

# AGRA MUNICIPAL CORPORATION



Near SurSadan, M.G. Road Agra (U.P.) – 282002  
Website: [www.nagarnigamagra.com](http://www.nagarnigamagra.com)

Email: [-amcagra1@gmail.com](mailto:-amcagra1@gmail.com)

Date: 01/09/2023

Ref. No: 440/D/EE/2023

## INVITATION OF TENDER


Agra Municipal Corporation invites online Technical and Financial Bids from eligible bidders to undertake "Setting up facilities for cremation Design, Supply, Installation, Testing and Commissioning of Cow Dung based Incineration at KABIR SHAMSHAN GHAT Agra." For detailed scope of work and tender conditions, prospective bidders may refer to RFP which can be downloaded from the web portal: <https://etender.up.nic.in> / AMC website: <https://nagarnigamagra.com>

Date of Publishing of Bid on newspaper	02/09/2023
Bid Document Download Date	02/09/2023
Pre-bid meeting Date	6/09/2023 at 12:00 P.M.
Last Date and Time of Submission of Bid (Online)	11/09/2023 till 12PM
Technical Bid Opening Date and Time	11/09/2023 at 2 PM
Financial Bid Opening Date and Time.	Will be intimated later
Cost of Tender Document (Non-Refundable)	Rs.5900 /- (including 18% GST)
Earnest Money Deposit (EMD)	Rs. 10 Lakhs
Contact Person for any clarification	Environment Engineer, AMC Contact no. 7300740631

  
(Pankaj Bhushan)  
Environment Engineer  
Agra Municipal Corporation

Copy to,

1. In-Charge Advertisement for publication in Newspapers.
2. IT Officer for necessary action.

  
Pankaj Bhushan  
Environment Engineer  
Agra Municipal Corporation

# Request for Proposal

**For**

“Setting up facilities for cremation Design, Supply, Installation, Testing and Commissioning of Cow Dung based Incineration at KABIR SHAMSHAN GHAT Agra.” at Agra

**Estimated Cost of Project: Rs 2,02,96,000/- (2.03 Crore Approx)**



**Nagar Nigam Agra**

## EOI NOTICE

Nagar Nigam Agra invites EOI on EPC (Design & Built) basis and operation from eligible applicants who fulfill eligibility criteria as stipulated in the Eligibility Criteria in the EOI for providing Setting up facilities for cremation Design, Supply, Installation, Testing and Commissioning of Cow Dung based Incinerators at SAMSHAN GHAT (CREMATION GROUND), at Agra (Uttar Pradesh)" The (*Estimated cost to be calculated as per Drawing attached on Annexure*)

**Note:** Earnest Money Deposit for the project will be Rs 10 lakh. As this is a specialized work only exemptions for EMD will be provided to the Startups working in the similar field.

**Bidder can send thier pre bid query at [amcagra1@gmail.com](mailto:amcagra1@gmail.com)**

Sr. No.	Name of work	Document Fee/Bid Document Fee	Date of starting Bid download	Last Date of Bid Submission	Opening of Bid Document (Technical)	Presentation date for Successful bidder (in technical)	Time Period
<b>1</b>	Setting up Facilities for cremation Design, Supply, Installation, Testing and Commissioning of Cow Dung based Incinerators at SAMSHAN GHAT (CREMATION GROUND)	5900/- (Including GST)	<b>02-09-2023</b>	<b>11-09--2023</b> till 12.00 P.M.	<b>11-09--2023</b> at 2.00 P.M.	-	<b>180 Days</b>

## INVITATION FOR BIDS

### ISSUING AUTHORITY: NAGAR NIGAM AGRA

#### EOI Bidding PROCEDURE:

##### A. RFP DOCUMENTS

RFP Documents regarding " **Setting up facilities for cremation** Design, Supply, Installation, Testing and Commissioning of Cow Dung based Incinerators at SAMSHAN GHAT, **Agra**" can downloaded from Nagar Nigam Agra and document to be uploaded through E-tender process on website <http://etender.up.nic.in> along with non-refundable Tender Fee (Rs. 5900/-) as mentioned below.

#### MINIMUM ELIGIBILITY CRITERIA:

The interested bidders should meet the following minimum qualifying criteria:

##### A. Work Experience:

- 1 At least one work of **similar nature** of Supply & linstallation, Testing & Commissioning of minimum 05 Nos of Cow-Dung Wood Based Cremation Furnace/Incinerator in single work.
- 2 At least two works of **similar nature** of Supply & linstallation, Testing & Commissioning of minimum 05 Nos of Cow-Dung Wood Based Cremation Furnace/Incinerator each.
3. Any similar works, each costing not less than the amount equal to 50 Lakh of civil construction of any crematorium.
- 4 Must be a Manufacturer of Cremation Incinerators as per GEM Vendor Assessment.

*'cost of work' shall mean gross value of the completed work including the cost of materials supplied by the Employer /Client, but excluding those supplied free of cost.*

##### B. The Bidder must have following certifications -

- A CE CERTIFICATE
- B IATF 16949:2016
- C GMP CERTIFICATE
- D OHSAS 18001:2007
- E ISO 14001:2015
- F ISO 45001:2018
- G Valid Electrical Contractor Liscence Of Any Local, State, Government Department.
- H Valid Electrical Supervisory Liscence Of Any Local, State, Government Department.
- I VIGILANCE CERTIFICATE
- J Must have NABL Certified Lab Test Report of any previous Cow-Dung based Incinerators installed with showing all gases are in limit As per UPPCB/CPCB norms using Fuel as Cow Dung Logs.

##### C. All Startups recognized by DIPP/DPIIT registered in the trade of similar work of manufacturing of cremation incinerator are eligible for some exemptions in the tenders such as EMD and Civil Construction only as electro-mechanical works is of specialized nature and bidder must fulfill electro-mechanical works elegibility criteria.

##### D. Qualification / Eligibility Criteria:

The bidder should be working in the similar field to be mandatory

**E. Document Fee/Security Deposit:**

The bid document fees is Rs. 5900/- (Rs. 5000 + 18% GST) should be paid online through RTGS/NEFT

The bid document fees will be non-refundable the bid will not be acceptable if the tender fees not payable.

Bid Security Amount will be 05% (including EMD amount) of the estimated amount bid by bidder to be submitted along with the bid documents, in favour of '**Nagar Nigam Agra,**' in form of RTGS/FDR payable Secretary, Nagar Nigam Agra.

**F. JOINT VENTURE/CONSORTIA:**

Joint Venture/Consortium is not allowed. MOU Not Allowed

**G. List of Documents to be scanned, uploaded and submitted in hard copy within the period of tender submission (Technical):**

- a. RTGS/NEFT/Bank Guarantee of any Nationalized/ Commercial Scheduled Bank against EMD.
- b. RTGS/NEFT of any Scheduled Bank towards cost of Bid Document.
- c. Interest letter on bidder letter head addressing to Municipal Commissioner., Nagar Nigam Agra,
- d. Corrigendum / Addendum / Other documents, if any
- e. Power of Attorney of the person authorized for signing /submitting the tender
- f. Registration certificate obtained under GST Law and details.
- g. Power -Point-Presentation of the proposed work.
- h. The proof of certificate from any Government based origination regarding setting up of equipment. (Completion Certificate)

# Introduction

## 1. Scope of Work

EOI for Design & Build bid for Setting up facilities for cremation using cow dung briquettes and operation at Kabir Samshan Ghat at Agra, Distt. Agra (Uttar Pradesh).

Opération and Maintenance period –One year from installation

The detailed scope of work and General spécification of crematorium machinery is attached as **Annexure - A**

## 2. Eligible Bidders

1. This invitation for Bids is open to all eligible bidders (Please refer guidelines to bidders for online eligibility mentioned above.)
2. Bidders should not be associated, or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Authority to provide consulting services for the preparation of the design, specifications, and other documents to be used for this Invitation of Bids.

**2.4 The tenderers shall clarify/state whether he/they have designed and operated similar facility.** The offers of firms who have not carried out similar works will be summarily rejected.

## 3. Cost of Bidding

1. The Bidder shall bear all costs associated with the preparation and submission of its bid, and **Nagar Nigam Agra** hereinafter referred to as "**AGRA MUNICIPAL CORPORATION**" will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.
2. The Bidder is expected to examine all instructions, forms, terms, and annexure in the Bidding Documents. Failure to furnish all information required by the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk and may result in rejection of its bid.
3. The bidder should submit complete specification of the project proposed with all details.
4. The bidding document is not transferable.

## 4. Clarification of Bidding Documents

1. If wishes, a prospective Bidder requiring any clarification of the Bidding Documents shall contact the AGRA MUNICIPAL CORPORATION in writing at the mailing address indicated in the invitation for Bids. AGRA MUNICIPAL CORPORATION will respond in writing to any request for clarification of the Bidding Documents, which it receives not later than 03 days prior to the deadline fixed for submission of Bids. Any correspondence with AGRA MUNICIPAL CORPORATION seeking any clarification regarding any matter contained herein shall not compel AGRA MUNICIPAL CORPORATION to suspend the implementation of provision given hereunder or shall not mean a promise to change any provision in this bidding document.

## 5. Amendment of Bidding Documents

1. At any time prior to the deadline fixed for submission of bids, AGRA MUNICIPAL CORPORATION, for any justifiable reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.
2. Any addendum issued shall be part of Bidding Documents and all the prospective bidders will be notified of the amendment by post or publication, and will be binding on them. The same shall be uploaded on the designated website.
3. In order to allow reasonable time to prospective bidders in which to take the amendment into account in preparing their bids or for any other reason AGRA MUNICIPAL CORPORATION at its discretion, may extend the deadline for the submission of bids.

## 6. Language of Bid

- 1 The Bid prepared by the Bidder, as well as all correspondence and documents, printed literature and leaflets relating to the bid exchanged by the Bidder and the AGRA MUNICIPAL CORPORATION shall be written in English / Hindi language.

## 7. Documents comprising the Bid

1. The bid prepared by the Bidder shall comprise the following components:
  - a. **Technical Bid Envelope comprising cost of bid form and annexure as per RFP document, Financial Bid Envelope.**
  - b. Documentary evidence that established bidders' eligibility.

## 8. Bid Form

- 1 The Bidder shall complete the Bid Form and submit the bid online only.
- 2 Hardcopy of the bid document will not be accepted
- 3 Bidder should properly arrange the documents along with the index and page no.
- 4 Bidder should submit required documents only.

## 9. Bid Currencies

- 1 Prices shall be quoted in **Indian Rupees.**

## 10. Documents establishing Bidder's eligibility and qualifications.

1. Pursuant to eligibility clause, the Bidder shall furnish, as part of its bid, documents establishing the bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.
2. The documentary evidence of the Bidder's eligibility to bid shall establish to the AGRA MUNICIPAL CORPORATION satisfaction.
3. The following documents is to be submitted by bidders:
  - a. Documentary evidence for the Registration of the company with details of the Name, Address, Telephone Number, Fax Number, e-mail address of the firm and of the Managing Director / Partners / Proprietor and Name, Address, Telephone number, fax, e-mail of primary manufacturer.
  - b. The instruments such as power of attorney, resolution of board etc., authorizing an officer/person of the bidder should be submitted with the tender and such Authorized officer/person of the bidder should sign the tender documents.
  - c. Authorization letter nominating a responsible person of the bidder to transact the business with the Rate Contracting Authority.
  - d. GST/PAN Card Certificate of the Firm.
  - f. Annexure as per RFP document.
  - g. Undertaking against blacklisting.
  - h. The proof of certificate from any Government based origination regarding setting up of equipment & technology.
  - i. Registered in startup in the same field is to annexed. Copy of certificate from competent authority.
4. The fee slip attached

## 11. Period of Validity of Bids

- 1 The technical bid and financial proposal shall be valid for 90(Ninety) days after the date of bid opening prescribed by the department. This price on acceptance shall remain fixed till contract

period or till further order.

## Submission of Bids

### 12. Bid Stages

- 1 Bid should be submitted in following system and should furnish the following documents failing which their bid shall not be accepted:

#### **BID FEES:**

1. The Bidders shall submit Bid document fee **Rs. 5900/- in** (Rs. 5000 + 18% GST) should be paid online in the bank account of Municipal Commissioner, Agra.

Account No. 38120131718

Branch – Nagar Mahapalika, Agra

IFSC Code – SBIN0003707

2. The bidder slip with UTR number to be enclosed with the bid. The tender fees will be non-refundable.

3. Bidder shall deposit an Earnest Money Deposit (EMD) of Rupees Ten Lakhs only in accordance with the provisions of this RFP document. EMD is payable in the favour of Municipal Commissioner, Agra Nagar Nigam in the form of FDR/ Bank Guarantee issued from any Nationalized/Scheduled bank of India in favour of the ,Commissioner, Municipal Corporation, Agra.

4. Proposals not accompanied by EMD shall be rejected as non-responsive.

5. No interest shall be payable by the Employer for the sum deposited as earnest money deposit. Decision of Municipal Commissioner Agra Municipal Corporation will be full and final in all respect.

#### **Technical Bid**

- (i) Annexure as per RFP document.
- (ii) PAN/GST certificate
- (iii) Affidavit for signing bid documents
- (iv) The bid document as per asked above to be submitted along with tender fees RTGS/ NEFT slip on E-tender website.
- (v) Registration Certificate of the company with details of the Name, Address, Telephone Number, Fax Number, e-mail address of the firm and of the Managing Director / Partners / Proprietor.
- (vi) The instruments such as power of attorney, resolution of board etc., authorizing an officer/person of the bidder should be submitted with the tender and such Authorized officer/person of the bidder should sign the tender documents.
- (vii) Concern / Company have not been debarred / blacklisted either by Rate Contracting Authority or by any State Government or Central Government Organization. Affidavit to this effect shall be submitted by the concern / company.

**Envelop: Technical proposal (Presentation)** as describe in Criteria and Evaluation at S.No.2.

#### **Envelop: (Financial Bid)**

- (i) Financial Bid/Price Proposal and the same shall be inclusive all taxes and cartage etc. complete as applicable. Further, the price bid shall be valid for a period of 90 (Ninty) days.
- (ii) Bidder must have Line of credit from any nationalized bank of minimum 80 Lakhs.
- (iii) Bidder must have a turnover of minimum 150 Lakhs in any 1 year of the last 3 years.
- (iv) Bidder must have a solvency certificate of minimum 45 Lakhs.

### 13. Late Bids

No Bid can be submitted after the last date and time of submission of bid.

### 14. Penalty Clauses

1. If construction work is delayed and is not completed within the time period penalty of Rs. 5000/- per day will be imposed.
2. If Successful Bidder does not keep the premises neat and clean as per SWM 2016 rules penalize actions will be taken accordingly.

**15. Termination Clauses-** In case the successful Bidder fails to comply the following rules, successful bidder will be liable to be terminated after giving 5 day's notice-



1. NGT guidelines
2. SWM Rules 2016
3. CPHEEO manual
4. EPA, 1986

#### CRITERIA FOR TECHNICAL EVALUATION

S. No.	Parameter	Total Marks
<b>1</b>	<b>Previous Experience of the Firm in executing similar nature of work</b>	<b>Max. 30 Marks</b>
a	One Similar nature of work (Note: Bidder having installed upto 05 Cow-dung based incinerator in one similar work)	15 Marks
b	More than similar nature of work (Note: Bidder having installed upto 07 Cow-dung based incinerator in one similar work)	15 Marks
<b>2</b>	<b>Technical Proposal (Presentation) : The bidder shall visit the site, carry out due diligence at his own cost and prepare a presentation which shall be submitted in 2 sets of hard copies as part of the technical bid, the same shall be presented to the committee/jury constituted for evaluation on the basis of the following criteria:</b>	<b>Max. 40 Marks</b>
a	The bidder shall demonstrate knowledge of the process including the time period of cremation and present an architectural design for the proposal.	10 Marks
b	The bidder shall demonstrate the availability of Specialist Consultants/Experts to complete the project.	10 Marks
c	The bidder shall demonstrate the availability of Manpower And equipment, raw material to establish required infrastructure for execution of the project.	10 Marks
d	The bidder shall provide operation and maintenance plan for the project including revenue model (per cremation costing).	10 Marks
<b>3</b>	<b>Presentation (In office of Nagar Nigam Agra)</b>	<b>Max 30 Marks</b>
<b>a</b>	The bidder shall provide design facilities such as design, drawings, perspective views etc.	20 Marks
<b>b</b>	The bidder shall furnish all the necessary information and equipment details regarding technique adopted to minimize the air pollution upto the NGT/Pollution control board norms.	10 Marks
	<b>Total</b>	<b>100 Marks</b>

Those bidders who secure more than 70 % Marks in Technical proposal (S.No.1 and 2 above) shall be invited to give presentation and only those bidders securing above 70% marks in total (S.No.1, 2 and 3 above) will qualify for Opening of Financial Bid.

## **Award of Contract**

The bidder achieving with lowest financial rates in bidding will be awarded work. Bidder should submit Security deposit (EMD) of Rs 10 Lakh (including EMD amount) of the quoted cost of work in the form of F.D.R./D.D. in favour of The Commissioner, Nagar Nigam Agra, along with the bid document. The Bidder will execute & agreement with authority and shall provide third party quality assurance certificate from any of the departments. The central government Startup Policy-2016/Uttar Pradesh Startup Policy 2017 for infrastructure development may be considered. Failure to do so result the disqualify of the bidder from the process. Decision of Commissioner, AGRA MUNICIPAL CORPORATION will be full and final and not to be challenged in any Court of Law.

### **Other Conditions:-**

1. Bidder shall submit bid security/EMD in favor of Nagar Nigam Agra along with the bid document.
2. Subject to confirmation of the Bid security by the issuing bank, the Technical Bid with already received valid Bid Security will be taken up for further evaluation.
3. Bid document without EMD shall be rejected by the NAGAR NIGAM AGRA and will not be evaluated further.
4. The bid Security of all the bidders except the selected bidder would be refunded not later than the expiry of stipulated bid validity period as stipulated in RFP or immediately after acceptance of the successful bidder.
5. The Bid security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
6. The Bid Security shall be forfeited:
  - If the Bidder withdraws the Bid after Bid opening during the period of Bid validity.
  - If the Bidder does not accept the correction of the Bid Price, pursuant to RFP.
  - If the bidder submits forged documents/information or
  - In the case of a successful Bidder, if the Bidder fails within the specified time limit to Sign the Contract Agreement and Furnish a performance security; or
7. Accept corrections of arithmetic errors or modification of unrealistic rate of any particular BOQ/head.

### **Performance Security:**

1. BG against Performance Security of 3% shall be deposited by the successful Contractor within the time and manner stated in the RFP. This performance security shall be in addition to security deposit.
2. An amount equal to 70 % value of the Performance security deposit in the form of Bank Guarantee as above shall be released on successful commissioning of the project. Balance 30 % of the amount shall be refunded in the following manner:
  - a) 50% of the balance 30% amount would be released post completion of first quarter of Operation & Maintenance Phase
  - b) Balance Portion of Performance Security shall be released post completion of Operation and Maintenance Period.
3. The release of BG in lieu of the Performance Security as above shall be subject to the contractor furnishing a fresh BG for an amount equal to the amount to be retained by the NAGAR NIGAM AGRA.

## **Anti-Collusion Certificate**

We hereby certify and confirm that in the preparation and submission of our Bid for Request for Proposal for Design, Supply, Installation , Erection, Testing, Commissioning of 03 Nos of Cow-Dung based Furnace including one year Operation and Maintenance with civil construction in all respect of Operation and Maintenance at Agra on EPC Basis, We have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing, which is or could be regarded as anti-competitive. We further confirm that we have not offered nor will offer any illegal gratification in cash or kind to any person or organization in connection with the instant bid.

**(Signature of the Bidder)**

**Printed Name**

**Designation**

**Seal**

**Date:**

**Place:**

**Business Address:**

**DECLARATION On Letter Head of the Firm**

We hereby certify and confirm that the decision of the Municipal Commissioner and Evaluation Committee of Nagar Nigam Agra would be final and will be binding upon us.

**(Signature of the Bidder)**

**Printed Name**

**Designation**

**Seal**

**Date:**

**Place:**

**Business Address:**

## **Scope of Work**

Design, supply, installation / construction, erection, commissioning, testing of /Cow dung Based Cremation FACILITY based human crematorium confirming to specification laid by central/state pollution control board with it's operation and maintenance for a period of One years, excluding the Cost of wood at the existing crematoria . The work to be carried out in accordance with the model guidelines of National Mission for Clean Ganga (NMCG), Delhi and as per the direction of NAGAR NIGAM AGRA.

The scope of work shall be Design, Manufacture, Supply of Equipment confirming to technical specification, Transportation up to site, unloading, All civil works pertaining to Shed/Room Construction with RCC slab/ Metal Truss where required, foundations for equipment, & other facilities required for Erection, Commissioning, Testing of Equipment, Operation & Maintenance for a period of one year. The Shed/ Room area shall be min 180 sqm and height as per bylaws and requirement of the Furnace machinery with proper ventilation. Separate area to be designed & allotted for Sitting room are in scope of the Bidder under the Current Contract.

The Designed shall be duly vetted and got approved from institutes include IITs/NITs/HBTI Kanpur (vetting institutes) or any other equivalent. The cost of same shall be deemed included in the Price Bid and no extra cost for the same is payable. Contractor shall be responsible for co-ordination and timely approval of proposal/drawing/design from vetting institutes. Contractor shall submit detail specifications, credential of COW DUNG WOOD based cremation furnace and get it approved from NAGAR NIGAM AGRA , subsequently design shall be approved by vetting institutes.

Drawings and reports available with NAGAR NIGAM AGRA will be handed over to the Contractor. However, it may be noted that drawings/reports provided will only for reference and not for construction purpose. NAGAR NIGAM AGRA or its representative shall not be liable for any loss/liability due to information considered by the Contractor from the drawings/reportsetc.

The Contractor shall check the design criteria and calculations (if any) included in the Bid Documents and satisfy itself regarding their accuracy and adequacy. Contractor shall meet the minimum design and sizing requirements specified in the Bid Documents – a design that does not meet such minimum requirement shall not be acceptable and will result in rejection of the bid as non-responsive. Further, if Contractor believes that the minimum design and sizing requirements are not adequate to meet the minimum performance requirements specified, then Contractor shall make whatever upward adjustments to the design and sizing it deems necessary to meet the performance requirements and include these in the Bid Price. Contractor assumes full responsibility for meeting the specified performance requirements and ensuring the adequacy of the Works for this purpose.

However, if the contractor feels, he requires additional work to meet the contractual conditions, the cost of same shall be deemed included in the Price and no extra cost shall be paid over the above the quoted price.

### **Development of the Area:**

The work includes excavation in various types of soil, like murum, hard rock, or any kind of soil, rubble stone soling, bed PCC M 10, Thermo-Mechanically Treated (TMT) bars of grade Fe-500D for reinforcement of various dia. for footing / foundation, columns, beams, slabs/ metal truss, canopies, chajjas, lintels/truss etc. RCC of M 25 grade concrete as per approved design, Class-150 (Non Modular) brick work in 1:4 cement and coarse sand mortar and 12 mm thick plaster in 1:4 (1 cement : 4 Coarse Sand) , providing sills & jambs & frames of approved colour marble slabs 20 mm thick with machine polished surface on a bed of CM 1:4, providing & fixing aluminium section Sliding windows mounted on rectangular frame of required size as approved by PMC or Engineer, providing & fixing Door frame & single leaf shutter for 2nd class

fully paneled door with all fixtures & fittings, painting, polishing etc. without ventilator & providing & fixing rolling steel shutter fabricated from 18/19 gauges steel laths with side guides, bottom rail, bracket door suspension shift including rolling springs, locking arrangement & mechanical gear operation arrangement & one coat of red primer & 2 coats of synthetic enamel paints. Painting on wall surfaces with 2 Coat oil bound distemper of approved brand and manufacture and of required shade on undercoated wall surface to give an even shade over & including a priming coat with cement primer of approved brand also including preparing the surface even with plaster of approved synthetic material and sand papered smooth including cost of all materials. Flooring of approved pattern 80 mm thick, Water proofing treatment BIRCK KOBA to terrace, electrifications with required power points, LED lights, fans, ventilation fans etc. Fountains where required, Greenery around the place, CCTV Cameras with Wifi Access and State of the Art Design with outdoor relaxation are with sitting oxygen releasing plantation low maintenance and mist system for settling of ash and disposal of unwanted material as directed by Engineer/Engineer in Charge/PMC.

The supplied cremation furnace shall have proper arrangements and lay- out suitable for complete cremation of human dead body of average 75 Kgs. effectively, in hygienic manner and with due respect to the dead and without causing smoke nuisance to the surrounding area. The furnace shall be designed for continuous use round the clock capable of processing at least 6 to 8 cremation per day. However, it should capable of operating for extended period as required. The size of the furnace shall be minimum 11 ft long, 6 ft wide and 6 ft in height to properly accommodate the dead bodies. The furnace shall be made of minimum 2 mm thick steel plates/material. Providing signages, informatorily boards for Wood Cremator facility is also part of the scope with no extra cost. The said clause calls for minimum 2 mm thick steel plates/material. The Bidder may propose thickness above but not less than 2 mm. It may be noted that the Design shall be duly vetted and got approved from institutes include IITs/NITs/HBTI Kanpur or any other equivalent university.

1. Cremation should be carried out completely and quickly without creating smoke nuisance.
2. Cremation shall take place automatically without intervention of human being.
3. Cremation furnace shall be simple, fast and safe in operation.
4. Having features to ensure full compliance to the environment protection obligation
5. Furnace Door - Lifting should be of High quality carbon steel frame, good speed reducer; Manual control should be available; The furnace door lifting device should have proper arrangements for opening and closing. The door plate should be made of lightweight fireproof plate and frame.
6. Trolley and stretcher is provided for easy loading of Dead body.
7. Trolley shall be S.S Steel. (Manual or auto) of appropriate thickness Minimum 4 nos. of Fire extinguisher to be provided as part of the scope.

The Electrical Panel Shall be Cubicle type free standing, floor mounted, CRCA sheet steel construction, dust and vermin proof with IP 54 degree of protection per IS 2147 (Intended for indoor installation). The Panel shall consist of distinct vertical Sections assembled to give draw out type single front execution suitable for cable entry from bottom and shall be provided with spare outgoing feeders. The Load bearing members shall be of min 3mm thick and other 2.5 mm thick with doors in 2.5 mm thick sheet. The Panel shall be coated with anti-corrosion paint and duly painted. The panel shall be provided with anti-vibration and anti-shock foot mats/pads. The panel should have Proper Touch Display with suitable notifications fitted with HMI.

### **General Description Cremator:**

- I. **Combustion Chamber 2 Nos** - The primary Chamber burner should give minimum temperature up to 600-700 degree C, while secondary Chamber burner should give min 900 degree C temperature. Temperature sensors to be provided in both chambers.
- II. **Brick Lining 2 Nos** - The casing of the Furnace will have lining of heavy-duty fire bricks (min 42% Alumina content) conforming to IS-8 with minimum thickness of 90 mm. In the areas of high wear (main hearth) 63 % alumina tile shall be used to get high resistance to abrasion and thermal shock. Moderate heat duty firebricks of suitable sizes shall be used for min. loss of heat conforming to IS-2042 and IS-6.

- III. **Insulation: 2 Nos** - Calcium silicate insulation shall be used in areas around the casing between the refectories and the steel casing. The quality and thickness of the insulation should be such that the cremator casing should be kept a specific temperature range to cremate the body, however shall not be less than 200 mm & appropriate locking and tightening arrangement preventing leakage of flue gases from cremation chamber.
- IV. **Chimney: 2 Nos** - Self-supported Chimney of suitable base and top with suitable inner diameter and 12 Meter height mainly made up of Mild Steel of minimum 8 mm thick up to 6 m height and beyond that 6 mm thick, to be provided with flanges at approximately 3 Meter intervals. The chimney shall be installed on solid RCC Foundation of Min M20 Grade using high tensile foundation bolts. It should have flasher unit, lightning protection arrangement and suitable ladder. The size and dimensions of chimney should be computed for one furnace installation. The velocity of exhaust gas at the top of the chimney should be 15 meters per second. Lightning arrestor at top and earthing / GI railing strip from top to bottom with proper earthing and Aviation light at the top of the chimney with proper electrical wiring and supply shall be provided and is scope of the bidder. Chimney shall be treated with one coat of anti-rust primer and two coats of heat resistant Aluminum Paint

### **Pollution Control device Induced Draft Fan and Ducting**

A suitable designed ID fan pull out the flue gases from the furnace and release it to the chimney. Before coming to the chimney, it passes through the ventury packed wet scrubber, separator etc. Suitable ducting is provided in the system along with valves to carry and control the flow of the flue gas.

### **Advanced 3 Stage De carbonising scrubbing system 2 Nos –**

Dust laden gases enter into cyclo-ventury inlet from where gases mixed with water jet entered tangentially through nozzles. In separator further scrubbing takes place through cyclonic effect. Further mist eliminator is provided to reduce the water droplets enter into the blower casing.

The inlet and outlet ducting shall be made out of SS 304 and blower is dynamically balanced. It will suck the flue from the furnace through Advanced 3 Stage De carbonising scrubbing system a through to the outlet connected to the chimney.

The Ducting between furnace – wet scrubber – suction blowers shall be made of MS. Separate MS cylindrical water tank with water re-circulation motor under scrubber of required capacity for rotation of water. The Water connections shall be of GI pipes. Appropriate outlet from the water tank to drain the scrubbed water. However, before disposal to nearest drain, the Treatment of Scrubbed liquid / water is in scope of Bidder. The supply of water to the tank/scrubber is also in scope of bidder and no extra cost shall be payable.

### **Quality Control and Quality Assurance**

Contractor need to adhere to various codes, manuals, schedules, technical specifications, manuals published by CPWD/State PWD on Quality Control and Assurance. In case of any negligence to adhere the same, NAGAR NIGAM AGRA is free to take corrective action at contractor's risk and cost.

### **List of Approved Make**

List of approved make of Uttar Pradesh PWD shall be applicable. In case for any item, no approved vendor is available UPPWD, CPWD approved list will be followed. If any additional vendor, the same shall be get approved by Engineer/Engineer in Charge/PMC.

<b>S. No</b>	<b>Particular</b>	<b>Description</b>
<b>1</b>	<b>Material</b>	Refractory line Metal – Special Grade Mild Steel and Stainless Steel – Adequate thickness mini of 1 to 5 mm for body framework. High Quality Refractory bricks with three stage insulation Hysil Boards, IS 70% alumina fire bricks with insulation bricks.
<b>2</b>	<b>Cremation Time</b>	1 Hour to 2 hours
<b>3</b>	<b>Machine Specification</b>	Furnace (11.5 feet Length x 6 feet Width x 6 feet Height) Wheel based Trolley - (7 feet Length x 3 feet Width)
<b>4</b>	<b>Wet Scrubber</b>	Toxic Gas Purifier Size Diameter 900 mm and height 12 feet with four stage decarbonization filtration completely made up of Stainless Steel 304 3 mm Thickness.
<b>5</b>	<b>Machine Accessories</b>	Clean Out ports, packing support Grid, Strainer, Safety accessories, water level indicator, Inspection vent, Drain valve with ball valve, water controller valve. Thermo couple, Pressure Gauge,
<b>6</b>	<b>Civil Work/ Electrical</b>	As per Guidelines proposed and required by the authority
<b>7</b>	<b>Blower</b>	2 hp power supply with very high RPM
<b>8</b>	<b>Control Panel</b>	Control Panel, for 2 hp blower, 1 Nos for 2 Hp Blower, 1.5 to 2 Hp scrubbing pump, 1 Nos. for 3-6 HP ID Fan with timer control facility shall be provided. Advanced variable drives for controlling temperatures through fans.
<b>9</b>	<b>ID Fan</b>	3-5 HP ID FAN FOR SUCTION OF SMOKE
<b>10</b>	<b>Success &amp; Efficiency</b>	More than 98 %
<b>11</b>	<b>Burning Capacity</b>	200 kg per hour
<b>12</b>	<b>Operator</b>	Can be operated by semi-skilled /skilled labor
<b>13</b>	<b>Chimney</b>	MS Chimney with base diameter 1200 mm and top diameter 300 mm. MS sheet 8 mm to be used for 6 meters and rest 6 meters will be of thickness 6 mm. Base plate of 25 mm to be used. Rope wire of 10 mm to be used for tightening. (Make Mahadev). Foundation Bolts 32 mm x 900 mm. 18 no. s.

The Selected bidder shall give 12 months of operation and maintenance of the system from the date of commissioning. During the period minimum two personnel of the local body/ Crematoria operators shall be given training by the agency. However electricity and water will be provided by Nagar Nigam Agra.

**Note –**

- 1.) CNG Cremation Furnace casing means as Cow dung Cremation Furnace as specified in RFP
- 2.) 6 step of insulation means 6 Layer must be installed as follows: (2 Layer Ceramic Fibre Blanket with minimum density 96, 1 layer Hysil Board, 2 Layer Insulation Bricks (CFI 1 layer & HFI 1 Layer), 1 layer of Fire Bricks with minimum 70% Alumina)



- 3.) electrical control panel for furnace for auto ignition. Do we have to give LPG/CNG Burner means Electrical Control Panel for Furnace - To be supplied as per technical description mentioned. No CNG/Gas Burners to be installed.
- 4.) Chimney Foundation specified in BOQ Description is for two units of Chimney however For single unit it should be read as 4000 mm (L) x 4000 mm (W)x 1650 mm (H)

**Payment Terms:**

SI No	Head/Milestone	Percentage Weightage of bid price/contract price of
1	Supply	30%
2	Installation and Erection	20%
3	Testing and Successful Commissioning	30%
4	Operation and Maintenance for one year	20%