



**NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE**  
(An autonomous institute of Department of Biotechnology, Govt. of India)  
**Knowledge City, Sector – 81**  
**Mohali - 140306**

**EXPRESSION OF INTEREST (EOI)**

**Eoi No.: NABI/ENGG/07(018)/2022-23**

**NAME OF THE WORK**

**Design, Supply, Installation, Testing and Commissioning of Speed Breeding (Rapid Generation Advancement) Facility for Genome Editing Research” along with connected utilities and other infrastructure at NABI complex Mohali to be established at National Agri-Food Biotechnology Institute**

<b><u>Sr. No</u></b>	<b><u>PARTICULARS</u></b>	<b><u>DATES</u></b>
1	Date of floating of EOI Tender docs	7th October 2022
2	Date of the Pre-bid Meeting	27th October 2022
3	Tender Document Fee	Rs.2,950/-
4	Value of the Work	To be Notified after the Pre-bid Meeting
5	Earnest Money Deposit (EMD)	
6	Last date and time of submission	
7	Date and time of opening of Bids	
8	Time for the completion of work	Four months from the date of the award of work

**Bid Validity: 180 days from the date of the Pre-bid meeting**

# 1. INTRODUCTION

## 1.1 Background

- 1.1.1. National Agri-Food Biotechnology Institute (NABI) is the first Agri-Food Biotechnology Institute, established in India on 18th February 2010. The institute aims at catalyzing the transformation of Agri-food sector in India. The institute has the vision to be a nodal organization for knowledge generation and translational science leading to value-added products based on Agri-Food biotech innovations. The main research focus of NABI is to harness biotechnological tools in the area of Agriculture Biotechnology, Food and Nutritional Biotechnology so as to provide sustainable and novel solutions towards quality food and nutrition

## 1.2 Implementation Plan

- 1.2.1. The Speed Breeding Platform facility is planned to be implemented through an experienced and eligible firm who would be responsible for providing the Design, Supply, Installation, Commissioning and Testing of the Speed Breeding Platform Facility.

## 1.3 Purpose of EoI

- 1.3.1. The purpose of this Expression of Interest (EoI) is to determine the prospective bidders for implementing the Speed Breeding Platform Facility. The objective of the document is to provide indicative information on the Speed Breeding Platform Facility and the Scope of work for this project. The detailed Scope of work, terms and conditions and parameters for selection of the Bidder will be provided after the pre-bid meeting. Eligible bidders should visit the site and submit the bids accordingly.

## 2. BROAD SCOPE OF WORK

2.1. The broad Scope of work to be executed as part of this project is as given below:

**The tentative specifications for the Speed Breeding Platform Facility are mentioned in Annexure - I**

### 2.1.1 Designing the solution:

Undertake the site visits to collect the details /data/information required for the planning purpose, hold necessary discussions with NABI, obtain the project requirement, and attend meetings at the NABI site as and when required.

Preparation and submission of project report based on the requirements of project and consultation with NABI and submission of Drawings/design, Line diagrams, indicating the parameters/ specifications to be maintained for the same.

Preparation and submission of detailed designs and drawings of all Process & internal utilities and other specialized services per the project's requirements.

Executing work as per detailed drawings and specifications, including sorting out problems and issues / clarifications at site in consultation with NABI. The work includes all Civil, electrical, Air Cooling System/HVAC, Fire Fighting, and scientific infrastructure for the speed breeding facility in all aspects for the commissioning of the facility in an area of 50\*50 metres as per Annexure-1 Details as per IS standards.

### 2.1.2. SUPPLYING THE SOLUTION

(a) Provide detailed specifications and Bill of Material (BOM) for the design and SITC of Speed Breeding Platform Facility

### 2.1.3. IMPLEMENTING THE SOLUTION

a) Executing work as per detailed drawings and specifications, including sorting out problems and issues / clarifications at site in consultation with NABI. The work includes all Civil, electrical, Air Cooling System/HVAC, Fire Fighting, and scientific infrastructure for the speed breeding facility in all aspects for the commissioning of the facility in an area of 50\*50 metres as per Annexure-1 Details as per IS standards.

### 2.1.4. OPERATING AND MAINTAINING THE SOLUTION DURING THE WARRANTY PERIOD:

(a) Adhere to the contracted Service Level Agreements to ensure necessary uptime of the solution during the Warranty & AMC period.

(b) Train specific groups of users to manage and optimally utilize the solution.

## 3. INSTRUCTION TO BIDDERS

### **2.1.5. PROVIDING SOLUTIONS AND POST-COMMISSIONING OF THE SOLUTION**

- (a) Provide application support during the Warranty & AMC period.
- (b) Train the users and provide the necessary documentation.
- (c) Preparation and submission of completion report and final completion drawings and documents for the project as required and acceptable to NABI.
- (d) Provide necessary statutory approvals if any from concerned authorities likewise GMADA, PPCB, Invest Punjab, Fire department, etc., as deemed essential and applicable for the smooth installation and operation of the Speed Breeding Platform Facility. NABI shall pay the statutory fees to the concerned Authority.

## 3. INSTRUCTION TO BIDDERS

### 3.1 EOI DOCUMENT

- 3.1.1. As this Eoi document shall be following the e-tendering process, the bidders may download the Eoi bid document from [www.eprocure.gov.in](http://www.eprocure.gov.in) and [www.nabi.res.in](http://www.nabi.res.in). No physical copy of the Eoi document would be made available.

### 3.2 COMPLETENESS OF RESPONSE

- 3.2.1. Bidders are advised to carefully study all instructions, forms, terms, requirements and other information in the Eoi documents. Submission of the bid shall be deemed to have been done after careful study and examination of the Eoi document with the full understanding of its implications.
- 3.2.2. The response to this Eoi should be full and complete in all respects. Failure to furnish all information required by the Eoi documents or submission of a proposal not substantially responsive to the Eoi documents in every respect will be at the Bidder's risk and may result in rejection of its Eoi Proposal.

### 3.3 EOI PROPOSAL PREPARATION COSTS & RELATED ISSUES

- 3.3.1. The Bidder is responsible for all costs incurred in connection with the participation in this process, including, but not limited to, costs incurred in the conduct of informative and other diligence activities, participation in meetings/presentations, and preparation of Eoi along with providing any additional information required by NABI to facilitate the evaluation process.
- 3.3.2. NABI will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 3.3.3. This Eoi does not commit NABI to award a contract or to engage in negotiations. Further, no reimbursable cost may be incurred in anticipation of award or for preparing this bid.
- 3.3.4. All materials submitted by the Bidder will become the property of NABI and may be returned completely at its sole discretion.

### 3.4 PRE-BID MEETING

- 3.4.1. NABI shall hold a pre-bid meeting with the prospective bidders on 27<sup>th</sup> October 2022 at 11:00 AM onwards  
NATIONAL AGRI-FOOD BIOTECHNOLOGY  
INSTITUTE  
KNOWLEDGE CITY, SECTOR -81, MOHALI -  
140306

- 3.4.2. The Bidders will have to ensure that their queries for the Pre-Bid meeting should reach NABI through Facsimile or email on or before 21<sup>st</sup> October 2022, 5:30 PM.  
Email: [purchase@nabi.res.in](mailto:purchase@nabi.res.in)
- 3.4.3. All queries to be raised in the pre-bid meeting will relate to the EoI, detailed analysis of Scope of work, and no queries related to the payment terms and mode of selection will be entertained. These issues will be amply clarified at the RFP stage.

### **3.5 RESPONSES TO PRE-BID QUERIES AND ISSUE OF CORRIGENDUM**

- 3.5.1. The duly constituted technical committee will provide a timely response to all queries. However, NABI makes no representation or warranty as to the completeness or accuracy of any response made in good faith.
- 3.5.2. At any time before the last date for receipt of bids, NABI may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the EoI Document by a corrigendum.
- 3.5.3. The Corrigendum (if any) & Addendum will be posted on [www.eprocure.gov.in](http://www.eprocure.gov.in) and [www.nabi.res.in](http://www.nabi.res.in)
- 3.5.4. Any such corrigendum shall be deemed to be incorporated into this EoI.
- 3.5.5. In order to afford prospective Bidders reasonable time to take the corrigendum into account in preparing their bids, NABI may, at its discretion, extend the last date for the receipt of EoI Bids.

### **3.6 RIGHT TO TERMINATE THE PROCESS**

- 3.6.1. NABI may terminate the EoI process at any time and without assigning any reason. NABI makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- 3.6.2. This EoI does not constitute an offer by NABI. The Bidder's participation in this process may result in NABI shortlisting the Bidder to submit a complete technical and financial response at a later date.

### **3.7 SUBMISSION OF RESPONSES**

- 3.7.1. The bids shall be submitted online as per the tender documents. The bids shall contain documents of bidders satisfying the eligibility / Technical conditions requirements.
- (a) Bids shall consist of supporting proofs and documents as defined in the Pre-qualification section
- (b) Bidder shall submit all the required documents as mentioned in the Appendix. It should be ensured that various formats mentioned in this EoI should be adhered to and no changes in the format shall be made.

## **3. INSTRUCTION TO BIDDERS**

- 3.7.2. The document should be page numbered, contain the list of contents with page numbers, and be initialled by the Authorized Representative of the Bidder.
- 3.7.3. EoI document submitted by the Bidder should be concise and contain only relevant information as required under this EoI.
- 3.7.4. Bids must be submitted online by the Bidder not later than the specified date and time indicated in the covering letter of this EoI.
- 3.7.5. Late Bids: No bids shall be accepted online by the online portal after the specified deadline for submission of bids prescribed by NABI. Bids received through email / or post or any other mode shall not be accepted.

### **3.8 SPECIAL INSTRUCTIONS TO BIDDERS FOR E-TENDERING**

#### **Instructions for Online Bid Submission**

- 1) The tender documents are available on our website [www.nabi.res.in](http://www.nabi.res.in) & [www.eprocure.gov.in](http://www.eprocure.gov.in) and same can be downloaded as per the schedule as given in the tender document.
- 2) Bids shall be submitted online only at CPPP website: <https://eprocure.gov.in/eprocure/app>. Tenderers/Contractors are advised to follow the instructions provided in the 'Instructions to the Contractors/Tenderer for the e-submission of the bids online through the Central Public Procurement Portal for eProcurement at <https://eprocure.gov.in/eprocure/app>'. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 3) **Not more than one tender shall be submitted by one contractor or contractors having business relationship. Under no circumstance will father and his son(s) or other close relations who have business relationship with one another (i.e when one or more partner(s)/director(s) are common) be allowed to tender for the same contract as separate competitors. A breach of this condition will render the tenders of both parties liable to rejection.**
- 4) The bidders are advised to visit CPPP website <https://eprocure.gov.in/eprocure/app> at least 3 days prior to closing date of submission of tender for any corrigendum / addendum/ amendment.
- 5) Bids will be opened as per date/time as mentioned in the **Tender Document**. If the tender opening date happens to be on a holiday or non-working day due to any other valid reason, the tender opening process will be attended on the next working day at same time and place. NABI, Mohali will not be responsible for any error like missing of schedule data while downloading by the Bidder. After online opening and evaluation of technical bids, the results of their qualification as well Price-Bid opening will be intimated later.

### **Submission of Tender**

- 1) The bids shall be submitted online in two bids (Technical bid and Financial bid) or Single bid as specifically specified in the invitation for
- 2) All the pages of bid being submitted must be sequentially numbered by the bidder irrespective of nature of content of the documents before uploading in the portal.
- 3) The offers submitted by Post/Fax/email shall not be considered. No correspondence will be entertained in this matter.
- 4) The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.
- 5) More information useful for submitting online bids on the CPP Portal may be obtained at: <https://eprocure.gov.in/eprocure/app>.

### **REGISTRATION**

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link “**Online Bidder Enrolment**” on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra/ Nic etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others, which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

### **SEARCHING FOR TENDER DOCUMENTS**

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

### 3. INSTRUCTION TO BIDDERS



### **PREPARATION OF BIDS**

Bidder should take into account any corrigendum published on the tender document before submitting their bids.

- 1) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 2) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 3) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GST Certificate etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded repeatedly. This will lead to a reduction in the time required for bid submission process.

### **SUBMISSION OF BIDS**

- 1) The bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) The bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official before bid opening date/time as mentioned in critical date sheet or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the uploaded bid will be rejected.
- 5) The bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

- 6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. Unauthorized persons cannot view the data entered until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is upload in the server is subject to symmetric encryption using a system generated symmetric key. Further, this key is subject to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 8) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 9) Upon the successful and timely submission of bids (i.e after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

#### **ASSISTANCE TO BIDDERS**

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

**Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 3070 2232, 91-7878007972 and 91-7878007973.**

### **3.9 EOI SUBMISSION FORMAT**

- 3.9.1 The entire Eoi proposal shall be strictly per the format specified in this Invitation for Expression of Interest. Any deviation may result in the rejection of the Eoi proposal. The scanned copies of the documents or pdf versions only need to be uploaded to the CPP portal.
- 3.9.2 The scanned versions of the documents or pdf versions of the following documents need to be uploaded on CPP portal.

**Form 1:** Covering Letter with Correspondence Details

**Form 2:** Details of the Bidder's Operations

**Form 3:** Compliance Sheet for Pre-Qualification Criteria

**Form 4:** Financial Information (as per Audited Balance Sheets)

**Form 5:** Project Citation Format

**Form 6:**Format to indicate for non-blacklisting of the bidder

**Form 7:** Proposed design for Speed Breeding Platform Facility

**Additional:**

(a) Power of Attorney in the name of Authorized Signatory

(b) Documents mentioned in the Pre-Qualification Criteria Table (Section 4 of Eoi Document) under the heading – **Documents Required**

### **3.10 DEADLINE FOR ONLINE SUBMISSION**

- 3.10.1 Date and Time of Online Submission of Eoi bid
- 3.10.2 Any Eoi received by NABI after the above deadline shall be rejected and returned unopened to the Bidder.
- 3.10.3 NABI reserves the right to modify and amend any above-stipulated condition/criterion depending on project priorities vis-à-vis urgent commitments.

### **3.11 DATE AND PLACE OF OPENING OF BIDS**

- 3.11.1 Online Opening of Eoi Bids: Intimated after the Pre-bid meeting

### **3.12 VALIDITY OF BIDS**

- 3.12.1 The validity of the bids shall be 180 days from the date of opening of bids.

### **3.13 PLACE OF OPENING OF EOI BIDS**

3.13.1 NABI has adopted e-tendering process which offers a unique facility for 'Public Online Tender Opening Event. NABI's Eoi opening officers and authorised bidders representatives can attend the Public Online Tender Opening Event from the comforts of their office.

### **3.14 SHORT LISTING CRITERIA**

3.14.1 **The shortlisting criteria for the evaluation of the bids will be notified after the Pre-bid meeting.**

3.14.2 Any attempt by a Bidder to influence the bid evaluation process may result in the rejection of its Eoi Proposal.

### **3.15 EVALUATION PROCESS**

3.15.1 NABI will constitute a Technical Evaluation Committee to evaluate the responses and presentations of the bidders.

3.15.2 The Technical Evaluation Committee constituted by NABI shall evaluate the responses to the Eoi based on support documents and documentary evidence. Inability to submit requisite supporting documents would lead to rejection of Eoi. Each of the responses shall be evaluated to validate compliance of bidders according to the Forms and the supporting documents specified in this document.

3.15.3 The Technical Evaluation Committee may seek clarification in writing to the bidders to evaluate suitability of the bidder for the assignment.

3.15.4 The decision of NABI to evaluate responses to the Expression of Interest shall be final. Therefore, no correspondence will be entertained outside the committee's evaluation process.

3.15.5 NABI reserves the right to reject any or all proposals.

### **3.16 ARBITRATION**

All disputes, differences, claims and questions whatsoever arising, shall be referred to Arbitration which shall be conducted in accordance with the provisions of the Indian Arbitration and Conciliation Act 1996 or any statutory modification thereof. The arbitrator shall be appointed by Competent Authority; NABI & arbitration shall take place at Mohali only. If any fees are payable to the arbitrator, these shall be paid equally by both the parties.

### **3.17 PENALTY FOR DELAY**

In case the bidder fails to complete the work in the specified time, NABI shall levy penalty @ 1/2% of awarded value per week or part there of starting from the schedule completion date, subject to a ceiling of 10%.

### **3.17 FORCE MAJEURE CLAUSE**

NABI & Successful bidder shall not be responsible for any delay/stoppage of work due to force majeure condition like natural calamities/ disturbances/ war/strikes etc. and loss suffered if any, by both on this account. No party shall be liable to bear such losses and no compensation of any kind what so ever will be payable by both to each other.

### **3. INSTRUCTION TO BIDDERS**

### **3.18 Payment of Running Bills**

The payment of Running bills shall be notified after the pre-bid meeting.

**Note: Statutory deductions shall be applicable as per GoI norms. In case the Consultant fails to provide the services as specified above, the same shall be got done from the other agencies at his cost and risk or as decided by CA, NABI. The bidder should be responsible to follow the EPF, ESI Acts etc.**

### **3.19 REGARDING TENDER FEE AND EMD EXEMPTION**

**EOI document/Tender Fee exemption is allowed for Micro & Small Enterprises (MSEs) who are registered with District Industries Centers(DICs)/Khadi & Village Industries Commission(KVIC)/ Khadi & Village Industries Board(KVIB)/ National Small Industries Corporation (NSIC)/MSEs registered under Udyog Aadhar Memorandum(UAM)/Directorate of Handicrafts and Handloom or any other body specified by Ministry of Micro, Small and Medium Enterprises(MoMSME) but relevant certificates of registration need to be enclosed by the bidder along with the Technical bid, claiming for exemption. Also, the bidders/MSEs claiming for exemption of Tender fee and EMD shall submit the duly signed and stamped hard copies of necessary registration certificates on or before the last date of submission of tenders, failing which their tenders will not be considered for further evaluation.**

**3.20 The above mentioned tender is only for the Class I Supplier (more than 50% local content) and Class II Supplier (more than 20% but less than 50% component) bidders only.**

## 4. PRE-QUALIFICATION CRITERIA

4.1 The table below details the required pre-qualification criteria:

Sr. No	Basic Requirement	Specific Requirements	Documents Required
(a)	Legal Entity	Should be Company registered under Companies Act, 1956/2013 or a partnership firm registered under LLP Act, 2008 Registered with the GST Authorities. Should have been operating for the last three years.	Certificates of incorporation and Registration Certificates
(b)	Annual Sales Turnover	Annual Sales Turnover during each of the last three financial years (as per the last published Balance sheets), should be at least Rs.40 Crores	Certificate from the statutory auditor <b>or</b>
(c)	Net Worth	Net Worth during each of the last three financial years should be positive	Certificate signed by the Company Secretary, along with the Balance Sheets of the last three financial years which are available publicly  (Form 4)
(d)	Technical Eligibility Criteria	<p>A. Must have successfully completed one of the following covering the entire life cycle of implementation:</p> <ul style="list-style-type: none"> <li>i. One Project costing not less than Rs. 9.44 Crores</li> <li>ii. Two Projects each costing not less than Rs. 7.08 Crores</li> <li>iii. Three Projects each costing not less than Rs. 4.72 Crores</li> </ul> <p>The Project(s) should have any one of the following:</p> <ul style="list-style-type: none"> <li>a) Speed Breeding platform Facility</li> <li>b) Controlled Environment Facility such as the projects related to the SITC of Green Houses/Net house/Plant Growth Chambers</li> </ul>	<p><b>Order</b> copies should be enclosed along with the certificate from the supplier regarding the satisfactory completion of the work.</p> <p>The certificate should be after the date of the publication of the tender in the CPP Portal (Form 5)</p>

Sr. No	Basic Requirement	Specific Requirements	Documents Required
(e)	Blacklisting	The Bidder should not be blacklisted by Central / State Government or any undertaking/ institution under government control in India.	Certificate by authorized signatory to this effect as per format placed at <b>Form 6</b>
(f)	GST Registration No and PAN	The firm must have valid GST Registration No. and PAN	The proof of the same shall be enclosed.
(g)	Site Visit Certificate	The bidder/firm should mandatory visit the site.	The bidder should submit the mandatory site visit certificate.

4.2 In addition to the documents required for pre-qualification, Power of Attorney in the name of the Authorized Signatory is required.

**Note:** Global references of projects for proof of technical capability are also permitted (Para 4.1(d)).

## Appendix I - Bid Submission Forms

The bidders are expected to respond to the EoI using the forms given in this section and all documents supporting Pre-Qualification / EoI Criteria.

Proposal / Pre-Qualification Bid shall comprise the following Forms:

**Form 1:** Covering Letter with Correspondence Details

**Form 2:** Details of the Bidder's Operations and IT Implementation Business

**Form 3:** Compliance Sheet for Pre-Qualification Criteria

**Form 4:** Financial Information (as per Audited Balance Sheets)

**Form 5:** Project Citation Format

**Form 6:** Format to indicate Non-Blacklisting

**Form 7:** Proposed DESIGN for the Speed Breeding Platform Facility

**FORM 1**

**Covering Letter with Correspondence Details  
(on letter head)**

<Location, Date>

The Executive Director  
National Agri-Food Biotechnology Institute  
Knowledge City, Sector - 81  
Mohali - 140306

Dear Sir,

We, the undersigned, offer to provide design, supply, installation, testing and commissioning of the Speed Breeding Platform Facility

Our correspondence details with regard to this EoI are

<b>Ser</b>	<b>Information</b>	<b>Details</b>
1.	Name of the Contact Person	<Insert Name of Contact>
2.	Address of the Contact Person	<Insert Address>
3.	Name, designation and contact, address of the person to whom, all references shall be made, regarding this EoI.	<Insert Name of Contact>
4.	Telephone number of the Contact Person.	<Insert Phone No.>
5.	Mobile number of the Contact Person	<Insert Mobile No.>
6.	Fax number of the Contact Person	<Insert Fax No.>
7.	Email ID of the Contact Person	<Insert Email>
8.	Corporate website URL	<Insert Website URL.>

We are hereby submitting our Expression of Interest online on CPP portal. We understand you are not bound to accept any Proposal you receive.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the process or unduly favors our company in the short

**Bid Submission Forms**



listing process, we are liable to be dismissed from the selection process or termination of the contract during the project.

We hereby declare that our proposal submitted in response to this EoI is made in good faith and the information contained is true and correct to the best of our knowledge and belief.

Sincerely,

[Company Name with seal]

<Applicant's Name with seal>

Name: <<Insert Name of

Contact>> Title: <<Insert Name of

Contact>> Signature: <<Insert

Signature>>

## FORM 2

### Details of the Bidder's Operations and their Business

Ser	Information Sought	Details to be Furnished
1.	Name and address of the bidding Company	
2.	Incorporation status of the firm (public limited / private limited, etc.)	
3.	Year of Establishment	
4.	Date of registration	
5.	ROC Reference No.	
6.	Details of company registration	
7.	Details of registration with appropriate authorities for service tax	
8.	Name, Address, email, Phone nos. and Mobile Number of Contact Person	

[Company Name with seal]

<Applicant's Name with seal>

Name: <<Insert Name of  
Contact>> Title: <<Insert Name of  
Contact>> Signature: <<Insert  
Signature>>

**FORM 3****Compliance Sheet for Pre-Qualification Criteria**

Sr. No	Basic Requirement	Required	Provided	Reference & Page Number
1.	Power of Attorney	Copy of Power of Attorney in the name of the Authorized signatory	Yes/No	
2.	Covering Letter with correspondence details	As per given FORM 1: COVERING LETTER WITH CORRESPONDENCE DETAILS in this Appendix.	Yes/No	
3.	Legal Entity	Copy of Certificate of Incorporation; and Copy of GST and PAN	Yes/No	
4.	Annual Sales Turnover	Certificate from the statutory auditor	Yes/No	
5.	Net Worth	or by Company Secretary, along with the Balance Sheets of the last three financial years which are available publicly (Form 4)	Yes/No	
6.	Technical Eligibility Criteria	Order copies should be enclosed along with the completion certificate regarding the satisfactory completion of the work/Project. The date of the certificate should be after the date of the publication of the tender in the CPP Portal.  The same should be Certified by Company Secretary/Statutory Auditor (Form 5)	Yes/No	
7.	Blacklisting	Certificate by authorized signatory (Form 6)	Yes/No	

[Company Name with seal]

<Applicant's Name with seal>

Name: <<Insert Name of Contact>> Title: <<Insert Title of Contact>> Signature: <<Insert Signature>>

**Bid Submission Forms**

**FORM 4**

**Financial Information (as per Audited Balance Sheets)**

	2019-20	2020-21	2021-22
Annual Sales Turnover (in Crores)			
Net worth ( in Crores)			
Other Relevant Information			

The copies of respective balance sheets are enclosed.

\*It is confirmed that I am/we are the statutory auditors / Company Secretary of M/s\_\_\_\_\_

---

**< Statutory Auditor/ Company Secretary's Name with seal>**

**<Signature of Statutory Auditor/ Company Secretary> Name:**

**Date & Place:**

Note: The above certificate should be from the statutory auditor or Company Secretary of the bidder organization.

\* Strike out whichever is not applicable

**FORM 5**  
**Project Citation Format**

Relevant project experience needs to be mentioned (provide no more than three projects)

**Project 1/2/3**

General Information	
Name of the project	
Client for which the project was executed	
Name and contact details of the client	
Confirmation and completion of project delivery	<b>"It is hereby certified that the cited project has been completed successfully"</b>
Project Details	
Description of the project covering the following:- <ul style="list-style-type: none"> <li>• Broad Scope of Work/Services</li> <li>• Outcomes of the project</li> </ul>	<ul style="list-style-type: none"> <li>• <i>You are encouraged to provide as much information as possible to allow evaluation</i></li> </ul> <p><i>Order copies should be enclosed along with the completion certificate regarding the satisfactory completion of the work/Project. The date of the certificate should be after the date of the publication of the tender in the CPP Portal.</i></p>
Other Details	
Total cost of project for which order has been placed on vendor (in INR)	
Start Date of the Project	
Target Completion date of Project	
Date of the competition date of Project	
Project Status (Completed)	
Other Relevant Information	
Letter from the client to indicate the award of work/ successful completion of the project	<i>The date of the letter should be after the date of the publication of the tender</i>

**Note:** If any information provided by the vendor by way of self-certification or otherwise is found to be false, the vendor would be disqualified at any stage.

[Bidder's Name with seal]

<Applicant's Name with seal>  
<seal>

Name: <<Insert Name of Contact>

Title: <<Insert Title of Contact>

Signature: <<Insert Signature>

<Company Secretary's /Statutory Auditor Name with

<Name: <<Insert Name of Contact>>

<Title: <<Insert Title of Contact>>

<Signature: <<Insert Signature>>

**Bid Submission Forms**

**FORM 6**

**Format to indicate non-blacklisting the firm (Self-Declaration)  
(letter head)**

In response to the Eol e-Tender Id\_\_\_dated for "Speed Breeding (Rapid Generation Advancement) Facility for Genome Editing Research" to be established at National Agri-Food Biotechnology Institutes to undertake detailed designing, execution and commissioning along with connected utilities and other infrastructure at NABI complex Mohali

I/We hereby declare that presently our Company/ Firm\_\_is having unblemished record and is not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/ Central Government/ PSU/Autonomous Body.

I/We further declare that presently our Company/ firm\_\_\_\_\_is not blacklisted and not declared ineligible for reasons of corrupt & fraudulent practices by any State/ Central Government/ PSU/ Autonomous Body on the date of Eol Submission.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, our Eol to the extent accepted (if any) may be cancelled.

Bidder's Name with seal]

<Applicant's Name with seal>

Name: <<Insert Name of  
Contact>> Title: <<Insert Title of  
Contact>> Signature: <<Insert  
Signature>>

**FORM 7**

**Proposed DESIGN for the Speed Breeding Platform Facility**

A one or two page write up which may include a block diagram/ concept level drawing to indicate key elements proposed to be utilized towards design, supply, installation, testing and commissioning of Speed Breeding Platform Facility.

## Speed Breeding Platform Facility

Location: NABI Research Field, Sector-81, Mohali-140306, Punjab, India

**Purpose:** Speed breeding of crops and vegetables such as wheat, rice, soybean, pea, tomato, etc. under controlled environment (light, humidity, temperature) supplemented with LED lights to achieve 3 or more generations per year; to increase photosynthesis and biomass; to inhibit or promote flowering; to improve flavour and nutritional quality.

### **NABI will provide the followings:**

- i) Space for construction of speed breeding platform (Soil: Loam)
- ii) Industrial quality water supply and water storage tank
- iii) Power supply run at 220V, 50Hz.

## **Specifications:**

### **I. Speed Breeding Structure Requirements:**

1. Number of speed breeding chambers: 25  
Size of each chamber: 20ft x 24ft x 15 ft (LXWXH)
2. Number of tables in each chamber: 4 [2 table size (3ft x 20ft x 3ft: WXLXH) and 2 table size (4ft x 13ft x 3 ft: WXLXH)]
3. Number of storage rooms: 3 [Size: 20ft x 24ft x 15 ft (LXWXH)]
4. Number of control room: 1 (Size: 10 ft X 10 ft x 10 ft)
5. Number of Cleaning room with 4 sinks: 1 [Size: 20ft x 24ft x 15 ft (LXWXH)]
6. Number of Reception area (Triangle shape): 1 (Size: 20ft x 20ft x 28ft)
7. Number of Sitting room (refreshment area): 1 [Size: 20ft x 24ft x 15 ft (LXWXH)]
8. Number of Laboratory: 1 [Size: 20ft x 24ft x 15 ft (LXWXH)]
9. Number of toilets with sink: 2 [Size of each toilet: 5ft x 10ft x 10 ft ((WXLXH)]
10. Room for setting up electrical panel: 1 (Size: 10ft x 10ft x 10ft)
11. Super PUF panel (4" thick) structure to house the above (1) to (8): Size: 50m x 50m x 6m (Design is attached as Annexure-1) (Structure should be as per approved design in accordance with IS, MS frame structure along with Puff panel should be prefabricated with minimal number of columns inside the faculty) Consider 3-8 above be made with concrete (if the design allows)
12. Ground Floor structure to house the speed breeding facility with RCC/PCC floor with tiles: 51.5m x 51.5m x 1.5m (Height to be floor from NGL is 1.5m or as per site conditions)
13. Walking path around the super-structure: 5ft wide
14. Number of outdoor and indoor CCTV monitor cameras with night vision with 100 meter IR: 10
15. A technical person for 3 years to maintain and run the speed breeding platform with complete functioning of electrical, AC, LED panel, controller, etc.
16. The firm must provide Structure design along with detailed drawings, 3D-design of speed breeding platform including internal arrangement and location of items, rack/stands, and LED panel.

**Bid Submission Forms**



17. List of items should be provided with catalogue numbers, model and make and their brochures, even if they are own products; and propriety item should be mentioned and supply proprietary certificate of items/components. Detailed user manual and technical manual must be provided
18. Five years complete comprehensive warranty
19. Statutory approvals from concerned authorities likewise GMADA, PPCB, Invest Punjab, Fire department, etc., as deemed essential and applicable for the smooth installation and operation of the plant (If essential). Statutory fees from concerned Authority should be paid by the firm.

## **II. Technical Specifications of Speed Breeding Chambers:**

20. Sound level < 60 dB within one meter for each chamber.
21. Each chamber should have independent cooling and heating system (10 to 40 °C), humidifier and de-humidifier system (RH: 20 to 95%), air circulation control, LED panels, rack/stands, LED panel (Size: ~ 6" x 6") to controller and monitor the above.
22. It should also have a separate computer with master software controller to program and monitor all chambers. The control software allows operation remotely from a control center and internal diagnostic system reporting alerts Via e-mail or SMS.
23. Customer defined programmable controller system for temperature, time, humidity, light on inbuilt monitor for individual chambers.
24. Each chamber should have water supply tap to water plants from existing Utility through the Underground storage tanks.
25. Each chamber should have air inlet/outlet through HEPA filters.
26. The following protection system:
  - i. Low or high temperature alarm,
  - ii. Deviation in RH%,
  - iii. Compressor overheating,
  - iv. Low or high voltage,
  - v. Smoke and fire safety system and alarm,
  - vi. Gas type fire extinguisher,
  - vii. High CO<sub>2</sub> and CO safety and alarm,
  - viii. Controllers should have an internal diagnostic system for reporting alerts via E-Mail or SMS.
27. The firm has to provide the output heat (btu/hour) of each chamber.
28. Colour of chamber should be silver white.
29. CO<sub>2</sub> supply should be through four cylinders (placed outside in an enclosure); programmed to maintain from 300 to 1200 ppm as per customer requirement. Uniform CO<sub>2</sub> concentration throughout plant growth cycle. Therefore, four chambers should have a separate clean CO<sub>2</sub> supply (programmable 300 to 1200 ppm) through cylinder.
30. Four changes of fresh air per hour in each chamber or as per requirement
  - i. Optimal air flow speed within each chamber
  - ii. Constant air flow rate within each chamber
  - iii. Uniform and constant cooling and heating rate as per customer requirement
  - iv. Uniform and constant light intensity as per customer requirement
  - v. Uniform humidity as per customer requirement
31. The firm has to demonstrate 4 generations of wheat crop within a year by their technical person.

32. The firm should quote the price per speed breeding chamber. The number of chambers may increase or decrease as per NABI's budget.
33. The materials and parts should have safety standard certificates that have to be submitted with bids.

### **III. Technical Specifications of LED panel:**

34. LED panel with full light spectrum and independently controlled by controller
35. Height adjustable LED panel
36. Programmable LED panel for the followings:
  - i. Multispectral LED panels with independent regulation of color channels
  - ii. PPF range (ceiling): 200 to 1200 micromol/m<sup>2</sup>/sec @ 50 cm from light source
  - iii. PPF range (shelves floor): 200 to 1200 micromol/m<sup>2</sup>/sec at platform floor where pots are kept.
  - iv. Homogeneity:  $\pm 15\%$  over entire cultivation area (8 feet x 4 feet)
  - v. Light regulation: 0 to 100% with 0.1% step and minute resolution
  - vi. Color composition: 7 independently controlled color channels- Cool White, UV, Blue, Cyan, Green, Red, and Far-red
  - vii. Adjustable ratio of blue, green, red, and far-red radiation (B:G:R:FR)
  - viii. Optical specification of LED panel: Beam angle (~90 degree); base reflector and a high transparency, clear front plate; no visible yellowing
  - ix. Lifespan of LEDs: L90 ~50,000 hr
  - x. High photon efficiency
  - xi. LED panel should have self-cooling system (Efficient, passive convection cooling with no noise)
  - xii. IP67 protection of LED panel
  - xiii. Heat value of LED panel: < 2300 BTUs/hr
  - xiv. Maximum power consumption of each LED panel: ~700W at 220V
  - xv. Input voltage: ~220V; Input Frequency: 50Hz

### **IV. Technical Specifications of Software Control System:**

37. A complete work station (MS-Office, latest Windows OS, Monitor size: 28 inch, Laser printer) with a software controller to control the followings of the entire 25 chambers:
  - Data collection in real time, upload for processing during experiment
  - Data visualization on touchscreen display on chamber
  - Minute resolution for parameter definition
  - Remote control data export/import over LAN
  - Data transfer via ethernet
  - Internal diagnostic system with email/GSM alert service and remote support
  - User friendly programming of experimental protocol
  - Graphical representation of environmental conditions (target and actual values)
  - Each parameter (T, RH, CO<sub>2</sub>, PAR) can be defined individually using:
    - o Discrete steps
    - o Ramps with defined target values and duration
    - o Sine fluctuations with defined period and amplitude
    - o Advanced simulations (cloud density and occurrence, dusk and dawn simulation)
    - o Import of csv file with parameter values
  - Possibility to set user thresholds and reporting for precise experimental control

-Constant monitoring of chamber performance with readouts from sensors (i.e. HEPA filter clogging)

**V. Technical specifications of PUF panel; cooling system, humidity system and others for speed breeding chambers:**

<b>S. No.</b>	<b>Particulars</b>	<b>Requirement</b>
<b>A.</b>	<b>PUF panel (branded) structure</b>	
1	Temperature of chamber	Approx. 10 to 50 °C (Independent of Light )
2	Relative humidity	Approx. 40 to 95% at 10 to 40 °C
3	Internal volume of each chamber	7200 cubic feet
4	Internal size of each chamber	Approx. 20' (L) x 25' (W) x 15' (H)
5	Material of chamber wall	High density (40 kg/m <sup>3</sup> ) PUF Insulated panel to control temperature
6	Thickness of PUF panel wall	100 mm thick wall with 0.5 mm PPGi sheet outer wall and 0.5 mm SS (316L) in inner side wall; white color outside or branded structure size
7	Number of door and position in each chamber	One PUF Panel door in front and middle of chamber
8	Door size	Approx. 3 ft x 7 ft with view window
9	Thickness of door	120 mm with 0.5 mm PPGi sheet outer side and 0.5 mm SS (316L) in inner side; white colour outside
10	Door lock	Program Lock to avoid any changes in control parameters by unauthorized people
11	Door unlocking safety	Door lock fitted with internal safety release mechanism against accidental locking from inside or due to fire or smoke
12	Number and size of windows in each chamber	i) Two aluminium supported insulated doubled transparent glass windows with complete accessories and fixing; one each side of door or branded structure (Size: 4ft x 3ft) ii) Three aluminium supported insulated doubled transparent glass windows with complete accessories and fixing; one in each side of three sides of chamber (Non-door side) (Size: 4ft x 10ft)
14	Panel Joints and Joints Sealing	Taflon made Cam lock system for leak proof insulation, Silicon sealant or branded structure
15	Floor	60 mm PUF insulated with Marine ply and Anti-Skid AL Cheered sheet or branded structure
16	Fire resistance	As per guideline
17	Water absorption	0.2% at Max 98% RH

18	Vapour permeability	5.5 ng/pasm as per IS 11239 part
19	Tensile Strength	4.0 Kg/sq.cm.
20	Thermal conductivity	0.02 W/MK
21	Compressive strength	2.1 Kg/sq. cm.
22	Adhesion strength (Foam to Steel)	3.0 Kg/sq.cm
23	Fire safety	As per guideline
24	Wind speed withhold	150 km
25	Password protection system	Yes
<b>B. Cooling system</b>		
Each chamber should be independently controlled for the required temperature by cooling unit		
1.	Chambers to be connected to single cooling circuit with at least 5 chillers/coolers (Total chambers: 25)	5 chambers with one chiller/cooler; one chiller in back-up ensuring operation of chambers in case of 1 Unit malfunction
2	Glycol with external chiller/cooler with the help of AERMEC units mounted externally.	
3	Refrigerant	Glycol
4	Power supply	Approx. 415V/3Phase/50Hz or as per make & model
5	Number of fan	2
6	Power consumption	Approx. 12 KW
7	Cooling capacity	10 to 40 °C
<b>C. Humidity system</b>		
1	Pre-programmed humidity system	Ultrasonic Humidifier (No hot gas steam generator)
2	Humidity	40 to 95% RH without disturbing the inside temperature of the chamber (No Hot Steam or steam generator) – Ultrasonic Humidifier, Dehumidification with adsorption de-humidifier, no condensation unit with refrigerator.
<b>D.</b>	<b>Dehumidifier</b>	Adsorption Dehumidifier (No refrigeration dehumidifier )
<b>E. Heating system</b>		
		Electric heater to be provided in chamber to increase the chamber temperature up to 50°C; uniform temperature throughout chamber
<b>F. Movable Table (structured to hold 300 kg load)</b>		
1.	Number of tables in each chambers (Designed attached as Annexure-2)	i) Two Tables in centre of chamber (Size: 4ft x 13ft) ii) Two Tables attached with Chamber walls (Size: 3ft x 18 ft)
2.	Material of rack	SS304 (water, chemical, and humid resistant)

3.	Load capacity per rack	300 kg
4.	Castor wheel	SS304 (water, chemical, and humid resistant)
5.	Table top	Steel mesh
<b>G.</b>	<b>Ambience Monitoring Sensor</b>	i) A battery powered device and is designed to be wall-mounted within chamber
		ii) Within chamber a compact indoor ambience monitoring sensor including motion, humidity, temperature, light, TVOC, CO2, barometric pressure for wireless LoRa network.
		iii) It is equipped with NFC (Near Field Communication) and can easily be configured via a smartphone or a PC software.
		iv) Sensor data are transmitted in real-time using standard LoRaWAN protocol.
<b>H.</b>	<b>Automatic monitoring and control systems</b>	
	<b>Temperature sensor</b>	Pt 100 sensors with 4-20mA output option IP68 weatherproof Head with class 'A' element Working range: 0 - 100°C Accuracy: $\pm 0.3^{\circ}\text{C}$
	<b>Transmitter</b>	Input: Pt-100, RTD Output: 4-20ma Range: 0 - 100°C, Zero/span user adjustable Accuracy: Better than 1% Housing: Head mounted
	<b>Humidity sensor with transmitter</b>	Power supply 12~36V DC Humidity working range 0..100% RH Humidity sensing element Polymer humidity capacitor Output for humidity 0~5V DC or 0~10V DC or 4~20mA Accuracy of humidity $\pm 2\%$ RH ( 20-95%RH, at 10 to 70 °C);
	<b>Digital lux meter or branded such as Apogee or equivalent (lux or micromole/m2/s or mol/day)</b>	Measurement Range: 0 lux~50000lux Accuracy: $\pm (5\%+3 \text{ digits})$ for all ranges Repeatability: $\pm 2\%$ Operating Temperature: 0°C to 70°C; Sampling Time: one minute Express function: Display: 3 1/2 digits 18mm LCD Over-input: Indication of "1" Dimension & Weight: 116 x 70 x 29 mm Battery Type 9V Battery
	<b>Data scanners</b>	8 channel data logger required for data logging on real time basis. The system should be capable to log data of temp and humidity at different time interval.

		Data store capacity of 5000 reading of all eight channels. Built-in memory saturation, scrolling around & on line printing. Maximum 8 analogue input with any combination. RTD (PT-100), 4 - 20mA, 0 - 10V, Automatic cold junction compensation for thermocouples. Automatic wire length compensation for long wire RTD inputs. Very high accuracy 0.25%, with software linearization. Temperature sensor break, 'open' indication. Under Range 'under' & over range 'OuEr' indication for 4 to 20 mA & 0 - 10VDC linear input. Easy on-line field calibration by user by front keys.
	<b>Electrical devices</b>	High quality ISO or CE approved fittings with copper multi strand twisted FR Grade cable and rigid Stds of safety with proper M.C.B . and standard Vapour proof Lamp with individual operating switch.
	<b>Control and automation system</b>	A suitable control to be provided for control/ monitor of Temperature, humidity, light and data acquisition facilities to be provided on real time basis through PC. Memory back up to be provided for data storage and free up gradation software to be provided. License software and dongle or hardware lock of SCADA to be provided with the system. Graphical view of data presentation option to be provided with the control system.
<b>I.</b>	<b>Electrical panel</b>	Electrical panel, board, cables, MCB or related electrical components must be provided by firm. NABI will not provide any electrical or other related components.
<b>J.</b>	<b>BIS or ISO or CE certified components</b>	Certifications required

## VI. Technical specifications of Super-structure:

**A. Ground Floor: Size:** 51.5m x 51.5m x 1.5m (Height to be floor from NGL is 1.2m or as per site conditions)

### **B. Outer super-structure:**

Structure should be as per approved design in accordance with IS, MS frame structure along with Puff panel with minimum thickness 100mm should be prefabricated with minimal number

of columns inside the faculty

### **C. Doors:**

#### **a. Speed Breeding Chamber's Door: Height: 7ft, Width: 4ft; Thickness: 20mm with glass window of 1ft x 3ft (No. 25)**

- i) 46mm thick composite metal Fire Door of 120 minutes (2 Hrs.) Fire Rating
- ii) DOOR FRAME: Branded Make Double / Single Rebate profile of size 143 MM X 57 MM made out of 16 gauge thick galvanized steel sheets, finally finished with stove zinc chromate (etched "H") primer coating, with anti- corrosive pure polyester thermosetting polyurethane aliphatic grade 120 MICRON paint of approved shade.
- iii) DOOR SHUTTER: 46 mm thick Door leaf shall be manufactured from 2 nos. 18 gauge thick galvanized steel sheets finished with weld less lock seam joints for a dent free, seamless finish with fire rated infill material for 120 min. fire resistant rating confirming to BS: 476 part 22 & IS- 3614 part-II also G.I- Steel sheets with lock seam joints at site edges and internal reinforcement at top, bottom and side edges for fire rating. Finally finished with stove zinc chromate (etched "H") primer coating, with anti- corrosive pure polyester thermosetting polyurethane aliphatic grade 120 MICRON paint of approved color/shade, the door leaf and frame shall have passed minimum 250 hours of salt spray test.
- iv) Corrosive resistance

**b. Main door:** No. 1

**c. Emergency door:** No. 3

**d. Doors for storage rooms, Lab room, Sitting room, Control room:** No. 6

### **VII. Requirement of air-circulation, cooling, lighting within super structure:**

Temperature: 25-27 °C

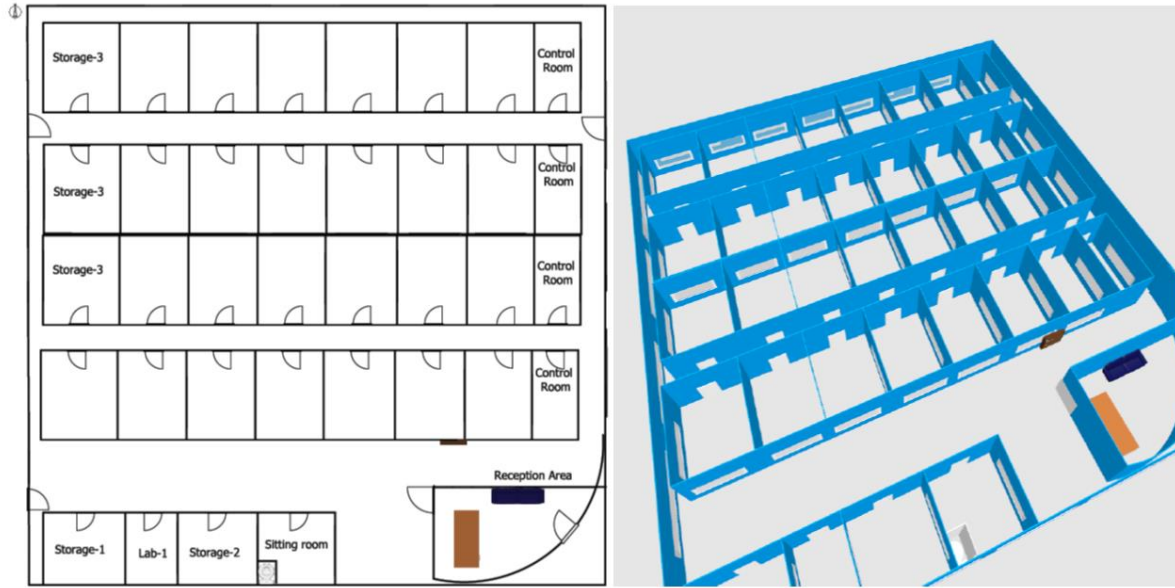
Light: LED lightings

Air circulation: Air circulation suitable for habitat.

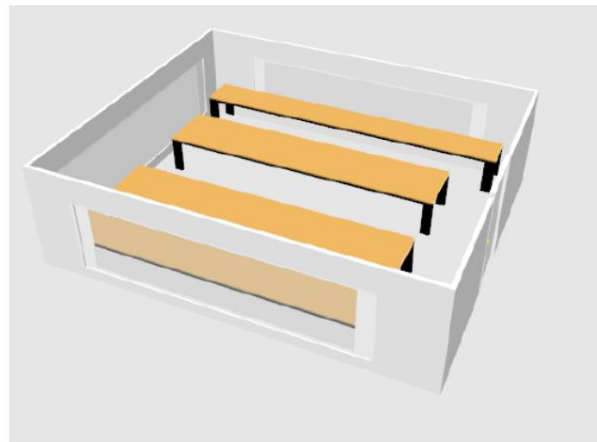
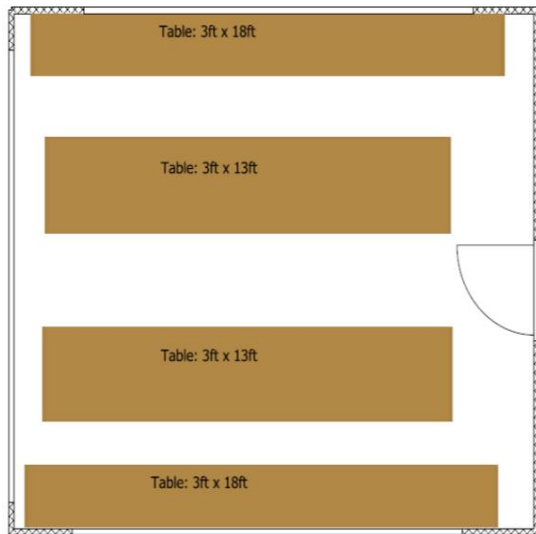
### **VIII. Additional requirements:**

1. Five numbers of SS304 made tray (3-tier) on castor wheel to hold 50 kg load (Size: 3ft length x 2ft width x 3ft height);
2. Five numbers of SS304 tank to hold 300kg soil load (Size: 4ft length x 2.5ft width x 3ft height)
3. One number of aluminium made foldable ladder (height: 20 feet)

## Annexure-1



## Annexure-2





**Example: Reference chamber design (website taken)**



**Display monitor/control**





**Bid Submission Forms**