compliance with BS 845 part 1: 1987. Field check on performance when carried out by Purchaser shall be made within agreed time of initial operation.

Vendor shall guarantee following parameters:

- Capacity, Steam Pressure, Steam Temperature, Steam Quality.
- Utility consumption (includes fuel oil, feed water, electricity, instrument air etc.)
- Blow down quantity and frequency
- Effluent quality of flue gas

#### 14.0 **DOCUMENTATION, DRAWINGS, CERTIFICATES**

##### 14.1 Documents Required with the offer

14.1.1 The following information is the minimum requirement :

- Process and Instrumentation Diagram (PID)
- Plan, layout, and Installation (general arrangement) drawing
- Foundation load / weight data
- Feed water quality required
- Preliminary layout drawing of the boiler and its auxiliaries.



## NATIONAL AEROSOL FACILITY

### TECHNICAL SPECIFICATION FOR BOILER

- Completed data sheets
- A price schedule and guarantees.
- A recommended list of spare parts for two years operation.
- An extent of supply and termination points list.
- Utilities requirement of electricity, water, compressed air, fuel etc. for the boiler.

14.1.2 Any deviations from this specification shall be clearly given in writing at the tendering stage. Absence of such comment, assumes full compliance. Any subsequently discovered short-falls will be rectified at no extra cost to the Purchaser.

#### 14.2 Post Order Documents

14.2.1 A certified foundation requirements drawing with loads, dimensions and holding- down bolt details shall be submitted within three weeks of order.

14.2.2 Certified General Arrangement drawing giving all termination point details shall be submitted within three weeks of order.

14.2.3 The layout and orientation of the boiler package and sub-systems should be submitted to the Purchaser within three weeks of order (tentative orientation and layout drawing of boiler room has been attached).

14.2.4 Control system specifications and control circuit drawings.

14.2.5 Other submissions (e.g. materials and test certificates, electrical and burner details etc.) shall be submitted prior to inspection at shop.

14.2.6 Operating and Maintenance manuals shall be provided in triplicate at least two weeks before the delivery of the boiler. These manuals shall contain operation and maintenance information on ALL items of equipment supplied with the boiler together with detailed drawings and spare part list sufficient to enable identification and ordering of spares.

14.2.7 An Installation and Erection manual.

14.2.8 As-built General Arrangement and detail drawings of the boiler and auxiliaries shall also be provided in triplicate, with the above manuals.

#### 15.0 RELATED DOCUMENTS

- Refer Data sheet for HSD fired boiler
- Refer Equipment layout document for preparation of General Arrangement Drawing.





**DATASHEET FOR STEAM BOILER**

PROJECT

NAF, IIT KANPUR

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**INDIAN INSTITUTE OF TECHNOLOGY KANPUR**

**NATIONAL AEROSOL FACILITY**

**DATASHEET FOR STEAM BOILER**



## DATA SHEET

### STEAM BOILER

Sheet no 02 OF 05

STEAM SYSTEM

Item No.

Equipment

B-0501

No. in Service

1

No. Total

1

1	Manufacturer :	*	Model No. :	*
2	Type :	HSD Fired Boiler		
3	Duty:	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Intermittent (4-5 hours at a time)	Installation : <input checked="" type="checkbox"/> Indoor <input type="checkbox"/> Under Shed
4	<b>DESIGN PARAMETERS</b>			
5	Type Of Fuel :	<input type="checkbox"/> Furnace Oil <input checked="" type="checkbox"/> HSD <input type="checkbox"/> NG <input type="checkbox"/> Others (Specify)		
6	NCV of Fuel:	STD kcal/kg	GCV of Fuel: STD kcal/kg	Feed Water Temperature: 25 °C
7	Type Of Steam :	<input checked="" type="checkbox"/> Saturated <input type="checkbox"/> Superheated	Oxygen Content In Water:	NA ppm
8	MCR Capacity :	500 kg/h	Quality Of Steam :	
9	MIN Capacity :	10 kg/h	Silica Content :	NA ppm
10	Pressure At B/L :	1.0/5.0 bar(g)	Dryness Fraction :	99.0 %
11	Temperature :	* °C	TDS :	NA ppm
12	Degree of Superheat	* °C	Note-2	
13	Design Codes For Pressure Parts :	ASME Sec I / EN-12952		Boiler Turn Down Ratio : 1:04
14	Performance Testing As Per IBR	<input checked="" type="checkbox"/> Indirect Method	<input type="checkbox"/> Direct Method	
15	<b>GUARANTEED PARAMETERS</b>			
16	Steam At B/L :	Saturated Steam Output At B/L :	Boiler Efficiency :	93 * %
17	Quantity :	500 kg/h	Quantity :	500 kg/h
18	Pressure :	5 bar(g)	Pressure :	5 bar(g)
19	Temperature :	Note-2 169 °C	Temperature :	159 °C
20	<b>OPERATING AND PERFORMANCE DATA</b>			
21	<b>HEAT ACCOUNT :</b>		<b>AVERAGE DRAUGHTS :</b>	
22	Heat Transferred to Water + Steam :	* kW	Combustion Chamber :	* mmWC
23	Heat Losses Due To Radiation :	* kW	Inlet To Stack :	* mmWC
24	Heat Losses With Flue Gases :	* kW	<b>COMBUSTION AIR QUANTITY :</b>	
25	Heat Losses Unaccountable :	* kW	Theoretical @ MCR :	* Nm <sup>3</sup> /h
26	Margins :	* kW	Excess Air Supplied :	* %
27	Gross Overall Heat Produced :	* kW		
28	<b>TEMPERATURES :</b>		<b>FEED WATER QUALITY :</b>	
29	Outlet Steam @ MCR :	* °C	Hardness :	400
30	Outlet Steam @ LOWER TURNDOWN :	* °C	pH At 25 °C :	7.99
31	F.W. @ Economiser Outlet :	* °C	Alkalinity as CaCO <sub>3</sub> (mg/l)	420 mg/l
32	F.W. @ Economiser Inlet :	* °C	Acidity as CaCO <sub>3</sub> (mg/l)	40 mg/l
33	Air To Comb. Chamber(Inlet Air) :	* °C	Sulphate	84 mg/l
34	Gas @ Exit Of Comb. Chamber :	* °C	Total Silica :	* ppm
35	Flue Gas @ Inlet To Stack :	* °C	Chlorides :	179 mg/l
36			Conductivity @25°C :	* μS/m
37			TDS :	678 mg/l
38			Dissolved Oxygen :	* mg/l
39	<b>TIME MEASUREMENTS :</b>			
40	Time Required For Boiler To Reach MCR From Cold Start :	* Min		
41	No. Of Acceptable Start / Stop In An Hour :	* nos.		
42	<b>CONSTRUCTION PARAMETERS</b>			
43	Overall Size :	Length (with burner): * mm	Length (without burner):	* mm
44		Width : * mm		
45		Height : * mm		
46	Weight :	Without Water : * kg	With Water :	* kg
47	Type of Support :	<input checked="" type="checkbox"/> Bottom Supported	<input type="checkbox"/> Suspended	
48	Platform & Access Ladder Provided :	Yes / No		
49	Notes: 1. It is mandatory for vendor to fill in all data marked by (*)			
50	2. Minimum 10 Deg C degree of superheat is required from the boiler package.			
51				



## DATA SHEET

### STEAM BOILER

Sheet no. 03 OF 05

		<b>STEAM SYSTEM</b>		Item No.			
Equipment		B-0501			No. in Service	No. Total	
<b>COIL / TUBES DETAILS</b>							
1							
2	Qty. :	*	nos.	Coil /Tubes Design Standard :			
3	Total Length :	*	mm	Design Pressure / Temperature : * / * bar (g) / °C			
4	Coil / Tubes : Size (O.D. X Thickness) :	*	mm	MOC : *			
<b>BURNER DETAILS</b>							
5							
6	Qty. :	*	Nos.	Type :	*	Make :	
7	Model :	*	Control :	*	Max. Amount Of FD Fan Air In Each Burner Assembly: * Nm <sup>3</sup> /h		
8	Location :	<input type="checkbox"/>	Boiler Front	<input type="checkbox"/>	Tangential	<input checked="" type="checkbox"/>	Vertical
9	Max. Capacity Of Each Burner :	*	kg/h	Type Of Air Register Dampner: <input type="checkbox"/> Sliding Vane <input type="checkbox"/> Circular Vane			
10	Atomised Pressure:	<input checked="" type="checkbox"/>	Constant Pressure	<input type="checkbox"/>	Diff. Pressure	Scanner & Photocell: Qty (nos.) Type Make	
11	Medium of Atomisation :	<input type="checkbox"/>	Air	<input type="checkbox"/>	Steam	Arrangment Of Firing : *	
12	Capacity Of Igniter/ Pilot Burner:	*	kW	Burner Turn Down Ratio: *			
13	Igniter: Qty. :	*	Nos.	Make :	*	Modulation (Step / Stepless) : *	
14	Pilot Fuel Type :	<input checked="" type="checkbox"/>	HSD	<input type="checkbox"/>	NG	<input type="checkbox"/>	Others (specify)
15	Qty. Of Pilot Fuel Per Startup :	*	kg	Fuel Oil Supply Pressure : * bar(g)			
16				Oxygen Content In Flue Gas : * %			
<b>STEAM SHUT OFF/ STOP VALVE</b>				<b>MAIN &amp; PILOT FUEL REGULATING VALVE</b>			
17	Qty. :	*	nos.	Size :	*	NB	Qty. :
18	MOC :	*		Pressure Rating :	*	bar	Size :
19				MOC : * Pressure Rating : * bar			
<b>STEAM SAFETY VALVE 1</b>				<b>STEAM SAFETY VALVE 2</b>			
20	Type :	*		Size :	*	NB	Type :
21	MOC :	*		Set Pressure :	*	bar(g)	Size :
22				MOC : * Set Pressure : * bar(g)			
<b>INSULATION &amp; CLADDING</b>							
23	Material Of Insulation: *	Cladding : *		Location	Type Of Insulation / Refractory		Thickness(mm)
24	Density Of Insulation : *	kg/m <sup>3</sup>		Boiler Casing	*		*
25	Thickness Of Insulation : *	mm	& Cladding : *	Burner Plate	*		*
26	Surface Temperature : *	°C		Furnace Floor			
27 <b>HEATING SURFACE AREA OF :</b>							
28	Combustion Chamber :	*	m <sup>2</sup>	Mode Of Heat Transfer	Radiation		Convection
29	Economiser / Air Preheater :	*	m <sup>2</sup>	No. Of Passes	*		*
30	Steam Superheater	*	m <sup>2</sup>	Heat Transfer Area (m <sup>2</sup> )	*		*
<b>AUXILIARIES</b>							
<b>FEED WATER SYSTEM</b>							
<b>DEAERATOR CUM BFW TANK :</b>				<b>BOILER FEED WATER PUMP</b>			
33							
34	Qty. :	1	nos.	Qty.:	1	nos.	
35	Design Type :	*		Type :	*	Speed :	* rpm
36	Capacity :	*	m <sup>3</sup> /h	Hold Up In Terms Of Time : *	hrs	Make / Model :	* Motor Rating : * kW
37	Size:	*	mm	Thickness :	* mm	Capacity :	* m <sup>3</sup> /h Seal *
38	MOC :	*		Corossion Allowance :	* mm	Head :	* mlc *
39	Design Std. : ASME SEC VIII / HEI			Weight :	* kg	Absorbed Power :	* kW MOC :
40	Level Display Provided: Yes / No : Yes				Design STD. :	*	Casing : *
41	Design Pressure / Temp. -	*	bar(g) / °C				Wetted Parts : *
42	Capacity Of Storage Tank (Between NWL& LLL) :	*	m <sup>3</sup>	Pump Max. Temp Rating : *	°C	No. of stages :	*
43	Insulation Density :	kg/m <sup>3</sup>	Insulation Thick. : *	Efficiency :	* %	NPSH <sub>R</sub> :	* m
44				Capacity Control By VFD Provided: Yes / No : *			



## DATA SHEET

### STEAM BOILER

Sheet no 04 OF 05

STEAM SYSTEM

Item No.

Equipment

B-0501

No. in Service

No. Total

#### FUEL OIL SYSTEM

1				
2	<b>DAY TANK DETAILS :</b>		<b>FUEL OIL PUMPS :</b>	
3	OD : * mm	Capacity: * m <sup>3</sup>	Type : * nos.	Qty : * nos.
4	ID : * mm	Time Storage: * hrs * min.	Capacity : * m <sup>3</sup> /h	Absorbed Power : * kW
5	Length / Height : * mm	Weight: * kg	Disch. Pressure : * mlc	Motor Rating : * kW
6	Corrosion Allowance : * mm		Speed : * rpm	MOC : *
7	Heating Method:: <input type="checkbox"/> Electrical <input type="checkbox"/> Steam		Design STD.: *	Casing : *
8			Seal *	Wetted Parts : *
9	<b>STEAM OIL PREHEATER (SOPH) :</b>		MOC : *	

10		OD	ID	Corrosion Allowance	<b>DUPLEX FILTER:</b>
11	Shell Details (mm) :				Type : Duplex
12	Tube Details (mm) :				Filter Size : * mm
13	No. Of Tubes (Nos.):				Mesh Size : * μm
14	Steam On : <input type="checkbox"/> Tube Side <input type="checkbox"/> Shell Side				MOC *

#### AIR & GAS SYSTEM

21				
22	<b>F.D. FAN :</b>		Qty : * nos.	<b>ECONOMISER :</b>
23	Type : Backward Curved / Inclined	Speed : * rpm	Type : <input type="checkbox"/> Bare Tube <input type="checkbox"/> Fin Tube	
24	Make / Model : *	Absorbed Power : * kW	Arrangement : <input type="checkbox"/> In - Line <input type="checkbox"/> Staggered	
25	Capacity: * m <sup>3</sup> /h	Motor Rating : * kW	No. of Tubes : * nos.	
26	Static Head : * mmWC	Seal Type : *	Total Heat Transfer Area : * m <sup>2</sup>	
27	Cap. Control : *	MOC : *	MOC : Tubes : *	
28	MOC Casing : *	Design STD: *	Casing : *	
29	Rotor : *	Noise Level : 80 dB(A) @1 m		
30	Noise Level Silencer For Fan : Yes / No *			
31	<b>CHIMNEY:</b>		Qty : * nos.	
32	Type : Self Supported			
33	Height : * mm	Design Temperature : * °C		
34	Dia At Bottom : * mm	MOC :		
35	Dia At Top : * mm			
36	Effective Length Of SS Lining : * mm	Corrosion Allowance: * mm		
37	Thickness : * mm	Design STD: BS 6399 / NFPA 211/ Eq.		
38	Velocity of Flue Gas At Exit : * m/s			
39				



## DATA SHEET

### STEAM BOILER

Sheet no 05 OF 05

STEAM SYSTEM

Item No.

Equipment

B-0501

No. in Service

No. Total

## INSTRUMENTATION & CONTROL

Following Minimum Safeties Shall Be Provided.

4	DESCRIPTION	INSTRUMENTS FOR	ALARM	TRIP	PROVIDED(YES /NO)
5	<b>WATER :</b> Deaerator Water Level	High / Low/ Low - Low	Yes / Yes / Yes	- / Yes	*
6	Deaerator Pressure	High / Low	Yes / Yes	-	*
7	Feed Water Temp.	Low	Yes	-	*
8	Feed Water Pressure	Low	Yes	-	*
9	Feed Water Flow	Low	Yes	Yes	*
10	Water level In Economiser	Low	Yes	Yes	*
11	Blowdown valve open		Yes	Yes	
12	<b>STEAM :</b> Steam Temperature	High / Low	Yes / Yes	Yes/-	*
13	Steam Pressure	High / Low	Yes / Yes	Yes/-	*
14					*
15	<b>AIR :</b> FD Fan Flow	High / Low	Yes /Yes	- / Yes	*
16	FD Fan Pressure	High / Low	Yes / Yes	- / Yes	*
17	<b>FLUE GAS :</b> Furnace Pressure	High / Low	Yes / Yes	Yes / -	*
18	Furnace Temperature	High / Low	Yes / Yes	Yes / -	*
19	Oxygen Percentage	HIGH	Yes	-	*
20	<b>FUEL SUPPLY PRESSURE</b>	High / Low	Yes / Yes	Yes / Yes	*
21	<b>STACK TEMPERATURE</b>	High	Yes	Yes	*
22	<b>BURNER:</b> Individual Burner Failure		Yes	Yes	*

23 Alarm Recorder Provided : Yes/ No : Yes

## DOSING SYSTEM ( Note 3)

26	DOSING TANK	DOSING PUMPS	Qty :	* nos.
27	Type : * Qty : * nos.	Type : *	Make :	*
28	Size (Dia. X Height) : * mm	Capacity : * m <sup>3</sup> /h	Absorbed Power :	* kW
29	Shell Thickness : * mm Capacity: * m <sup>3</sup>	Disch. Pressure : * mlc	Motor Rating :	* kW
30	MOC : *	Speed : * rpm	MOC :	*
31	Design STD. : *	Design STD. *	Seal Type :	*
32			MOC :	*

### 34 NOTES:

#### 35 Legends :

36 NA / (-) = Not Applicable, NCV = Net Calorific Value, GCV = Gross Calorific Value, NWL = Normal Water Level, LLL = Lower Liquid Level, FW = Feed Water

37 MCR =Maximum Continuous Rating, LTD = Low Turn Down

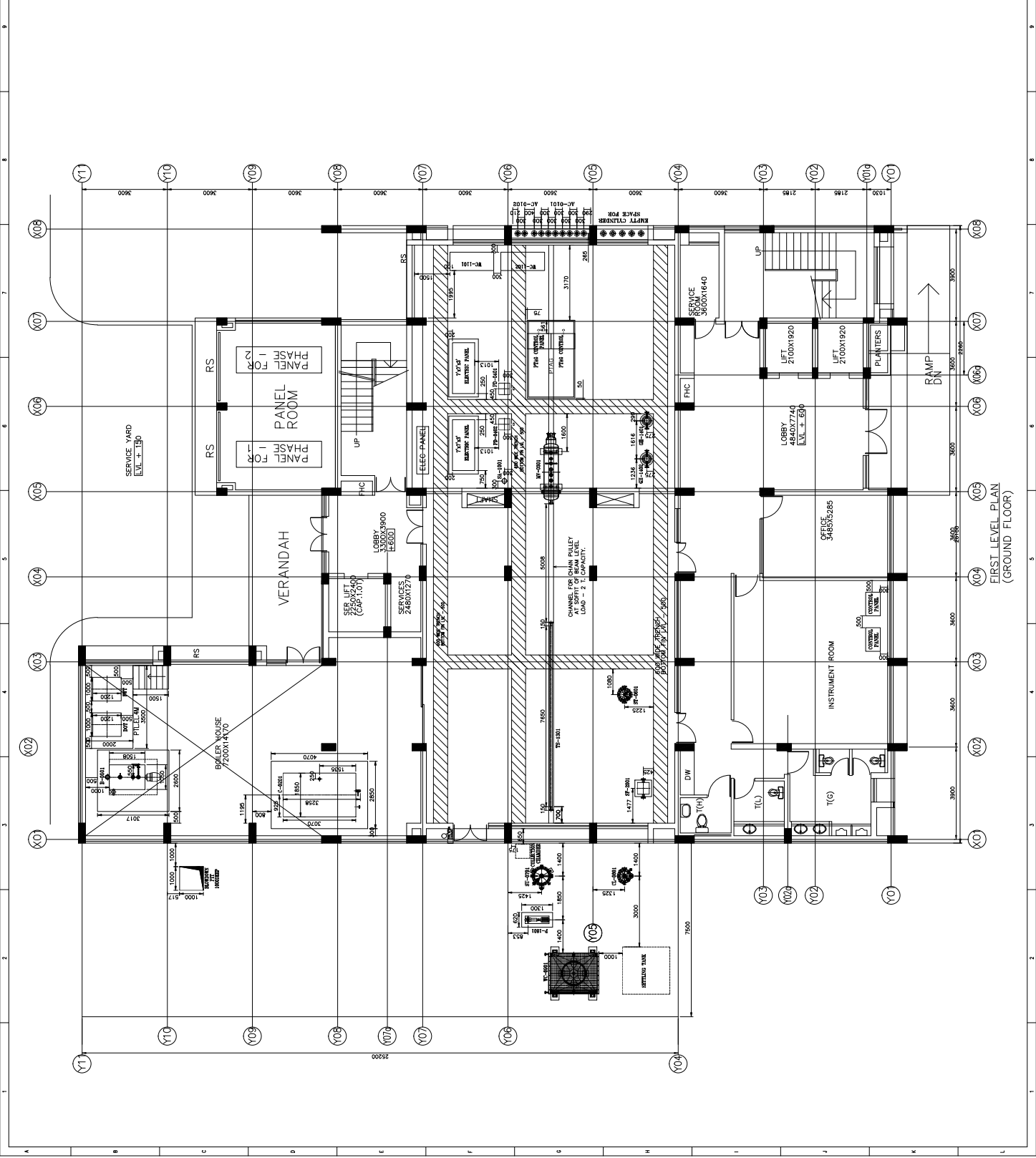
38 1. Items marked as \* are data to be furnished / provided by vendor.

39 2. For complete package, Noise level shall be limited to 80 dB(A) at 1m distance from source.

40 3. Vendor to provide performance gurantee based on Feed Water Quality given in the tender document. Any further treatment or dosing is required to be advised by the vendor.

Sl. No.	Tag No.	Equipment Name	Qty (Nos)	Size (mm)	Empy. Operating Height (kg/meter) (kg)
01	AC-010/02	ARCON CHARGERS CASING	2	8420 x H.400	
02	C-0201	AIR COMPRESSOR	1	13070 x H2055 x W1850	
03	MP-0301	MIXING VESSEL	1	8000 x L2680	
04	FD-0401/02	POWDER FEEDER	2	~4375 x H475 x W1260	
05	B-0501	BOILER	1	11608 x W1050 x H1260	
06	ST-0601	SURGE TANK	1	6008 x H800	
07	SI-0701	SCRUBBER TANK	1	6008 x H105	
08	CL-0801	COLLECTION TANK	1	4008 x H830	
09	WC-0901	AIR COOLED HEAT EXCHANGER	1	12126 x W1732 x H-	
10	SA-1001	SOLUBLE AEROSOL	1	8070 x H200	
11	WC-1101	WATER COOLER	1	~1850 x H1700 x W1775	
12	-	-	-	-	-
13	IS-1301	TESTING SECTION	1	1008 x L800	
14	GR-1401/02	GAS REGENERATOR	2	8420 x H1525 (WITH INSL)	
15	-	PIRG PACKAGE	1	13300 x W3000 x H2200	
16	-	-	-	-	-
17	-	-	-	-	-
18	P-1801	PUMP	1	-	
19	-	-	-	-	-
20	SF-2001	SOLID FILTER BANK	1	1550 x H500 x W850	
21	WH-2101	WIND HEATER	1	-	
22	-	ELECTRICAL PANEL	1	~42150 x H2150 x W950	
23	-	CONTROL PANEL	1	~11000 x H1500 x W825	
24	-	COLLECTION CHAMBER	1	~1500 x H600 x W600	
25	-	SETTLING TANK	1	~15000 x H2000 x W2000	
26	-	PIRG CONTROL PANEL	1	~15000 x H1500 x W600	
27	FWT	FEED WATER TANK	1	13200 x H1100 x W1000	
28	DOT	DAY OIL TANK	1	13200 x H1100 x W1000	

NOTES:-  
 1. FOOTPRINTS AND GENERAL ARRANGEMENT DETAILS OR DRAWINGS FOR VENDOR PACKAGES SHALL BE INCORPORATED IN SUBSEQUENT REVISIONS AFTER RECEIPT FROM VENDOR.



CLIENT	INDIAN INSTITUTE OF TECHNOLOGY KANPUR
DETAILS PREPARED BY	CONSULTANT
PROJECT TITLE	NATIONAL AEROSOL FACILITY
DRAWING TITLE	PLAN VIEW OF EQUIPMENT LAYOUT
SCALE	DOCUMENT NUMBER
1:75	LA-02-16-010-300-A1
SHEET	REV.
01	01
01	00



## Volume III (Commercial)

### **1. Commercial terms & conditions**

#### **Evaluation of Bids:**

- 1.1 A two-stage procedure will be adopted in evaluating the bids: i) Technical evaluation and ii) financial evaluation.
- 1.2 The weightage of technical evaluation will be 60% and of financial evaluation will be 40%.
- 1.3 Technical and price bids should be submitted in separate envelopes. The bids should be submitted as indicated in "Request for Proposal" and addressed to Professor S. N. Tripathi, Department of Civil Engineering, IIT-Kanpur, Kanpur-208016.
- 1.4 Price bids should clearly mention the price of various items, services and taxes separately.
- 1.5 Technical evaluation will be based on the criteria detailed in the tender document. If required, evaluation of the bidder's resources would be undertaken by the client by visiting the bidder's premises.
- 1.6 Technically qualified bidders will be evaluated for their financial bids. Each bid will be ranked using a combined technical and financial score and the contract will be awarded to the bidder with the highest score.

#### **General terms and conditions:**

1. All the discussions and review meetings required for this work will be held at IIT Kanpur, premises.
2. Bidders should ensure that they qualify for all the items of the Assignment. The bidders shall be firms having experience and expertise in engineering services.
3. The bidders should have experience relevant to the scope of work of this tender.
4. The bidders should have licensed software for any required jobs mentioned in the scope of the work.
5. The bidders should have a well-established Quality Management System in position and it should preferably have an appropriate Bureau of Indian Standards (BIS)/International Organisation for Standardisation (ISO) certification(s). In case of award of the contract bidder to take ISO certification within 6 months.
6. The key professional staff of the bidder's organisation should have very good knowledge of codes and standards as mentioned in Vol- II of this tender
7. The successful bidder shall be responsible for the correctness and accuracy of the drawings, documents and reports prepared by him. Approval of the drawings and documents by IITK or its representative shall not relieve him of his responsibility for correctness and accuracy of such drawings and documents. No compensation or extra payment shall be made by IITK for any correction or changes made in the execution work.
8. Technical Proposal should provide a brief description of the bidder's organization.
9. Bidders may request clarification on any of the documents furnished to them with the tender up to seven days before the Proposal submission date. Any request for clarification must be sent in writing by email (snt@iitk.ac.in) to the Client's address (Tel. No. : 0512-2597845). The Client will respond by email to such requests and



copies of the response (including an explanation of query but without identifying the source of enquiry) will be sent to all invited bidders who intend to submit the Proposal, and also posted at Tenders link of IITK website.

10. Proposed staff must have relevant educational qualifications and experience, preferably under conditions similar to those prevailing at the locations of the Assignment.
11. The validity of the offer should not be less than 3 months from the closing date of bid submission.
12. The final responsibility for the correctness, adequacy and accuracy of the designs, drawings, technical specifications, installation and commissioning shall lie with the bidder.
13. IIT Kanpur shall not be responsible for any cost or expenses incurred by the bidders in connection with the preparation and delivery of bids, including costs and expenses related to visits to work site.
14. The acceptance of bids will rest with Director, IITK who does not bind himself to accept the lowest bid and reserves to himself the authority to reject any or all the bids received without assignment of any reason. Also, Director, IITK reserves to himself the right to accept the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.

### **3. Payment Terms & Conditions/ payment milestones**

60 % funds will released after on-site delivery and balance on completion of the scope of work.

### **4. Performance Bank Guarantee (PBG)**

A performance Bank Guarantee needs to be furnished against warranty for the work. Bank Guarantee should be valid for the warranty period. Payment will be released after submission of performance bank guarantee. 10 % of the overall cost (excluding Taxes) has to be provided as performance bank guarantee. IITK shall not be liable to pay any bank charges, commission or interest on the amount of PBG

The vendor shall give Bank Guarantee from any of the following categories of Banks:

- (a) Any Scheduled Bank incorporated in India, Bank Guarantee issued by foreign branches / foreign offices of such Scheduled Banks be counter guaranteed by the Indian Branch of any Scheduled Bank incorporated in India.

OR

- (b) Any Branch of an International Bank situated in India and registered with Reserve Bank of India as scheduled foreign bank.

OR

- (c) Any foreign Bank which is not a Scheduled Bank in India provided the Bank Guarantee issued by such Bank is counter guaranteed by any Branch situated in India of any Scheduled Bank incorporated in India.