



Institute of Infrastructure, Technology, Research And Management

(An Autonomous University Established by Government of Gujarat)

IITRAM Campus, Near Khokhra Circle,
Maninagar (East), Ahmedabad – 380026, Gujarat.

Contact No.: 079-67775430

E-mail: purchase@iitram.ac.in

Website: www.iitram.ac.in

Tender No.: 2023/43

Date: 14.12.2023

NOTICE INVITING TENDER

Important Information:

Name of Item(s):	Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory
Date of Issue of Tender	14.12.2023
Tender Fee	Rs.1770/- (Including 18% GST) (Non-Refundable)
Earnest Money Deposit(EMD)	Rs.74,500/- (Refundable)
Last date and time for online bid/offer submission	15.01.2024 till 06.00 pm
Last date and time for bid/offer physical document submission	18.01.2024 till 05:00 pm
Date & Time for opening of technical bid/offer	19.01.2024 at 11:30 am
Date & Time for opening of financial bid/offer	To be informed later through email <i>(Will be informed only technically qualified bidders)</i>
Tender Inviting Authority and Address	The Registrar Institute of Infrastructure, Technology, Research And Management Near Khokhara Circle, Maninagar (East), Ahmedabad – 380026, Gujarat, India. Phone: - 079-67775430 e-Mail: purchase@iitram.ac.in

Institute of Infrastructure, Technology, Research And Management

NOTICE INVITING TENDER

Subject: Inviting bids through e-Tender format for Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory

Institute of Infrastructure, Technology, Research And Management (IITRAM), Ahmedabad invites bids for “Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory” under “Two bid system in e-Tender format”. Interested parties/bidders who wish to participate in this e-Tender may obtain/download the tender documents from IITRAM website i.e. www.iitram.ac.in or from (n)Procure portal i.e., <https://educationtender.nprocure.com/>. After submission of online bid on (n)Procure portal, the bidder(s) have to submit the technical bid/offer documents through RPAD, Speed Post or in Person till the last date and time prescribed for submission. Tender sent by other means will not be accepted in any case. Hardcopy of Technical Bid Documents, Tender Fee, EMD and other essential documents should be submitted on or before **18.01.2024 till 05:00 PM** in the office of the IITRAM Room No. G2, Near Khokhara Circle, Maninagar (East), Ahmedabad-380026, Gujarat. Financial bid is to be submitted in electronic form only on (n)Procure portal i.e., <https://educationtender.nprocure.com/>.

1. Eligibility Criteria:

- 1.1 The bidder should have valid PAN Card. Copy of PAN Card to be submitted.
- 1.2 The bidder should have valid GST Registration. Copy of GST Registration to be submitted.
- 1.3 The bidder has to submit (Photocopies) last three years Income Tax Returns.
- 1.4 The bidder has to submit (Photocopies) the Firm Registration Certificate.
- 1.5 The bidder has to submit the Authorization Letter from the Original Equipment Manufacturer (OEM) on OEM’s letter head (in original).

2. General Terms and Conditions:

- 2.1 The quoted price shall include taxes (if any), other levy payable, all freight, packing & forwarding, transportation, loading & unloading, custom duty, excise duty & other duties, other charges (if any) to supply the item(s)/goods at our site.
- 2.2 The rates quoted also shall include training, installation, commissioning, erection and demonstration of item(s)/goods at our site.
- 2.3 The items for which quotation have been submitted must be in accordance with the specifications given in **Annexure-I**.
- 2.4 The rates quoted by the firm shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- 2.5 The offer shall be valid up to 90 (ninety) days from the date of opening of Technical bid/offer.
- 2.6 The tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the scheduled tender are not fully filled in. Particular attention must be paid to delivery date and also to the particulars referred to in the condition of the contract.
- 2.7 Financial bids will be opened in online format of technically qualified bidders only.
- 2.8 Tender not complying with the above conditions are liable to be rejected at the sole discretion of IITRAM without any further reference/ communication.
- 2.9 This tender is not transferable.
- 2.10 IITRAM reserves its right to choose, accept or reject any or all requests/deviations/offers, in full or part and also reserve the right at any stage to reduce or increase the quantity and split the order.
- 2.11 The bidder has to submit duly signed & stamped photocopy of following documents:

- PAN Card of the firm
 - GST Registration Certificate
 - Last three years Income Tax Return (ITR) of their firm
 - Valid Firm Registration Certificate
 - Authorization Letter from the Original Equipment Manufacturer (OEM) on OEM's letter head (in original)
 - Warranty certificate from Original Equipment Manufacturer (OEM) on OEM's letter head (in original)
 - All relevant Annexure(s)
- 2.12 **Performance Security:** The successful bidder shall be required to deposit Performance Security in form of (i) Account Payee Demand Draft (ii) Fixed Deposit Receipt from a Nationalized bank (iii) Bank Guarantee from a Nationalized bank, at the rate of 5% of the total cost of contract, for the duration of warranty period plus additional two months, in favor of **"Institute of Infrastructure, Technology, Research And Management"** from the date of installation of ordered item(s)/goods. No payment shall be released without performance security.
- 2.13 This Performance Security will be returned (without any interest) within 30 working days after satisfactorily completion of warranty period.
- 2.14 The successful bidder shall have to enter into the Agreement (Contract Form) in the prescribed Performa provided by IITRAM. (on Rs.300 Stamp Paper). The said agreement should be submitted by the respective bidder within 30 (thirty) days after the receipt of the contract/purchase order.
- 2.15 **Inspection:** Pre-dispatch inspection at Bidders site or inspection after the delivery of goods, as the case may be.
- 2.16 **Inspection Charges** @0.5% within Gujarat State and Inspection Charges @1% for outside Gujarat State of the total order value, if required, should be borne by the bidder.
- 2.17 All or any Claim(s), dispute(s) or difference(s) arising out of or in with connection with this agreement shall be subject to the jurisdiction of the Courts at Ahmedabad only.
- 2.18 If any civil work is required to be done for installation and commissioning of the ordered item(s)/goods, then the supplier shall arrange the essential drawing. For this, prior permission of IITRAM's authority is required. The cost of such work is to be borne by the supplier.
- 2.19 Any loss or damage caused to the article in transit/installation/testing is to be made up by the firm free of cost within period of 30 days.
- 2.20 Standard toolkit required for the item(s)/goods to be supplied.
- 2.21 If the firm is blacklisted by Central Government or State Government or any other Government body, then the submitted tender will be rejected. It is essential for firm to submit **Annexure- V** duly filled, signed, sealed & stamped manner in hardcopy, failing which the tender will be summarily rejected.
- 2.22 If there happens to be a holiday on any date indicated in this tender notice, the transaction shall be performed on the next working day.
- 2.23 In case the tender is cancelled, the tender fee will not be refunded to the concerned bidder.
- 2.24 The tender/bid (i.e. technical bid/offer) will be opened on **19.01.2024, 11:30 AM** at IITRAM Ahmedabad Premises. No separate information shall be given to individual bidders.
- The bidders or their authorized representative may remain present during the opening of the Technical bid, if they desire so, at their own expenses. The required technical specifications for the cited item(s)/goods is mentioned in Annexure-I.
 - Only those financial bids will be opened whose technical offers/bids are found suitable by the expert panel/committee appointed for the concerned item(s)/goods. The respective dates for opening of financial bid shall be informed to the technically qualified bidder(s) through email only.
 - In incomparable situation, the committee may negotiate price with the technically and financially qualified bidder before awarding the offer.
 - The tender committee reserves its right to select or reject any or all of the item(s) mentioned above without assigning any reasons.
- 2.25 If the bidder fails to meet any of the above eligibility criteria/ fails to submit the adequate testimonials in support of the above mentioned requirement will be disqualified.

- 2.26 Any effort by a bidder to influence IITRAM's tender evaluation, tender comparison or contract/order award decisions may result in the rejection of the bidder's tender and forfeiture of the bidder's EMD.
- 2.27 After opening of bids, information relating to the examination, clarification, evaluation and comparisons of bids and recommendations concerning the award of contract shall not be disclosed to bidders or other persons not officially concerned with such process.
- 2.28 In the event of any dispute or difference(s) between the vendee (IITRAM Ahmedabad) and the bidder(s) arising out of non-supply of material or supplies not found according to the specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to the concerned authority of IITRAM Ahmedabad who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act 1996. The decision of the arbitrator shall be final and binding on both the parties.
- 2.29 No firm shall withdraw their rates after the Tender is opened. If a firm does so, their tender related deposit/s shall be forfeited and such firm shall be considered ineligible for work/contract in future.

3. Submission of bid:

- 3.1 The Tender documents can be downloaded from Institute's website i.e., www.iitram.ac.in or (N)Procure portal i.e., <https://educationtender.nprocure.com/>. The bidder(s) are required to submit the Tender Acceptance Letter (**Annexure - IV**) endorsed by seal and signature as acceptance of terms and conditions of this tender. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.
- 3.2 The fully filled in and complete in all respect tender must be submitted with Tender Fee and EMD through Electronic Transfer / Demand Draft. Bank/DD details are as follows:

For Electronic Transfer, Bank Account details are as follows:

Account Name: Institute of Infrastructure, Technology, Research And Management
Account No.: 923010019592531
Bank Name: AXIS BANK LTD
IFSC Code: UTIB0002645
Branch Name: Hatkeshwar Ahm GJ, Ahmedabad – 380026.

Note: Kindly submit Electronic Transfer advise with UTR details along with bid document.

OR

Demand Draft in favor of the "INSTITUTE OF INFRASTRUCTURE, TECHNOLOGY, RESEARCH AND MANAGEMENT" payable at Ahmedabad. Please mention Tender number and name of the firm on back side of DD.

- 3.3 Bidders registered with Micro and Small Enterprises (MSEs) and having valid MSE Certificate will be considered for relaxation of EMD. In view of the above, if the bidder will claim for EMD exemptions, the bidder should meet all the criteria for Micro and Small Enterprises. The bidder must submit the supporting document i.e. MSME registration certificate issued by competent government bodies (i.e. issued by Government of Gujarat & Government of India only) to become eligible for the EMD exemptions. The registration certificate (MSE) of the bidder must cover the items tendered to get EMD exemptions.
- 3.4 The EMD is refundable (without any interest) within 30 (thirty) working days after successful award of Purchase Order:
- 3.4.1 EMD of unsuccessful bidder(s) will be returned within 30 (thirty) working days from the date of award of offer/contract.
- 3.4.2 EMD of successful bidder(s) will be returned within 30 (thirty) working days after submission of a Performance Security.
- 3.4.3 The EMD shall be forfeited:
- If bidder(s) withdraws their bid during the period of bid validity specified in this tender notice; and/or

- In case of a successful Bidder fails, (i) To sign the contract agreement and (ii) To furnish a performance security.
- 3.5 The firm has to submit the Tender in two parts viz., (a) Technical bid/offer in *envelop No. (1)* and (b) Tender Fee & EMD in *envelope No. (2)*; both these envelopes should be sealed and put together in *a main covering envelope*, super scribed with – Please Don't Open, Bid for “*Tender for Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory*” with due date, Tender Number and complete address along with contact number and email id.
- 3.6 **The bidder has to specify the make, model, and detailed technical specifications of the quoted/offered item and attach a separate compliance sheet if any deviation compares to the technical specifications mentioned in Annexure-I. Mere copying of the expected technical details into the product details will not be entertained and may even lead to disqualification of the bidder.**
- 3.7 **The bidder must produce the brochure, model and the make of the product being offered.**
- 3.8 It is essential for firm to submit **ANNEXURE(s), Tender documents and other essential documents** as mentioned in this tender notice **with duly filled, signed, sealed & stamped manner in hardcopy**, failing which that bidder's/firm's tender will be summarily rejected.
- 3.9 The “**Financial Bid**” to be filled as per **ANNEXURE – ‘II’** and **should be submitted online only at (n)Procure Portal** as ‘Financial Bid’. Rates quoted ‘ONLINE’ will only be considered.

4. Evaluation of Quotations:

The tender evaluation committee of the IITRAM will evaluate and compare the received quotations/bids to determine the substantially responsive tender i.e. (i) tender is complete (ii) properly signed (iii) confirm the terms/conditions and specifications. Further, the financial evaluation will be done only for the substantially responsive tender based on the following parameter(s):

- Total price quoted (ONLINE) at (n)Procure portal as a Financial Bid

5. Award of Contract:

- 5.1 IITRAM will award the contract to the firm who has offered lowest price.
- 5.2 Notwithstanding the above, IITRAM reserves the right to accept or reject any quotation and to cancel the bidding process and reject all quotations at any time prior to the award of contract without giving any reason.
- 5.3 The firm whose bid is accepted will be notified of the award of contract by the IITRAM prior to expiration of the bid validity period. The terms of the accepted offer shall be incorporated in the Purchase Order.

6. Delivery Period & Penalty:

- 6.1 **Delivery Period:** The item(s)/goods are to be delivered within a maximum time limit of 90 days from the issue date of Purchase Order. However, in case of imported item(s)/goods can be delivered within a maximum time limit of 120 days from the issue date of Purchase Order.
- 6.2 After the receipt of ordered item(s)/goods in acceptable condition at IITRAM, Ahmedabad bidder has to install item(s)/goods within 30 (thirty) days.
- 6.3 **Penalty:** Penalty of 1% per week of order value will be charged after duration specified above individually. Further, 06 weeks or above delay from above mention days may lead to cancellation of order at the discretion of the university and forfeiting the Performance Security or EMD or Maximum penalty shall be applicable @10%.

7. Warranty:

- 7.1 Minimum 02 (two) years complete warranty from the date of complete installation, commissioning and erection of all item(s)/goods at our site. However, onsite support for modifications of Hardware(s) and Software(s) should be provided by the supplier for 03 (three) years.

- 7.2 Warranty certificate should be provided from Original Equipment Manufacturer (OEM) on OEM's letter head.

8. Terms of Payment:

- 8.1 **Payment:** 100% payment shall be released within 30 (thirty) working days on satisfactory receipt, installation, testing and commissioning of the ordered item(s)/goods at our site, submission of clear Tax-Invoice(s) and supporting documents.
- 8.2 Advance payment will not be made under any circumstances.
- 8.3 Recoveries as per the Institute's norms shall be made while making payment (if any) without prior intimation to the supplier.

9. Address for the submission of bid/offer documents:

The Registrar
Institute of Infrastructure, Technology, Research And Management
Room No. G2,
Near Khokhara Circle, Maninagar (East),
Ahmedabad- 380026, Gujarat, INDIA.
Email: purchase@iitram.ac.in

REGISTRAR

(Schedule of Quantity)

Name of Item(s): Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory

Quantity Required: 01 Nos.

General

Technology	Photopolymerization Assisted Extrusion
Printer Type	Modular Gantry Based / Robotic Arm Based
Minimum Build Envelop	1000mm X 1000mm X 1000mm
Control Interface	Through control panel and web interface (Web client through browser like chrome, edge, safari) Machine shall be able to run independently without PC
Continuous Operating Time @ No Load	50 hrs or better
Continuous Operating Time @ 100% Load	3 hrs or better
Body Material	Frame: Modular Aluminium section with minimum cross-sectional dimensions of 20X20 mm, 20X40mm, 40X40mm. Alternative sturdy materials may be considered with appropriate justifications. Chassis sheet: Aluminium of minimum thickness 5mm or better
Coating	All parts of the printer should be coated for rust protection. Coating thickness shall be specified

Motion System

Motion Axis	3 axis motion with provision for expansion option upto 6)
Stepper / Servo Motor Make	Oriental Electric or equivalent
Additional Servo Controls	2 or higher
Auxiliary Inputs/Outputs	4 or higher
Minimum Layer Thickness Motion	0.04 mm
Motion Resolution	0.00125mm or better
Maximum Print Speed	300mm/sec
Minimum Print Speed	1mm/sec or lower
Maximum Layer Thickness Motion	80% of nozzle diameter
Layer Thickness Control	Through user interface Software

Delivery System

Pump Type	Positive Displacement
Max. Particle size	8mm (With Direct Delivery) or higher
Control	Manual & Automatic both
Delivery Through	Hose Pipe

Cleaning System

Hose connection	Quick coupling
Water flushing	Water purge cleaning or better

Sensors

Sensors	Proximity sensors, limit switches, hopper material detection
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Nozzle

Nozzle Type	Interchangeable
Nozzle Material	Stainless Steel 316 grade or better

Circular Nozzle	Minimum 3 with internal diameter of 5mm, 10mm, 15mm
Square Nozzle	Minimum 3 with internal diameter of 10mm, 15mm, 20mm
Nozzle System	Dual level extrusion with both active and passive material extrusion capability, with provision to add activator at delivery. Screw extruder with integrated hopper or better
Additive Mixing	System to add additives or admixtures at the nozzle assembly
Printable Material(S)	Concrete mortars with max particle size 2.6 mm, fiber reinforced concrete, foamed concrete, clay, porcelain, grease, earth-based mixtures with natural fibers.

Software

Supported Operating System	Windows/ Mac OSX / Linux
Slicing Software	Custom dedicated slicer for concrete 3D Printing
Printer and Printing Management	Software and HMI controlled
Input 3D Model File Format	STL, OBJ, X3D and 3MF
Functions	Allows customization of process parameters for research application Simulation to check the entire 3D printing operation before the actual printing and its associated parameter such as time for printing, material consumption, print rate etc. Allows for a single point and integrated control of all the sub-components such as the print head unit and others for a synchronized printing mechanism/action.
Control	Automatic and Manual both. Allow for start, pause, change, resume workflow.

Mixer

Type	Pan Mixer
Mechanism	Blade/screw
Power	250watts
Capacity	5 litres or higher

Additional Features

Connectivity	LAN and WIFI
IoT	IoT enabled with camera streaming, control options and open-source plugin integration facility
Levelling	Automatic
Additional Features	<ul style="list-style-type: none"> • Support for firmware customization • Access to raw editable firmware files for modifications • 3 years of onsite support for required modifications in hardware and software • Training for machine operation, changing settings and parameters, firmware editing

Printing Materials

Capable of printing any cementitious systems which includes the following or a combination.

Concrete / Mortar / Clay
Supplementary cementitious materials
Alternative cementitious materials

Aggregates (used in cement concrete) have a maximum size of 8 mm
Commonly used fibres (secondary reinforcing materials i.e steel fibers, PP fibers, GFR & CFR etc) in cement concrete

Service Maintenance and other terms

Safety Elements	<ul style="list-style-type: none"> • Emergency stop switch at control panel • Axis End Stops – 6 • Resettable fuse for short-circuit in controller and machine both • Mixture overflow sensors • Provision to Add two heaters and temperature control should be inbuilt in the controller
Training	Training shall includes operations, maintenance, software etc.
Warranty	2 years or more
On-site support for modifications hardware and software	3 years or more

Additional Inclusions

1. Computer System
2. Additive mixing at nozzle assembly

Test Reports

1. Documentary evidence for Service Life of Motors indicating life span in hours/years.
2. Vibration assessment report of the complete system with peak vibration at maximum load.
3. Proof for demonstrating the capacity to supply similar motion systems at industries, education institutes duly supported by copy of work order, performance certificate etc.

FINANCIAL BID

(Format for Submission of Financial Details)

(Data Sheet to be submitted ONLY Online at (n)Procure Portal)

Sr. No.	Name of Item(s)	Unit	Qty.	Rate <i>(Without GST)</i>	Total Amount <i>(INR)</i>	GST Slab Rate (%)
A	B	C	D	E	F = (D*E)	G
1.	Concrete 3D Printer	Nos.	01.00			

This table of Financial Bid is stated for reference purpose only and please do not disclose any price here at the time of submission of this document.

Declaration:

I/We hereby declare and affirm that I/We have read and understood the terms and conditions of the contract as stipulated in this tender notice.

Seal & Signature of Company

Date: _____

Place: _____

*(To be printed on firm's letterhead)***FORMAT FOR SUBMISSION OF BIDDER'S INFORMATION**

1	Registered Name of the Bidder:	
2	Registered Office Address: Contact Number Fax Number E-Mail	
3	Correspondence Address: Contact Number Fax Number E-Mail	
4	Details of the authorized person: (Name, Designation, Address) Contact Number Fax Number E-Mail	
5	Bidder Registration Type - <ul style="list-style-type: none"> • Proprietary Firm • Partnership Firm (if yes, give partnership deed) • Company or LLP • Government/ Public Sector Undertaking • Member of a group of companies (if yes, give name, address & details of group companies) • Subsidiary of a large corporation (if yes, give the name & address of the parent organization) <p>If the company is subsidiary, state what involvement will the parent company have in the project.</p>	
6	Permanent Account Number (PAN):	
7	Goods & Service Tax Number (GST):	
8	<u>Particulars of Bank Account</u> Name of the Bank: Name of the Branch: Branch Code: Address & Contact Details: IFSC Code: Type of Bank Account: Bank Account No.:	

Seal & Signature of Company**Date:** _____**Place:** _____

(To be printed on firm's letterhead)

TENDER ACCEPTANCE LETTER

To,
The Registrar
Institute of Infrastructure, Technology, Research And Management
Near Khokhra Circle, Maninagar (East),
Ahmedabad – 380026, Gujarat.

Subject: **Acceptance of Terms & Conditions of the Tender**

Tender Reference No: _____

Name of Tender / Work: **Supply, Installation, Testing & Commissioning of Concrete 3D Printer for Construction Materials Laboratory**

Dear Sir,

1. I/We have downloaded/obtained the tender document(s) for the above mentioned “Tender/Work” from the web site(s) namely: _____
2. I/We hereby certify that I/we have read the entire terms and conditions of the tender documents (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I/we shall abide hereby by the terms / conditions / clauses contained therein.
3. The corrigendum(s) issued from time to time by your department / organizations too have also been taken into consideration, while submitting this acceptance letter.
4. I/We hereby declare that I/We have carefully studied the conditions of contract, specifications and other tender documents of this work and unconditionally accept the tender conditions of above-mentioned tender document(s) / corrigendum(s) in its totality / entirety.
5. I/We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/Public sector undertaking/Govt. Autonomous organizations.
6. I/We certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore can summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full EMD/SD absolutely.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

(To be printed on firm's letter head)

UNDERTAKING

I, _____ hereby declare that Firm / Company / Agency / Organization / Partnership firm / Proprietary firm titled as _____ has not been blacklisted or banned or debarred at any stage from inception till this date by any of the NITs / IITs / IIITs / Central Universities / IISERs / CSIR Labs Central and State Government body / PSUs / Autonomous Institute or any Other Government Organization. In case of the any fraudulency, the Firm / Company / Agency / Organization / Partnership firm / Proprietary firm is fully aware that the tender / contract will be rejected / cancelled by IITRAM and EMD / Performance Security or any deposited amount shall be forfeited.

In addition to above, IITRAM will not be responsible to pay the bills for any completed / partially completed/supplied work.

Seal and Signature of Company

Date: _____

Place: _____