NEHRU SCIENCE CENTRE

(National Council of Science Museums)

Dr. E. Moses Road

WORLI - MUMBAI

TENDER DOCUMENTS

FOR

INTERIOR, FURNITURE AND ALLIED WORKS

OF

INNOVATION HUB

AT

SCIENCE INNOVATION & ACTIVITY CENTRE,

BARAMATI

NEHRU SCIENCE CENTRE
(National Council of Science Museums, Ministry of Culture, Govt. of India)
DR. E. MOSES ROAD, WORLI, MUMBAI – 400 018
Tel. No.022 24934520, Fax No.022 24926042,
E-Mail: spo@nehrusciencecentre.gov.in

NOTICE INVITING E-TENDER

TENDER NO.NSCM/18012/207/2021

Online digitally signed e-tenders (limited) are invited for Interior, Furniture and allied works of Innovation Hub at SIAC Baramati, strictly as per the drawings and specifications uploaded. Vendors who have necessary infrastructure and financial capability of executing the order at a time may download the Tender Papers from Central Public Procurement Portal (CPPP): http://eprocure.gov.in/eprocure/app or from the website www.nehrusciencecentre.gov.in of NSCM as per the following schedule :-

Bid document publishing Date	13.09.2021, 14.00 hrs
Bid document download start date	13.09.2021, 14.30 hrs
Bid document download end date	04.10.2021, 15.00 hrs
Bid submission start date	13.09.2021, 15.30 hrs
Bid submission end date	04.10.2021, 16.00 hrs
Period of completion of work	60 Days
Technical (Techno-Commercial) Bid opening date	05.10.2021, 16.30 hrs

The online bid both Technical (Techno-Commercial) Bid and Financial Bid duly furnished in Cover-I and Cover-II respectively should be uploaded by the due date and time as per the above schedule. The responsibility to ensure this lies with the Bidder. Off-line tender shall not be accepted and no request in this regard will be entertained whatsoever. Online Technical (Techno-Commercial) Bid will be opened at the first instance in this office at 16.30 hrs. on 05.10.2021 for technical evaluation as well as selection of techno-commercially acceptable offers and at the second stage, the financial bids of only the technically qualified agencies will be opened which would be notified in the portal

later. Decision of NSCM regarding selection of eligible and qualified vendors / firms for opening the Financial Bids shall be final and binding on the Bidders. Bidders may be present during opening of tenders, if required.

Nehru Science Centre Mumbai reserves the right to accept or reject any or all tenders in full or part without assigning any reason whatsoever. NSCM, shall also not be bound to accept merely the lowest tender but the technical & financial capability and proven infrastructure to execute the work within the schedule time frame etc., shall be of prime consideration for selection of the vendor.

NEHRU SCIENCE CENTRE
(National Council of Science Museums),
Ministry of Culture, Govt. of India
DR. E. MOSES ROAD, WORLI,
MUMBAI – 400 018

GENERAL INFORMATION AND INSTRUCTIONS

1. The instructions and specifications given herein will be strictly binding on the tenderers and deviation, if any, makes tender or tenders liable to be considered invalid. Tenders incorporating additional conditions by the tenderer are liable for rejection.

2. Bids shall be submitted online at CPPP website : http://eprocure.gov.in/eprocure.app Manual bids shall not be accepted.

3. The instruction given in **"Annexure-A"** for **"Instruction for Online Bid Submission"** should be strictly followed during submission of the Bid.

4. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

5. EMD for this tender is NIL. However, in lieu of Bid Security, the bidder has to sign "Bid Security Declaration" on their letterhead accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for THREE year in participating in any such tender in NCSM and its units. Kindly refer Annuxure- H.

6. Validity of Bids: The Bids should remain valid for 180 days from the date of opening.

7. Rejection of Bids: Canvassing by the Bidder in any form, unsolicited letter and post-tender correction may invoke summary rejection. Conditional tenders will be rejected. Non-compliance of applicable General Information and Instruction will disqualify the Bid.

8. The tenderers should have Digital Signature Certificate (DSC) for filling up the Bids. The person signing the tender documents should be authorized for submitting the on line e-tender.

9. The financial Bid (BOQ) shall be filled in and signed by the authorized signatory online as per Proforma **"Annexure-G"** available at Central Public Procurement Portal e-tender system website

http://eprocure.gov.in/eprocure/app. Offline Financial Bid shall not be accepted.

10. **Tender must be uploaded online by the bidder in two separate covers marked Cover-I and Cover-II. The contents of Cover - I and Cover-II will be as follows:**

Cover-1 (Technical)

i) Technical (Techno-commercial) Bid as per **"Annexure - D"** format duly filled in and signed by the authorized signatory with official stamp.

ii) Scanned Copy of the current and valid Trade License attested with official stamp.

iii) Scanned Copy of the current and valid GST Certificate duly self attested with official stamp.

iv) The **'DECLARATION'** of the bidder (as detailed in **Annexure-C**) duly signed by the authorized signatory with official stamp.

v) The **'Drawings & Technical Specification'** as detailed in **Annexure-E & Summary Sheet as per Annexure-F** duly signed with official stamp as a token of acceptance for execution of the tendered job in accordance to the Drawings & Specification of NSCM.

vi) Scanned Copy of **General Terms & Conditions** as detailed in **Annexure-B** duly signed with official stamp as a token of acceptance of the Terms & Conditions.

vii) The scanned copy of the "Bid Security Declaration" as detailed in Annexure- H duly signed with official stamp.

viii) Scanned copies of detailed work order in support of similar works executed with central / state government departments, PSUs, Autonomous Bodies, Reputed Private Sector (BSE/NSE Listed) during the last 5 years.

ix) Scanned copy of detailed work orders in support of similar ongoing works undertaken by the Agencies.

The hard copies of all the above documents must be submitted to this Centre before due date i.e. 15.00 Hrs. on 04.10.2021.
In case the bidder fails to submit any of the documents as stated above, the other part of their tender i.e. 'Cover- II'

shall not be considered for further download and shall be rejected straightway without any further reference. The Technical Bids and other documents i.e. 'Cover- I' will be downloaded and evaluated at the first stage to select the techno-commercially capable and competent bidders. At the second stage, Financial/Price Bids i.e. 'Cover - II' of only the techno-commercially acceptable offers will be downloaded and evaluated for further ranking before awarding the contract. After opening of 'Cover –I', if all the bids are found techno-commercially unacceptable, the Financial (Price Bid) Bids i.e. 'Cover - II' submitted by the bidders against this Tender shall not be opened/downloaded for obvious reasons.

Cover-2 (Financial)

The Financial Bid **(as per given .xls format)** i.e. Rate Quote Sheet in the form of attached BOQ Proforma duly filled in and digitally signed.

11. The authorities of Nehru Science Centre who does not bind themselves to accept the lowest tender, reserves the right to reject or accept any or all tenders wholly or partially without assigning any reason whatsoever.

ANNEXURE – A

NEHRU SCIENCE CENTRE
(National Council of Science Museums,
Ministry of Culture, Govt. of India)
DR. E. MOSES ROAD, WORLI,
MUMBAI – 400 018

TENDER No: NSCM/18012/207/2021

Instructions for Online Bid Submission

1. 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.

2. 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 Enrollment" 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 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.

PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2) 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.
3) 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.
4) 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, annual reports, auditor certificates 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 again and again. This will lead to a reduction in the time required for bid submission process..

SUBMISSION OF BIDS

1) 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) A standard Price Schedule format (BOQ) has been provided with the tender document to be filled by all the bidders. 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 in .xls format, open it and quote the percentage (excess or less) with reference to the reference price as per BoQ sheet attached which highlighted in (unprotected) cells with their respective financial quotes against the items given and fill 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.

4) 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.

5) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the date. The data entered cannot be viewed by unauthorized persons 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 uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/ bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

6) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

7) 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.

8) 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 enquiries 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.
2. 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 233 7315.
3. All communication related to tender including the submission of Proposal should be addressed to:

   Dy. Controller of Stores & Purchase,
   Nehru Science Centre,
   (National Council of Science Museums)
   Dr. E. Moses Road, Worli,
   Mumbai 400 018
   Email id: spo@nehrusciencecentre.gov.in

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ANNEXURE – B

NEHRU SCIENCE CENTRE
(National Council of Science Museums,
Ministry of Culture, Govt. of India)
DR. E. MOSES ROAD, WORLI,
MUMBAI – 400 018

TENDER No: NSCM/18012/207/2021

GENERAL TERMS AND CONDITIONS FOR INTERIOR, FURNITURE AND ALLIED WORKS OF INNOVATION HUB AT SIAC, BARAMATI.

1. Price:
   The price and rates quoted/indicated in the enclosed 'BOQ (Offer Form)' shall include cost of all materials, labour for fabrication, machining, assembly, testing, painting, polishing, finishing, scaffolding, erection, installation, labour supervision, transportation etc. and all working accessories, tools and tackles, reliable standard testing equipment etc. and all incidental charges to fabricate, deliver, erect and install the structures including Wooden & Metallic Structures, False Ceiling,Electrical Works and other allied works mentioned in the tender document for Innovation Hub at SIAC, Baramati. Price and rate quoted shall be firm and fixed for the entire period of execution of the work order and no escalation of rate on any ground whatsoever shall be applicable.

2. The successful tenderer shall submit the following documents within 7 (seven) days from the date of placement of the work order.

   i) Duplicate copy of the work order duly signed and stamped as a token of acceptance of the order.

   ii) Security Deposit as detailed in Clause no. 5.

3. Time of completion:

   Time is the essence of the tender. The entire work viz. fabrication, erection, and installation of Interior fabrication works including furniture, civil, false ceiling, painting, tables, seating, electrical and other allied works shall be completed at site within **60 (sixty)** days from the date of placement of order.

   For non-compliance of any of the above terms and non-delivery of the tendered items complete in all respect within the above-stipulated period, NSCM shall either cancel the order or impose penalty as detailed in clause 4. Decision of the museum/centre authority in this regard shall be final and binding on the successful Tenderers.

4. Penalty Clause:

   The successful tenderer shall strictly observe the time allowed for carrying out the works as detailed in Clause No.3 The work shall, throughout the stipulated period of the contract, be proceeded with all the diligence (time being deemed to be the essence of the contract). If the successful tenderer fails to complete the work in the stipulated time, the successful tenderers shall pay to NSC, Mumbai an amount corresponding to 2% of the Total Contract Value or Actual Value of Work done, whichever is greater, for every week that the work may remain incomplete as per delivery schedule/completion time as stipulated in Clause no.3 subject to a maximum compensation of 10% of the Total Contract Value or Actual Value of Work done, whichever is greater, and after such period, appropriate action will be taken by NSC, Mumbai as it may deem fit. NSC, Mumbai may extend the completion time/time of delivery of the tendered job at their discretion on the application of the successful tenderer for such purpose provided that NSC, Mumbai considers the reasons for such extension as good, sufficient and acceptable. Decision of NSC, Mumbai in this regard shall be final and binding on the successful Tenderers.

5. Security Deposit (SD):

   Total Security deposit shall be 3% of the total value of the order and shall be paid in the form of Demand Draft / Banker's Cheque/Pay order by the successful tenderer to NSCM. If the successful tenderer fails to deposit the same at a time before taking up the job, deduction @ 03% shall be made from every bill duly supported by receipted challan & satisfactory inspection / work completion certificate from competent authority of NSCM and the said amount shall be retained by NSCM as Security Deposit. The Security Deposit shall be released after expiry of the Defect Liability Period (Defect Liability Period shall be 12 (twelve) months from the date of final completion of work). In case the total value of the order exceeds the assessed value of the work order, Security Deposit for the excess amount will also be deducted in the similar manner. No interest shall be paid on the security deposit retained with NSCM.

6. Inspection:

   The successful tenderer shall arrange for inspection of the job by the competent authorities of NSCM at every stage of work as per following detail.

   Inspection may also be made at any point of time during the process of fabrication and installation work, if felt by the competent authority of NSCM. Any defect pointed out during such inspections

has to be promptly rectified to ensure desired quality of work. It would be mandatory on the part of the successful tenderer to arrange inspection and obtain approval at every stage of the work as detailed above, failing which action shall be taken as will deem fit by the museum/centre. The decision of museum/centre authority in this regard shall be final and binding on the successful tenderer.

7. Terms of payment

   No advance shall be made to the contractor by the museum/centre. However interim payment will be considered depending upon the supply, fabrication and overall progress of the work and based on discretion of the competent authority. The final payment shall be released after satisfactory completion of the entire job and within **30 (thirty) days** from the date of receipt of Invoice/Bill duly supported by receipted challan and satisfactory inspection/work completion certificate issued by the competent authority of museum/centre.

8. Defect Liability Period:

   The defect liability period shall be **12 (twelve) months** from the date of final completion of work and acceptance by the authorities of the museum/centre. The successful tenderer shall be responsible for all defects of the work executed including all allied job, defective workmanship, etc. for a period of 12 (twelve) months from the date of final completion of work. The successful tenderer shall rectify the defects/defective parts within the specified time up to the complete satisfaction of the competent authority of museum/centre or otherwise museum/centre shall have the right to rectify the defect at the successful tenderer's own risk but in that case, the requisite cost will be adjusted from the Security Deposit of the contractor retained with the museum/centre. Decision of the museum/centre authority in this regard shall be final and binding on the successful tenderer.

9. In case, the successful tenderer refuses to accept the offer after finalization or does not comply with the Clause No.2 within 10 (ten) days from the date of placement of the order as per the finalized and accepted terms & conditions, the order shall be cancelled forthwith. Bidder shall be disqualified from bidding for any contract under NCSM for a period of 3 years form the date of notification of the tender.

10. Every effort should be made to complete the work by the successful tenderer within the specified time schedule. In case the firm fails to comply with Clause No.3 i.e., the specified time schedule as per the finalized and accepted terms and conditions, museum/centre

shall have the right to either impose Penalty Clause or cancel the order. The decision of museum/centre in this regard shall be final and binding on the successful tenderer.

11. Bad workmanship will not be accepted and if carried out is liable to be rejected and should be rectified by the successful tenderer at his cost as per specifications and directions given by the authorized representatives of NSCM. The decision of museum/centre authority as to items of bad workmanship and proper replacement/rectification will be final and binding on the successful Tenderers.

12. Drawings and Technical Specifications of the tendered job are enclosed for guidance. However, if any ambiguity in the specification is detected, it shall be promptly brought to the notice of museum/centre authorized representative for clarifications. The successful tenderer without written approval/permission of the museum/centre shall make no deviation from the approved Drawings / Technical Specifications.

13. The authority of museum/Centre shall not be liable for injury of any employee who is deployed by the successful tenderer within/outside the work-site during the time of execution of the work order.

14. "Museum/Centre" shall mean **M/s. Nehru Science Centre, Mumbai (NSCM)** under the National Council of Science Museums which shall include the persons for the time being in management of the Society and its assigns.

15. The successful tenderer has to arrange for drinking water and electricity (extension boards) required at work place on their own cost and risk. The museum/Centre may provide necessary assistance in obtaining the same and relevant deductions towards electricity will be made from the Final Bill as per actual consumption.

16. The successful tenderer shall submit necessary trade and other licenses as may be required to Carry out the tendered job and shall also be responsible for compliance of all rules and regulations, which may be in force from time to time by the appropriate authority at his/her own cost.

17. The successful tenderer shall not under any circumstances whatsoever transfer wholly or Partially the contract/agreement/work order to any other person(s)/firm/company or assign the agreement or benefits of this agreement to any other party for any reason whatsoever. Otherwise this agreement will automatically stand cancelled.

18. The successful tenderer shall furnish a copy of the license that they obtained from the competent authority for carrying out the contract work. The Contractor shall also be required to obtain license etc., from the competent authority under the Contract Labour (Regulation & Abolition) Act for deployment of contract labour for the work, if necessary, and a copy of the same should be sent to NSCM. In case the Contractor feels that such a license is not necessary, the Contractor shall, before taking up the work, intimate to this office the reasons therefor quoting relevant provisions of the Act under which they are exempted.

19. The successful tenderer shall be liable to pay minimum wages etc., as prescribed by the Competent authority for the personnel to be deployed by them for the work, and shall keep proper records of all such payments so that the same can be produced for inspection any time on demand by any officer duly authorized by the NSCM. If at any time it is found that minimum wages are not paid to the workers deployed by the Contractor, they will be directed by NSCM to pay the lawful wages and such directions shall be binding on the contractor. In the event of failure on the part of the contractor to comply with such direction, the contract may be terminated/cancelled without any compensation. Alternatively, NSCM may pay to the laborers the difference and deduct the same with penalty from the contractor's bill.

20. The Contractor shall obtain necessary trade and other licenses as may be required to carry out the tendered job at site Science Innovation & Activity Centre, Baramati, Pune and shall also be responsible for compliance of all rules and regulations, which may be in force from time to time by the appropriate authority and shall keep NSCM indemnified from all his/their acts/or omissions.

21. The museum/centre authority, reserves the right to amend, alter or modify the terms & conditions mentioned above, if necessary, from time to time.

22. All the debris arising out of the work shall be removed by the successful tenderer on daily basis and shall arrange to clean the working area properly.

23. The raw materials supplied by the successful tenderer shall conform to the drawing and specification given by NSCM. Sub-standard quality of materials as well as workmanship will not be accepted. The sample must be got approved well in advance from the competent authority of museum/centre.

24. EMD for this tender is NIL. However, in lieu of Bid Security, the bidder has to sign "Bid Security Declaration" on their letterhead

accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for THREE year in participating in any such tender in NCSM and its units.

25. Income Tax and Work Contract Tax shall be deducted at source, if applicable, from each bill/claim of the firm as per prevailing Government rules.

26. All disputes and differences between the successful tenderer and the museum/centre of any kind, except quality of workmanship and materials, whatever arising out of or in connection with the order on the carrying out of the work (whether during the progress of the work or after their completion and either before or after the determination, abandonment or breach of the terms and conditions of the order) shall be referred to the sole arbitration of a person nominated by the Director General, National Council of Science Museums, whose decision in this regard will be final and binding on both the successful Tenderers and the museum/centre. The provisions of the Arbitration and Reconciliation Act 1996 or any statutory modification or reenactment thereof and of the rules made thereunder for the time being in force shall apply to arbitration's proceedings under this Clause.

ANNEXURE-C

NEHRU SCIENCE CENTRE
(National Council of Science Museums,
Ministry of Culture, Govt. of India)
DR. E. MOSES ROAD, WORLI,
MUMBAI – 400 018

TENDER No: NSCM/18012/207/2021

DECLARATION

We do hereby accept the "General Terms & Conditions" as provided by the Nehru Science Centre, Mumbai along with the Tender documents for Interior, furniture and allied works of Innovation Hub at SIAC, Baramati strictly as per the drawings and specifications uploaded and also undertake to deliver the said materials strictly as per the drawings & technical specifications provide by Nehru Science Centre, Mumbai along with the tender documents, in the event of placement of any order on us. Nehru Science Centre, Mumbai shall be at liberty to cancel the order in full or in part and forfeit the Earnest Money Deposit in the event of failure of any of the above declaration made by us.

Signature of the Bidder / Constituted Attorney.

Address :

Official seal with date

ANNEXURE-D

NEHRU SCIENCE CENTRE
(National Council of Science Museums,
Ministry of Culture, Govt. of India)
DR. E. MOSES ROAD, WORLI,
MUMBAI – 400 018.

TENDER No: NSCM/18012/207/2021

TECHNICAL (Techno-Commercial) BID

Notes: **ALL PARTICULARS / INFORMATIONS SHOULD BE GIVEN IN THE FOLLOWING FORMAT WITH COMPLETE DETAILS.**

01. Name & Address of the Firm/Bidder :

02. i) Telephone and Telefax Number :

a) Office :

Workshop at Mumbai, Maharashtra. :

b) E-mail ID :

03. Background details of the firm :

04. Man Power set up of the firm and qualification of professionals. :

05. Past experience in such business for last 3 years giving details of established clients especially Government offices. Submit satisfactory certificate issued by such clients and Government offices. :

06. i) Whether capable to execute the Interior works strictly as per enclosed drawing and technical specification. (Please mention 'YES' or 'NO') :

ii) If it is mentioned 'NO' above, submit detailed deviation to be made from the enclosed drawing and technical specification. :

(Extra sheet may be attached, if required).

iii. If it is mentioned 'YES' above submit detailed Bar Chart showing various stages of work for completion of the job. :

Contd…….Page/2

iv) State whether the Interior Structure fabrication to be offered by the firm shall either come with or in compliance with all the features as detailed in enclosed Specification. (State YES or NO) :

07. Submit the documentary evidence regarding execution of latest contract of similar nature and magnitude of minimum single order value of Rs. 25 Lakhs or above. :

08. Proof of financial status of the company/ audited Balance Sheet for last 3 years indicating total turnover as well. (Submit documentary evidence). :

09. Minimum time required to fabrication, supply & install the tendered item at SIAC,Baramati. :

10. Mention Sales Tax /VAT Registration Number and attach current valid S.T/VAT Clearance Certificate. :

11. Whether agreed to execute the interior, furniture and allied works as per the tendered Term and as per enclosed drawing & specification positively by Sixty days and failing which ready to absorb heavy penalty, if any order is placed on the bidder after observing tender procedure. (Please mention 'YES' or 'NO').

I/We hereby declare that the above statements are true. I/We also declare that the decision of Nehru Science Centre, Mumbai regarding selection of eligible firms for opening of Financial Bid (Part-II) shall be final and binding on me/us.

Dated

Official Seal
Signature_of the

Tenderer/Constituted Attorney

(To be submitted/uploaded on Agency's Letterhead in the Portal as well as hard copy to the TIA)

Ref: Date :

DECLARATION

We, M/s. ……, hereby solemnly declare as follows, in respect of the ref tender no. NSCM/18012/207/2021 :-

a) That, we have downloaded all the documents from CPP e-Procurement Portal of NIC and all the uploaded information / statements are true to the best of our knowledge.
b) That, our firm is not involved in any **Litigation or Arbitration** with any of the NCSM units / other govt. institutions, during the last 05 (five) years.
c) That, our firm is not having any unsatisfactory remarks/comments due to poor workmanship or use of substandard material etc. for similar nature of works executed at any of the NCSM units / other govt. Institutions.

We hereby agree with the decision of NSCM authority to disqualify us if we are found to have defaulted on any of the above points.

The decision of the museum/centre authority would be final, binding & acceptable to our firm.

Yours faithfully,

Signature of the Agency

with Seal

PROFORMA FOR AGREEMENT

ARTICLES OF AGREEMENT made at ……. this …….. day of ……. 20…. between Nehru Science Centre, Dr. E. Moses Road, Worli, Mumbai - 400 018 (under the National Council of Science Museums, a Society registered under the Societies Registration Act of West Bengal 1961), hereinafter referred to as the Centre which expression shall include its successors and assigns on the one part and M/s……
……..hereinafter referred to as the Agency which expression shall include his / their respective heirs, executors and administrators on the other part.

WHEREAS the Centre is desirous of getting the work of ***Interior, Furniture and Allied works of Innovation Hub Science Innovation & Activity Centre, Baramati*** done and accordingly invited sealed tenders for the purpose.

AND WHEREAS the Agency has submitted duly completed tenders accepting all the Terms & Conditions stipulated in NIT as per annexure 'A'.

NOW IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

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1. In consideration of the payment to be made by the Centre and subject to the terms and conditions contained in subject NIT and enclosed at Annexure 'A', the Agency shall execute and complete the work within ***60 days*** from the date of issue of the work order as per the specifications furnished to them.

2. No advance payment shall be made by this Centre under any circumstances. However, interim payment may be considered depending upon the supply and progress of the work at the discretion of the competent authority of the Centre. Final payment

shall be released within ***30 days*** of satisfactory completion of the entire work in all respects.

3. The successful tenderer shall strictly observe the time allowed for carrying out the works as detailed in Clause No.1 The work shall, throughout the stipulated period of the contract, be proceeded with all the diligence (time being deemed to be the essence of the contract). If the successful tenderer fails to complete the work in the stipulated time, the successful tenderers shall pay to NSC, Mumbai an amount corresponding to 2% of the Total Contract Value or Actual Value of Work done, whichever is greater, for every week that the work may remain incomplete as per delivery schedule/completion time as stipulated in Clause no.1 subject to a maximum compensation of 10% of the Total Contract Value or Actual Value of Work done, whichever is greater and after such period, appropriate action will be taken by NSC, Mumbai as it may deem fit. NSC, Mumbai may extend the completion time/time of delivery of the tendered job at their discretion on the application of the successful tenderer for such purpose provided that NSC, Mumbai considers the reasons for such extension as good, sufficient and acceptable. Decision of NSC, Mumbai in this regard shall be final and binding on the successful Tenderers.

4. The tender (including appendix), conditions of contract, specifications shall form the basis of this agreement and the decision of the Centre in reference to all matters or dispute as to material and workmanship shall be final and binding on the Agency.

5. The Centre reserves to itself the right of altering the contents and specification and of adding to or omitting any item of work or of having portions of the same carried out departmentally or otherwise and such alterations or variations shall not vitiate this agreement.

6. The agreement comprises the work above and all subsidiary work connected therewith, even though such work is not described in the said specifications.

7. All disputes and differences, if any, except quality of workmanship and materials used in work, whatever arising out of or in connection with the contract on the carrying out of works (whether during the progress of the work or after their completion and whether before or

after the determination, abandonment or breach of the contract) shall be referred to arbitration as per clause 26 of the said conditions of contract.

The provision of the Arbitration and Conciliation Act 1996 or any statutory modification or re-enactment thereof and of the rules made there under for the time being in force shall apply to arbitration proceedings under this clause.

In witness whereof the parties have set their respective hands the day and the year hereinabove written:

Signed by ……. for & on behalf of the Centre.

(with official seal)

In presence of (1) ……..

(2) ……..

Signed by ……. for & on behalf of the Agency.

(with official seal)

In presence of (1) ……..

(2) ……..

ANNEXURE – 'H'

Tender No. NSCM/18012/207/2021

Interior, Furniture and Allied works of Innovation Hub Science Innovation & Activity Centre, Baramati

Bid Security (Earnest Money Deposit) Declaration

(Format for Certificate /Declaration to be typed on the letter head of the bidder with rubber seal and to be submitted in Part –I (TECHNICAL ENVELOPE) of the e-tender document)

To
The Director
Nehru Science Centre
Dr.E.Moses Road, Worli
Mumbai 400 018

I/We, The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of three years from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or

b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity

(i) fail or refuse to execute the contract, if required, or

(ii) fail or refuse to furnish the Performance Security, in accordance with the e-NIT terms.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Date: **(Signature of the tenderer)**
With agency's seal/rubber stamp

Place:

Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.

ANNEXURE 'E'

NEHRU SCIENCE CENTRE

(National Council of Science Museums)
Dr. E. Moses Road
WORLI - MUMBAI

TECHNICAL SPECIFICATION

INTERIOR FURNITURE AND ALLIED WORKS

of

INNOVATION HUB

SCIENCE INNOVATION & ACTIVITY CENTRE,

BARAMATI, DIST. PUNE

(Tender ID: NSCM/18012/207/2021)

GENERAL GUIDELINES

A) FURNITURE AND ALLIED WORKS

1. GENERAL

These specifications are for work to be done, item to be supplied and materials to be used in the works as shown and defined on the drawings and described herein, to the satisfaction of the Nehru Science Centre, Mumbai (Client).

1.1. The workmanship is to be the best possible and of a high standard. The contractor shall take all steps immediately to make up deficiency if any noticed by the Client. Use must be made of special tradesmen in all aspects of the work and allowance must be made in the rates for the same.

1.2. The materials to be provided by the contractor shall be in accordance with the samples already got approved from the Client by the contractor and in conformity with specification and approved list of manufacturers and brand. The contractor shall produce all invoices, vouchers or receipts for any materials if called upon to do so by the Client/Architect.

1.3. Samples of all materials are to be submitted to the Client for their approval before the contractor orders or deliver the material to the site. Samples together with their packing are to be provided free of charge by the contractor and should any materials be rejected they will be removed from the site at the contractors expense. All samples will be retained by the Clients for comparison with materials, which will be delivered at site. Also the contractor will be required to submit specimen finishes of colors, fabrics etc. for the approval of the Client before proceeding with the works.

1.4. The contractor shall be responsible for providing and maintaining temporary coverage's required for the protection of finished work. He is also to clean out all wood shavings, cut ends other waste from all parts of the works before covering or in fillings are constructed.

1.5. Wherever felt necessary the Client may instruct, to get the specific tests done from approved government laboratory for materials brought / used / intended to be used at site. The contractor shall carry out all such tests at his own cost.

2.0 JOINERY IN WOODWORK

2.1. The contract surfaces between internal frame and skinning shall be glued with approved adhesive in addition to fixing with necessary screws etc.

2.2. After preparing proper surface of skinning by sandpapering etc., the laminates or veneers shall be fixed on it with the help of approved adhesive.

2.3. Framework for full height partitions shall be rigidly fixed to the floor, walls and ceiling soffit.

2.4 Any portions that are wrapped of found with defects are to be replaced. The whole of the work is to be framed and finished in a workman-like manner in accordance with the detailed drawings and the direction of **CLIENT** and whenever required, fitted with all necessary metal ties, straps, screws, adhesives etc. Joinery work generally to be finished with fine sand/glass paper.

2.5. All joints shall be standard mortise and tenon, dowel or cross-halved. Screws, nails etc. will be of standard iron or wire. Tenons should fit the mortises exactly.

2.6. Nailed or glued butt joints will not be permitted.

2.7. Wherever screw heads are on a finished surface those will be sunk and the hole plugged with a wood plug of the same wood and grain to match the color.

3.0 TIMBER

3.1. All the Sal wood, CP Teak, BTC to be used shall be properly seasoned, of natural growth and shall be free from worm holes, loose or dead knots, decay, warps, cracks and any other defects which may effect the looks & harm the strength of the member, sawn square and shall not suffer from warping splitting or other defects installations checked & selected by the Client.

3.2. The moisture content shall not exceed 12%.

Tolerance on moisture contents

Use	**Maximum permissible Moisture Content of Timber**
Beams, Rafters, posts	12%
Doors and Windows	
50mm and above	10%
Flooring strips	8%
Furniture & Cabinet work	8%

3.3.All internal framework shall be treated with approved wood preservative

3.4 All wood brought to site be clean, it shall not have any preservative or other coating/covering.

3.5 All rejected, decayed, bad quality wood shall be immediately removed from site.

3.6 All exposed T.W is to receive melamine polish and should be of 1st quality BTC.

4.0. PLYWOOD

4.1. Commercial / Marine plywood should be manufactured in strict adherence to Indian standards and also to defence/Navy specifications from veneers of selected and seasoned hardwood timber and bonded with phenol formaldehyde synthetic resin adhesive, B.W.R. grade chemically treated with preservative and termite resistant.

4.2. Plywood shall have **antitermite** treatment using 1% chloropiriphos in kerosene adequately sprayed as directed prior to carrying out finishing work, with no tears in Top ply.

4.3. *Moisture content:* Moisture content of the plywood boards shall not be less than 5 per cent and not more than 15 per cent.

5.0. HARDWARE AND METALS

5.1. All the screws/bolts with nuts to be used shall have oxidised finish (unless required otherwise) of approved shape, size and quality.

5.2. Samples of all hardware are required to be got approved in advance from Client.

5.3. The agency should cover-up and protect the brass surface by a thick grease or other suitable material veneer as necessary and subsequently clean it away at the same time of handing over.

5.4. All hardware shall be fitted with good workmanship without the surrounding edges being damaged.

6.0. LAMINATE

6.1. All laminates shall be 1.5mm / 1.0mm thk and of the brand, catalogue finish, Colour as specified and approved by the Client. All laminates shall be in zero reflection finished unless mentioned otherwise. Laminates shall confirm to Indian Standards or latest.
6.2. The decorative laminate should be Abrasion, wear, Chemical, Solvent, Stain, Scratch, Heat, Moistures and Boiling water resistant.

7.0. GLASS & MIRROR

7.1. GLASS
All glass is to be of approved manufacture, complying with I.S. 3548-1960, or as per approved quality and sample, to be of the qualities specified and free from bubbles, air holes, waviness and other defects.
7.2. The glass shall have uniform refractive index with precise surface flatness that should exhibit superior visual qualities.
7.3. In cutting glass, proper allowance shall be made for expansion and irrespective of its use all edges of glass exposed to view / touch shall be machine cut and polished.
7.4. Wherever the term etching is used it shall mean creating geometrical / free form patterns on glass with chemical complete to the satisfaction of the Client.
7.5. For each type of etching pattern sample pieces shall be produced till complete satisfaction of the Client.

7.6. Acid washed glass shall mean cleaning the chemically etched / frosted glass with acid after the procedure of frosting / etching are over to render it free from all sort of stains and make it stain proof. On completion, all glass surfaces shall be cleaned inside and out, all cracked, scratched glass/mirror shall be replaced.
7.7. Sun control film shall be non-reflective type, of approved make and shade. The fixing shall be without any defects such as air bubbles/creases/adhesive marks etc.
7.8. MIRROR
Glass for mirror shall have silvering quality (S.Q.) conforming to I.S. 3458-1958 or as approved sample and quality

8.0. GYPSUM BOARD
8.1. BOARD: The board shall be glass fiber reinforced gypsum plaster board having core mixed with glass fiber and other additives encased in and firmly bonded to strong paper liners with either tapered or square edges.
8.2. The handling, storage, cutting, sawing, making holes / cutouts, planing, bending shall be done as per manufacturer's specifications.
8.3. FRAMEWORK: M/F suspended ceiling shall include G.I " L" perimeter channels – 20 X30mm along the perimeter of ceiling, screw fixed to wall / partition at 610mm centers. Then G.I

intermediate channels shall be suspended from the soffit at 1220mm centers with ceiling angle fixed to soffit with G.I cleat and steel expansion fastners. Ceiling section of 51.5mm and two flanges shall be fixed to the intermediate channel with the help of connecting clip and in perpendicular direction to the intermediate channel at 457mm centres.
8.4. 12.5mm thk Gypboard (conforming to IS: 2095 –1982) shall then be screw fixed to ceiling section at 230mm centres.

8.5. JOINTS & FINISHING: Boards shall be jointed and finished to give a flush look which includes filling the tapered and square edges of the board with jointing compound, Joint paper tape as recommended by India Gysum.
8.6. For lighting fittings, grills, diffusers & cutouts etc. have to be made with the frame of perimeter channels suitably supported.

B) CIVIL WORKS:

1.0. CEMENT

The cement used throughout the work shall be of an approved make and shall comply in every respect with the conditions, analysis and tests laid down in the latest I.S.I. Specification for cement. Quick setting cement should not be used without the special permission of the client. No cement that has been kept stored for too long a period to deteriorate in quality or that has become caked or perished by dampness or otherwise shall, under any circumstances, be used on the works and shall be removed form the works.

2.0. SAND

The sand used shall be river or put sand, free from any clay, loam earth or vegetable matter and shall be clean and fit for use in the opinion of the Client or his representative. Sand containing more than 2% by dry weight, more than 3.5% by dry volume and more than 5% by wet volume, clay, loam earth or silt shall normally be rejected.
The sand used for concrete shall be of sharp angular grit type and well graded. Fine sand will under no circumstances be used for concrete or mortar.
The sand shall not contain any trace of salt or other harmful matter and it shall be tested for its salt contents, when the Client chooses, at the expense of the Contractor. Sand containing any trace of salt will be rejected in the opinion of the Client.

3.0. CEMENT MORTAR

The cement mortar shall be in the exact proportion as the mix specified for that particular item of work in the Schedule of Quantities and Rates. The cement and sand to be used for cement mortar shall be carefully gauged in suitably sized boxes, thoroughly mixed in a dry state on a clean wooden platform or masonry plastered over, specially constructed for the purpose by the Contractor, as instructed by the Client, and mixed again after the addition of the requisite quantity of fresh water. it shall be prepared in such quantity as can readily be

used up and mortar, which has partially set shall, under no circumstances be tempered with by mixing additional material and water.

4.0. PLASTERING

4.1. NEERU

Neeru shall be made of the best description by rubble lime slaked with fresh water and sifted. The lime shall be reduced to fine powder by grinding in a mortar mill. The neeru shall be kept moist until used and no more than that can be consumed in 10 days shall be prepared at a time.

4.2. The mortar used for all plasterwork shall, unless specified, comprise of cement and sand in the proportion of 1:4

4.3. The first coat or screed of mortar shall be filling of joints and the surface shall be roughened to receive the finishing coat. The second coat shall then be applied in even uniform thickness. In case of sand faced plaster, the second or finishing coat shall be worked over with suitable rubber sponge to obtain a uniform, textured surface.

4.4. In case of roughcast plaster, the finishing coat shall comprise of cement and pebbles of sizes as directed by the Client. The coat shall be applied. The coat shall be applied evenly and a uniformly textured surface shall be obtained with a trowel.

4.5.In case of neeru plaster, the surface shall be watered and a coating of well ground neeru shall be applied evenly and rubbed till surface is smooth and even. The smooth finished surface shall be wetted from time to time for three days.

4.6.All plastered surfaces shall be cured by thorough watering, to the satisfaction of the Client.

5.0. FLOORING

5.1.The rates quoted by the Contractor shall include preparing the surface of R.C.C. slabs on which the paving material is to be laid.

5.2.All stone slabs shall be of approved quality, hard, sound, durable and of uniform color and it shall be hard and free from any discoloration, cracks, flaws or any other defects.

Their sizes and thickness shall be specified in the Schedule of Quantities.

5.3.The surface over which the flooring is to be laid shall be leveled up with Mortar bedding made up of lime mortar, shall be gauged and spread not exceeding 1" in thickness, as bedding to receive the flagstone paving. The flagstone shall be laid either diagonally or in squares as per design, fully flushed in the lime mortar and set with cement and tapped hard with wooden mallets, all joints being full and flush with cement. The joints shall not exceed 1/8 of an inch.

5.4.When the floor is complete it shall be covered To avoid displacement or loosening of the tiles, planks shall be laid over such portions as are used as passage for traffic during the progress of works and are left until the work is complete.

6.0. PAINTS

Only ready mixed paints of approved brand (Please refer Approved list of Materials) shall be used. Painting shall be generally done as per the directions of the manufacturer.

6.1. Bases - These shall be of the best white lead, read lead, zinc white or oxide of iron of approved make.

6.2. Varnishes: - The oil shall be double boiled linseed oil and shall appear, pale in color and brilliant. It shall be of approved quality.

6.3. Solvents: - Solvents shall be spirits of turpentine.

6.4. Pigments: - These shall be of selected tints and of approved make.

6.5. APPLICATION: Application shall include scrapping with Emery paper, opening of existing cracks, filling up of "V" cracks with epoxy expandable putty to required depths, making good weak plastered / unplastered surfaces using plaster of Paris wherever required, and then applying a coat of primer and allow drying for 6-8 Hours. Smoothening the surface by filling with thin coats of wall putty, and making a good surface apply 2-3 coats of the paint with an interval of 3-4 hours between successive coats.

ELECTRICAL WORKS

GENERAL INSTRUCTIONS

1.0 **Scope of work**

1.1 The Contractor's scope of work covers supply, installation, commissioning and testing of the complete **Electrical Installation (Low Side)** as specified and as applicable as per BoQ.

2.0 **Location**

2.1 The works are to be carried out at SIAC, **Malegaon khurd, Baramati.**

All electrical equipment and gear shall be designed for temperatures of

i) Peak 45° C

ii) Daily average 35° C

iii) Yearly weighted average 30° C

3.0 **Power Supply**

3.1 Power will be made available at 415/240V 3 Phase 4 wire 50 Hz earthed neutral system and all equipment shall be suitable for the above power supply with a variations of +/- 10% (Ten percent). All equipment shall operate at these voltages and any equipment /component operating at other than the above power supply shall be provided with necessary transformer by the contractor.

3.2 Power for construction will also be at 415/240V 3Ph 4W 50 Hz earthed neutral. This power is provided to facilate the various vendors on site and would be made available at one point. Further extension required should be done by the contractor at his cost and all such extension shall meet with the IE rules and materials shall meet with the relevant BIS. The contractor shall be charged for the energy consumed at the rates fixed by the Client / Consultant and the electricity charges so fixed shall be recoverable from the payments due to the Contractor.

4.0 **Drawings, Specifications & Deviations**

4.1 The drawings and specifications lay down minimum standards of equipment and workmanship. Should the tenderer wish to depart from the provisions of the specifications and drawings either on account of manufacturing practice or for any other reasons, he should clearly draw attention in his tender to the proposed points of departures and submit such complete information, drawings and specifications as will enable the relative merits of the deviations to be fully appreciated. In the absence of any deviations, it will be deemed that the tenderer is fully satisfied with the intents of the specifications and drawings and their compliance with the statutory provisions and local codes.

4.2 In case of discrepancy between the drawings and specifications, the tenderer shall assume the more stringent of the two and furnish his rates accordingly .

4.3 The contractor shall prepare shop drawings and all work shall be according to approved working drawings. Shop drawings shall give all dimensions and shall incorporate the requirements for consultants, architects and interior designer. Approval of drawings does not relieve the Contractor of his responsibility to meet with the intents of the specifications. All such drawings for approval shall be in quadruplicate. In addition, the contractor shall submit manufacturers details and get them approved before ordering. This has to be done whether the materials / equipment are one of the approved makes or not.

4.4 Equipment data shall be submitted however tenderers not submitting data in full will do so at the risk of their tenders being evaluated with such information as may be available with the Client/Consultant. It is believed that the list of approved makes meet the intents of the specifications and have sufficient field experience behind. However, the tenderer may propose alternate makes only at the time of tender, furnishing all the technical details, catalogues, usage experience etc. for approval by the Client.

5.0 **Tools and Spare Parts**

5.1 All tools, tackle, scaffolding and staging required for erection and assembly of the equipment and installation covered by the contract shall be obtained by the contractor himself. All other materials such as foundation bolts, nuts, steel inserts etc. required for the installation of the plant shall also be supplied and included in the contract.

6.0 **Testing & Handing Over**

6.1 The contractor shall carry out tests on different equipment as specified in various sections in the presence of Client and Consulting Engineers in order to enable them to determine whether the plant, equipment and installation in general comply with the specifications.

6.2 All equipment shall be tested after carrying out the necessary adjustments and balancing to establish equipment ratings and all other design conditions. The test data shall be submitted in the Acceptance Test Forms supplied by the Consultants. At least four sets of readings shall be taken for each item tested and submitted in the acceptance Test Forms supplied by the Client/Consultants. Instruments required for testing shall be furnished by the contractor for testing with initial requirements of all consumables.

6.3 The plant shall be handed over after satisfactory testing along with four sets of documentation each consisting of:

Detailed equipment data in the proforma approved by the Client.

Manufacturer's maintenance and operating instructions.

Set of as-built drawings, showing plant layouts, piping, ducting instrumentation etc.

Approved Test readings for all equipment & installation.

Certificates of approval from Statutory or Local Authorities for the operation and maintenance of the installation and equipment, wherever such approval or certification is required.

List of recommended spares, name address, details of suppliers.

Certificate from the contractors that they cleared the site of all debris and litter caused by them during the construction.

All tests to be certified by the Client.

List of all readings etc. to be maintained at a regular basis.

Training of Employer's representatives during the test run of Installations

6.4 Submission of the above documentation shall form a precondition for the final acceptance of the plant and installation and final payment.

6.5 The contractor has to furnish an undertaking that all materials supplied by him at site shall be fully tax paid and shall produce all documents for satisfaction of the owner or taxation authorities. All liabilities of the same shall be of the contractor.

7.0 **Performance guarantee**

7.1 All equipment and the entire installation shall be guaranteed to yield the specified ratings and design conditions plus/minus 3% tolerance. Any equipment found short of the specified ratings by more than the allowable tolerance as determined by the test readings shall be rejected.

8.0 **Defects Liability**

8.1 All equipment and the entire installation shall be guaranteed against defective materials and workmanship for a period of 24 months reckoned after the plant is commissioned and handed over to the clients along with the 4 sets of completion documents and in case the testing of the plant is delayed for any reason, the defects liability shall extend for a minimum period of 6(six) months from the date the test readings are accepted. During the defects liability period, the contractor shall rectify, repair or replace defective parts and components free of cost except in the case of those which are due to normal wear & tear.

9.0 **Force Majeure**

9.1 If by reason of war, hostilities, strikes, lockouts, embargoes or any act of god the fulfillment of this contract becomes impossible, the contract will be deemed to be null and void and no liability shall attach to either party.

10.0 **Statutory Inspections**

10.1 The Contractor shall be fully responsible for meeting all the statutory obligations & local inspectorates wherever applicable to the works carried out by them. The contractor should prepare all working drawings and obtain approval of competent authorities and also have the equipment and installation inspected and got approved. All official fees will be paid by the clients directly against demand in writing from the appropriate authority and all other expenses for submission and approval of the various and relevant statutory / bodies shall be embodied in the tender prices.

10.2 It shall be the contractor's responsibility to cover all their labour working at site under PF and monthly challans in proof of payment must be furnished to the site engineer.

11.0 **General Conditions**

11.1 The tender shall be governed by General conditions of Contract forming Section 1.4 of this tender. Wherever conflicting, the general conditions shall prevail.

11.2 Tenderers may indicate their comments, only as deviations from the conditions stipulated herein. Wholesale submission of their own conditions and / or printed conditions in disregard of the conditions stipulated herein shall not be binding on this contract.

12.0 **Safety Precautions**

12.1 A competent, qualified and authorised Engineer shall be on the site whenever the contractor's men are at work. The Supervisor should ensure that all plant and machinery used on the site are rendered safe for working and meets with the Indian or International safety standards applicable for the use and operation of such machinery. The supervisor should also ensure that the workmen are supplied with and made to use safety appliances such as safety belts, lifelines, helmets etc. The Supervisor shall not leave the work site without permission from Project Manager or their nominee. The contractor shall provide organisation chart of the personnel to be deployed at site for the execution of the contract.

12.2 Smoking shall not be encouraged on the site but altogether strictly prohibited in areas where combustible and inflammable goods / materials are stored or lying about.

12.3 Any hot job such as welding, soldering, gas cutting shall not be carried out without the permission of the Engineer-in-charge representing the Project Manager. Such jobs shall not be carried out where inflamable materials are stored or lying about. All electric connections shall be through adequately sized mechanically protected cables without any joints and with proper and adequate terminals. All power supplies shall be through properly rated fuses with isolating devices. No such hot jobs shall be carried out on holidays and without the presence of the Contractor's Engineer.

12.4 It is entirely the responsibility of the contractor to practice the principles of 'Safety First' during the entire tenure of work with adequate insurance covering injury of death to workmen, loss by theft or damage to materials and property in position or not and third party liability stipulated.

12.5 The contractor should clear the site of all debris every day to avoid accidents. In case this is not done, the owners may engage necessary labour to maintain the cleanliness of the premises and removal of debris, and debit all or part of the expenditure so incurred from the contractor/s.

12.6 No breaking of any concrete structure, without permission of the Client.

DESIGN CRITERIA

1.0 **GENERAL**

1.1 **The Building**

1.1.1 The proposed building for Agriculture Development Trust termed as "Rajiv Gandhi Science And Innovation Activity Center And Exploratory Labs" coming up at Malegaon Khurd, Baramati.

2.0 **ELECTRICAL INSTALLATION**

2.1 **In – Building Electricals**

2.1.1 All the spaces will be provided with power outlet switch sockets through MCB's. The rating of the MCB will depend upon the load requirement for Lighting, small power, Computer and Air-conditioning.

2.1.2 Load density is provided are as follows:

Lighting - 1.5 w/sq.ft

Small power – 2.5 w/sq.ft

2.1.3 All cables & wires used will be FRLS. All cables used will be PVC XLPE heavy duty. All conduits used will be UPVC conduits heavy duty.

2.2 **Lighting**

2.2.1 Lighting in the working areas will be with LED lamps with maintained illumination of 250 lux.

2.2.3 All corridors, public areas will have emergency lighting to have minimum of 10lux. All such lighting will be maintained through UPS with 30min battery back up so that the emergency panel will take over emergency lighting and sufficient illumination is maintained.

2.3 **Metering**

2.3.1 All power received from the supply company will be metered at the incoming point.

2.4 **Energy Conservation In Electrical system**

2.4.1 Energy efficient LED/CFL/T5 lamps will be used. Use of low loss electronic ballasts to reduce energy consumption.

2.4.2 Multiple circuits for lighting to switch off unwanted lights.

2.4.3 Use of low loss capacitors, APFC relays.

2.4.4 Proper selection and sizing of cables considering derating factors so as to minimize losses.

MEDIUM VOLTAGE CABLING

1.0 **Scope**

1.1 The scope of work shall cover supply, laying, connecting, testing and commissioning of low and medium voltage power and control cabling.

2.0 **Standards**

2.1 The following standards and rules shall be applicable:

1) IS: 1554 Parts I & II PVC Insulated Heavy duty cable
2) IS: 3961 Recommended current Rating of cable
3) IS: 7098 XLPE Insulated cables

All codes and standards mean the latest.

3.0 **Cables**

3.1 All cables shall be 1100 Volt grade PVC insulated, sheathed with or without steel armouring as specified and with an outer PVC protective sheath. All cables shall have Flame Retardant, Low Smoke Sheath (FRLS) and meet, ASTM norms for the smoke density and Oxygen Index norms. Cables shall have high conductivity stranded aluminium or copper conductors and cores colour coded to the Indian Standards.

3.2 XLPE cables shall be same as PVC with an FRLS outer sheath.

3.3 All cables shall be new without any kinks or visible damage. The manufacturers name, insulating material, conductor size and voltage class shall be marked on the surface of the cable at every 600mm spacing.

4.0 **Installation**

4.1 Cables shall be laid in the routes marked in the drawings. Contractor shall install all conduits/Pipes required for the cable work as per drawings. Where the route is not

marked, the contractor shall mark it out on the drawings and also on the site and obtain the approval of the Architect/Consultant before laying the cable. Procurement of cables shall be on the basis of actual site measurements and the quantities shown in the schedule of work shall be regarded as a guide only.

4.2 All cables running indoor shall be supported with necessary GI cable trays. Cable trays shall be hot dip galvanized & minimum 1.8 mm thick. All cable trays shall be suspended but supported on MS frame work with supports at every 1.5 m distance (for Rod supports every 1.0m distance) including necessary anchor fasteners, insert plates etc. for completeness of installation. Cables laid in built up trenches shall be on steel supports.

Cable support dimensions shall be as per table 1.1.

Sr. no.	Size	Cable Support
1	1500MM wide	2nos x 40 x 40 x 5MM GI Angle
2	1200MM wide	2nos x 40 x 40 x 5MM GI Angle
3	1000MM wide	2nos x 40 x 40 x 5MM GI Angle
4	750MM wide	2nos x 32 x 32 x 5MM GI Angle
5	600MM wide	2nos x 32 x 32 x 5MM GI Angle
6	For 2 Tier	2nos x 32 x 32 x 5MM GI Angle
7	450MM wide	2nos 8MM DIA GI RODS
8	300MM wide	2nos 8MM DIA GI RODS
9	150MM wide	2nos 8MM DIA GI RODS

4.3 Cables shall be bent to a radius not less than 12 (twelve) times the overall diameter of the cable or in accordance with the manufacturer's recommendations whichever is higher.

4.4 In the case of cables buried directly in ground, the cable route shall be parallel or perpendicular to roadways, walls etc. Cables shall be laid on an excavated, graded trench, over a sand or soft earth cushion to provide protection against abrasion. Cables shall be protected with brick or cement tiles as shown on drgs. Width of excavated trenches shall be as per drawings. Backfill over buried cables shall be with a minimum earth cover of 600mm. The cables shall be provided with cable markers at every 35 meters and at all loop points.

4.5 The general arrangement of cable laying is shown on drawings. All cables shall be full runs from panel to panel without any joints or splices. Cables shall be identified at end terminations indicating the feeder number and the Panel/Distribution board from where it is being laid, on aluminium tag. All cable terminations for conductors upto 4

sqmm may be insertion type and all higher sizes shall have copper compression lugs. For Cu cable to Cu busbar connection lugs shall be of Cu and Al cables to Al busbar connection lugs shall be Al. For Cu cable to Al busbar or Al cable to Cu busbar connections Bi-metalic lugs shall be used. Cable terminations shall have necessary brass glands and all lugs shall be double compression type whether so specified or not. The end terminations shall be insulated with a minimum of six half-lapped layers of PVC tape. Cable armouring shall be earthed at both ends.

4.6 Each cable shall be tagged with number that appears in cable schedule & Panel/Distribution board from where it is being laid., tag shall be of aluminium.

5.0 **Testing**

5.1 MV cables shall be tested upon installation with a 500V Meggar and the following readings established:

1) Continuity on all phases
2) Insulation Resistance
   (a) between conductors
   (b) all conductors and ground

All test readings shall be recorded and shall form part of the completion documentation.

6.0 **Mode of measurement**

6.1 Cable will be measured on the basis of a common rate per unit length indoor or outdoor and shall include the following:

For cables laid indoors:

i) Cables and clamps
ii) Installation, commissioning and testing
iii) Cable marking

OR

For cable buried underground:

i) Cables and protective bricks & tiles
ii) Installation, commissioning & testing
iii) Cable markers

6.2 Cable trays/racks will be measured on the basis of unit length for individual sizes and shall include

i) Galvanised steel tray with necessary suspenders and frame supporting the tray, anchor fastners, insert plates & necessary support arrangement for completeness of the installation.
ii) Installation and painting in 2 coats of black bituminous paint on one coat of red oxide primer.

6.3 Each cable termination will be measured as one unit for payment. Certain cable sizes are grouped together and rates shall be furnished against each group. The item shall include the following:

i) Lugs, glands, bolts, nuts
ii) All jointing materials
iii) Installations, testing and commissioning
iv) Earthing the glands

6.4 For cables buried under ground excavation shall be paid for additionally for the following per unit volume:
i) Excavation and back filling
ii) 6" Soft Earth Cushioning below and above cable

The cost of laying protective tiles shall be part of cable cost as stated above.

CONDUIT WIRING

1.0 Scope

1.1 The scope of work shall cover supply, installation testing and commissioning of all conduit wiring.

2.0 Standards

2.1 The following standards and rules shall be applicable

1)	IS : 732: 1989	Code of Practice for Electrical wiring installation (System voltage not exceeding 650V)
2)	IS :1646:1982	Code of Practice for fire safety of building (General) Electrical Installation.
3)	IS:1653:1972	Rigid steel conduits for electrical wiring
4)	IS : 2667:1976	Fittings for rigid steel conduits for electrical wiring
5)	IS : 3480:1966	Flexible steel conduits for electrical wiring
6)	IS : 3837:1976	Accessories for rigid steel conduit for electrical wiring
7)	IS : 694:1977	PVC insulated wires.
8)	IS 2509 :1973	Rigid Non-metallic conduits for Electrical wiring.
9)	IS : 6946	Flexible (Pliable) non-metallic conduits for electrical installation
10)	IS : 1293	3 pin plugs and sockets
11)	IS : 8130	Conductors for insulated electric cables and flexible cord

12) IS:9537- 1980 Specification for conduits for Electrical installations

13) Indian Electricity Act 1910 and rules issued there under.

14) Regulations for the electrical equipment in buildings issued by the Tariff Advisory Committee of the Insurance Association of India.

2.2 All standards and codes mean the latest.

3.0 **Materials**

3.1 General

3.1.1 All materials used shall conform to latest Indian standards and be stamped. They should also be standard products of approved manufacturers.

3.1.2 Materials used on the job shall be new and samples got approved by the project-in-charge. Approved samples shall be neatly mounted on a board and exhibited on the site all the time for comparison.

3.2 Conduits and Raceways.

3.2.1 Steel conduits

3.2.1.1 Rigid steel conduits should be black enamelled or pot dip galvanized as shown in the schedule of work and shall conform to IS : 9537 Pt II, latest.

3.2.1.2 Dimentional tolerances shall meet the following:

N.B (mm)	20	25	32	40	50
Outside (mm)	20	25	32	40	50
Minimum O.D (mm)	19.70	24.60	31.6	39.60	49.50
Wall thickness					
Maximum (mm)	1.4	1.40	1.40	1.60	1.60
Minimum (mm)	1.8	1.80	1.80	2.20	2.20

3.2.1.3 Conduit fittings and junction boxes shall be of steel with a wall thickness of 1.60mm, black stove-enamelled or hot-dip galvanised conforming to the rigid steel conduit system.

3.2.1.4 Flexible conduits shall be heavy duty galvanised spiral type with PVC coating IP40 quality and connected with appropriate fittings. Flexibles without end adapters shall not be accepted. Conduits exposed above false ceiling concealed or embedded.

3.2.2 Insulated Conduits

3.2.2.1 Rigid insulated conduits steel conform IS 9537 Pt3 and shall be from unplastisized PVC and compounded for low halogen release with fire retardant characteristic and not easily ignitable. Conduit shall withstand temperature variation from -20°C to +80°C.

3.2.2.2 All rigid conduits shall be classified as HMS (Heavy Mechanical Stress) with the following dimentional tolerances.

Size O.D (mm)	Tolerance on O.D (mm)	Minimum Inside Diameter (mm)
16	(-) 0.3	12.2
20	(-) 0.3	15.8
25	(-) 0.4	20.6
32	(-) 0.4	26.6
40	(-) 0.4	34.4
50	(-) 0.5	43.2

3.2.2.3 All conduit fittings should be suitable for the above conduits and jointed through an approved PVC compound.

3.2.2.4 Flexible conduits should be smooth, corrugated, and fire resistant and flexibles shall be terminated through PVC adopters.

3.3 Accessories

3.3.1 Conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs, junction boxes & inspection boxes etc. shall be heavy duty specifically designed and manufactured for their particular application. All conduit fittings shall conform to IS: 2667-1964 and IS: 3887-1966. Wherever galvanised conduits are specified in the schedule of work, the fittings also shall be galvanised. In the case of PVC conduits, heavy duty PVC fittings shall be used.

3.4 Wires

3.4.1 All wires shall be single core multi-strand copper. PVC insulated to IS : 694 and shall be 1100V grade as specified and required in the schedule of work. The PVC insulation shall be FRLS unless otherwise specified.

3.4.2 All wires shall be colour coded as follows :

Phase	Colour of wire
R	Red
Y	Yellow
B	Blue
N	Black
Earth	Green (insulated)
Control (if any)	Grey

3.5 Switches & Sockets

3.5.1 Switches shall be moulded modular design with silver-plated contacts. Sockets shall be 3 pin with switch. All switch & socket mounting boxes shall be electro- galvanised steel specially made for the switches and sockets used. Combination of multiple switch units and sockets should be used in appropriate manner to minimise the no. and size of switch boxes.

3.5.2 Weather and water proof switches / sockets of approved make shall be used in all out door situations and where shown.

3.5.3 For industrial applications, industrial type of sockets with a pad lockable switch in a suitable galvanised steel box/fire retarded toughened plastic box shall be used. Cover plates shall be of galvanised metal in industrial applications.

4.0 Installation

4.1 The size of conduit shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be 20 mm dia unless otherwise indicated or approved. Size of wires shall be not less than 1.5 sq. mm copper or 2.5 sq. mm aluminium, but shall be as specified in the schedule of work.

Nominal Cross sec. Area (mm^2)	Overall dia (mm)	Conduit diameter (mm) Number of wires			
		20	25	32	40
1.50	3.4	3	6	9	-
2.50	4.2	2	4	8	-
4.00	4.8	2	3	6	-
6.00	5.6	-	3	6	-
10.00	7.0	-	2	4	5

Raceways should not be filled for more than 30%

4.2 Conduits shall be kept at a minimum of 100 mm from the pipes of other non-electrical services.

4.3 Separate conduits / raceways shall be used for each of the following:

1) Normal lights and 5A 3 pin sockets on lighting circuit
2) Power outlets - 15A 3 pin, 20A/ 32A industrial outlets.
3) Emergency lighting
4) Telephones & Data
5) Fire alarm system, Public address system
6) Call bell wiring

4.4 Shop drawing for Conduit layout shall be prepared by the contractor taking into account the site conditions and got approved before proceeding with the work. Wiring for short extensions to outlets in hung ceiling or to vibrating equipments, motors etc., shall be installed in flexible conduits. No flexible extension shall exceed 1.25m in length.

4.5 Conduits run on surfaces shall be supported on galvanised steel 6 mm thick saddles which in turn are properly screwed to the wall or ceiling. Saddles shall be at intervals of not more than 500 mm. Fixing screws shall be with round or cheese head and of cadmium plated brass. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using fabricated galvanised steel junction/pull through boxes for better appearances. No cross-over of conduits shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance.

4.6 Conduits embedded into the walls shall be fixed by means of staples at not more than 500 mm intervals. Chases in the walls shall be neatly made and refilled after laying the conduit and brought to the finish of the wall but final finish will be done by the building contractor.

4.7 Conduits buried in concrete structure shall be put in position and securely fastened to the reinforcement and got approved by the Engineer, before the concrete is poured. Proper care shall be taken to ensure that the conduits are neither dislocated nor choked at the time of pouring the concrete. Suitable galvanised steel fish wires of not less than 0.63 mm dia shall be drawn in all conduits before they are embedded. Where conduit passes through expansion joints in the building, adequate expansion fittings shall be used to take care of any relative movement.

4.8 Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. Inspection boxes shall be spaced at not more than 12 meters apart or two 90 degree solid bends or equal. All junction and pull boxes shall be covered by an approved cover plate truly cut and fixed with cadmium plated brass screws. These junction boxes shall form part of point wiring or conduit wiring as the case may be including the cost of removing the cover for painting and refixing. No separate charges shall be allowed except where specially mentioned.

4.9 Conduits shall be free from sharp edges and burs and the threading free from grease or oil. The entire system of conduits must be completely installed and rendered electrically continuous before the conductors are pulled in. Conduits should terminate in junction boxes of not less than 32mm deep and the termination shall be rigid with check nuts and a smooth bushing. No wires shall be exposed in any part of the installation.

4.10 An insulated earth wire of not less than 2.5 sq.m copper shall be run in each conduit as specified in the schedule of work.

4.11 Provision of flexible connections for the conduits wherever conduits are passing through the expansion joint to avoid the stress over conduits during expansion or contraction of structure.

5.0 Lighting & Power Wiring

5.1 All final branch circuits for lighting and appliances shall be stranded single conductor cables run inside conduits. The conduit shall be properly threaded and screwed into sockets, bends, junction boxes. No part of the wiring shall be exposed without a suitable conduit piping.

5.2 Branch circuit conductor sizes shall be as shown in the schedule of quantities and or drawings.

5.3 Final branch circuits shall preferably be kept in a separate conduit upto the Distribution Board. A conduit should carry only circuits belonging to the same phase unless it is a 3ph supply. Each lighting branch circuit shall be loaded conservatively so that the circuit current is substantially lower than the current carrying capacity of the conductor or as shown on drawings. Each conduit shall not hold more than three branch circuits of the same phase.

5.4 Flexible cords for connection to appliances, fans and pendants shall be 650/1100V grade (three or four cores i.e. with insulated neutral wire of same size) with tinned stranded copper wires, insulated, twisted and sheathed with strengthening cord. Colour of sheath shall be subject to the Engineer's approval.

5.5 Looping system of wiring shall be used. Wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors. No such joints shall be made unless the length of the subcircuit, submain or main is more than the length of the standard coil.

5.6 Control switches shall be connected in the phase conductors only and shall be 'ON' when knob is down. Switches shall be fixed in 14 SWG galvanised steel boxes. Cadmium plated brass screws shall be used.

5.7 Power wiring shall be distinctly separate from lighting wiring. Conduits not less than 25 mm and wires not less than 2.5 sq.mm copper shall be used as specified in the schedule of work. Power outlets belonging to two phases shall maintain a minimum distance of 2.0m

5.8 Every conductor shall be provided with identification ferrules at both ends matching the drawings.

6.0 Testing

6.1 The entire installation shall be tested for:

a) insulation resistance
   i) between phases
   ii) between each phase and earth
b) earth continuity
c) polarity of all switches

No installation shall be commissioned unless and until the insulation resistance is 2.0 megohms between phases and 1.0 megohms between phase and neutral. All tests shall be witnessed by the Engineer-in-charge and attested.

A test certificate shall be submitted as required

7.0 Mode of measurement

7.1 The definition of point wiring shall be in accordance with the enclosed sketch drawing.

7.2 The final sub circuit wiring commencing from the distribution board till the first switch box or light fitting shall be considered as a circuit or primary point.

7.3 All other continuing wiring shall be regarded as secondary point. Secondary point should include wiring from circuit point onwards together with all junction boxes, connectors, earthwire, fixing accessories, connection to all light fittings switches etc. as specified and shown on drawings.

7.4 All switches sockets with boxes, inter connections, earthing shall be paid for per unit of 1 switch, 2 switch, 3 switch, 4 switch units, 5A switch-sockets, 20A/30/60A M.C sockets generally as shown in the schedule of work.

7.5 All empty conduit runs, including junction boxes, fish wires etc. shall be paid on the basis of unit length.

7.6 Buzzer indicator of the ways specified shall consist of indicating lamps, reset button, electromagnet, cover plate, chromium plated brass screws etc. shall be considered as one unit for measurement and payment.

7.7 Two way light points shall be classified as separate point and shall consist of 2 Nos 2 way switches, wiring from the 1st 2 way switch to the 2nd 2 way switch and to the first light controlled. Subsequent lights, if any, shall be measured as secondary points.

FLOOR TRUNKING & WORK STATION WIRING

1.0 Scope

1.1 The scope of work shall cover supply and installation of floor trunking & work station wiring. All minor civil work such as removing tiles and mortar etc. involved shall be covered in the scope of this contract.

2.0 Trunking & Raceways

2.1 The trunking & raceway shall be products from standard manufacturers and fabricated out of 3mm thick m.s sheet electrogalvanised. The raceway may be of single or two or three compartments as defined in the schedule of work. Multiple compartmented raceways may be used for power cables and other low voltage cables in different compartments.

Sizes and compartments shall be as indicated on drawings and schedule of work/

2.2 Single compartment large size raceways are to be similar to the 2-compartment raceway. Such raceways are used as trunk feeders of electrical and data cables, feeding into the 2-compartment raceways. Fabrication and other construction details shall be similar. Such large raceways may be run in the floor or above false ceiling as required.

2.3 All sheet steel shall be rust inhibited through a process of degreasing, acid pickling, phosphating etc. and the raceway shall be finished with electro-galvanising.

2.4 All the junction boxes, joints and right angle bends shall be prefabricated as per approved shop drawings. Raceways may be supplied in sections with jointing strips so that the entire raceway is rendered electrically continuous without additional fixtures.

3.0 Installation

3.1 The raceway installation shall comprise the following:

a) Marking on site

b) Chasing of floor to the required depth, including removal of tiles wherever required.

c) Leveling of surface using a thin layer of cement screed.

d) Placing of raceway and final leveling

e) Alignment of raceway and grouting of the left out portion.

Installation of extension box and SS cover plate.

3.2 The raceway layout shall be marked on the floor prior to the chasing and shall be got approved.

3.3 Proper care shall be taken to avoid choke up of raceways with cement screed.

4.0 **Power wiring for workstations** (Not Applicable)

4.1 All power cables (wires) shall be halogen free copper conductor of minimum 4sqmm. for phase and 4 sqmm for neutral. Protective earth conductor shall also be halogen free 4sqmm copper conductor.

4.2 All wires P+N+E shall be looped in and out of a Wago connector (Push-to- connect) at each tap off. The connector shall be suitable for 3 wires-in and 3 wires-out and 3 wire-tapoff (which shall be used for not more than 2 tap off connections)

4.3 Tap Off wiring from the connector to the work station shall be through 3 x 4 sqmm FRLS copper wires drawn in a FR galvanised steel flexible conduits. The tap-off conduit shall be carefully run on the furniture or in the wire management system of the furniture, if any, and terminated in a switch box.

The switch boxes shall be mounted on the furniture as instructed by the Architects and Engineer. All conduits buried in floor should be rigid while flexible conduits may run in the furniture.

4.4 A mock-up of the installation shall be got approved before taking up the work.

5.0 **Data & voice cabling** (Not Applicable)

5.1 Data & Voice cables shall be Cat 6 laid in the raceways. These cables shall be terminated in a Duplex information outlet mounted on the furniture as instructed by the Engineer –in-charge. The cables shall be laid from the Jack or Patch panels in the communication room or closet upto the information outlet without any joint or splicing. Final cable runs from the under floor raceway to the information outlets shall be run in a galvanised steel flexible conduit neatly fixed on the furniture or run through the cable management system, if any.

6.0 **Mode of Measurement**

6.1 The raceway system shall be measured as follows:

a) Supply and installation of raceway complete with cover, blank plates, supports connecting flanges, right angle bends for completeness of installation shall measured per unit length.

6.2 Wiring for work stations shall be measured as a point as defined below.

i) All wiring P+N+E as specified from DB to the first power point of the circuit raceway upto the junction box and through FR flexible GI conduit from Wago connector (including the connector & conduit) as primary point.

ii) All wiring as specified from Primary point above to various power points on the circuit through raceway upto the junction box and through FR flexible GI conduit from Wago connector (including the connector & conduit) as secondary point

iii) Supply and mounting 2 - 15A switches with 2-5/15A sockets below & 2 – 5/15A sockets above the table.

MODE OF MEASUREMENTS

1. CONVERSION.

For conversion of inches to feet, the resultant figure shall be taken up to two digits after decimal point. Third digit shall not be taken into account.

2. MEASUREMENT

The Area shall be measured in square meter or square feet.

The Running Length shall be measured in running meter or running feet.

Sr.No.	Items	Mode of Measurement
A	**CIVIL WORK**	
1	Flooring	Flat area measurement of floor. In case of Irregular shapes the measurements will be done as per installed area and wastage will not be considered.
2	Pantry Platform	Running length of platform measured at center.
B	**FURNITURE WORK**	
1	Wooden Partition	Flat area measurement of elevation. ***NOTE:*** *The partition height shall be measured up to bottom of false ceiling and framing members/ply going above shall not be measured.*
2	Wall Paneling / Boxing	Flat area measurement of elevation: The gross area paneled will be measured. No deduction will be made for gaps up to one centimeter between the panels. No separate measurements will be done for irregular shapes.
3	Entrance Door	Number of unit. / sqft / Sqm.
4	Storage Unit	Flat area measurement of elevation
5	Tables	Number of unit
6	Counter / Working platform	Running length of platform measured at center
7	False Ceiling	Flat area measurement only – no running feet measurement if the width/ ht is less than 1'0".
8	Center / Corner Table	Number of unit
9	Sofa /Seating Unit	Running length of seating unit measured at center

10	Display / Pin-up Boards	Flat area measurement of elevation.
11	Vertical Blinds	Flat area measurement of elevation.
12	Carpet	The actual area covered by the carpet shall be measured. No extra shall be allowed for wastage
13	Wall Painting	Flat area measurement, openings to be deducted, Jambs to be added. In any case the measurements will not be done in Rft / Rmt.

Important Note: Before Quotation contractor should Clarify the mode of measurement discrepancies. No correction and claim will be entertained afterwards. In case of extra items contractor should get the approval for mode of measurements before quotation of rate.

ANNEXURE 'F'

SUMMARY SHEET

Note: The estimate is excluding the GST however the GST (as per applicable rates) would be paid extra. The successful bidder has to submit the appropriate document (authorized) for claiming the GST amount.

SHEET TITLE **SUMMARY**

SR. NO.	DESCRIPTION	AMOUNT BEFORE TAX IN INR
	INTERIOR, FURNITURE, CIVIL AND ALLIED WORKS	
A	**Interior ,Furniture & allied works**	8,76,001.00
B	**Civil & allied works**	82,000.00
C	**False ceiling and Painting**	2,78,150.00
D	**Tables**	293,700.00
E	**Seating**	209,050.00
F	**ELECTRICAL**	106,663.76
	OVERALL TOTAL COST OF INTERIOR FURNITURE ,CIVIL AND ALLIED WITHOUT TAXES (in INR)	**18,45,564.76**
	OVERALL TOTAL COST OF INTERIOR FURNITURE ,CIVIL AND ALLIED WITHOUT TAXES (in words)	Rupees Eighteen Lakhs Forty Five Thousand Five Hundred Sixty Four and Seventy Six Paisa Only

INTERIOR, FURNITURE & ALLIED WORKS

SHEET TITLE	INTERIOR, FURNITURE AND ALLIED WORK

S.NO.	DESCRIPTION OF ITEM	QTY	UNIT	RATE	AMOUNT
I	**INTERIOR AND FURNISHING WORK**				
A	**STORAGES**				
1	**OVERHEAD PANTRY STORAGE IN NICHE WITH GLASS SHUTTERS (450MM DEEP &1200MM HT.)**	20.16	SQM	13,000.00	262,080.00
	Providing and fixing overhead storages as per drawing of sizes as mentioned above. It shall consist of a 6mm thk Non-toughened glass with a Aluminium anodised profile shutters (profile size 50 x25mm/ as approved) hinged (heavy dutys Auto hinges) sides, base and top of shall be formed out of 19mm thk. Comm ply and back in 8mm thk. ply. all exposed surfaces including to be finished in 1mm thk laminate as approved. Storage shall have 10mm thk. glass shelves fixed on metal D brackets/vacuum button provided at every 375 ht. all edges of glass shall be computer polished. item shall be inclusive of all necessary fittings like soft closing hinges ,locks, handles and any miscellaneous hardware items all exposed edges of ply shall be lipped with 6mm BTC beading finished in matching polish/2mm matching PVC edge banding as directed.(Refer detailed drawing No - IH - 06)				
2	**LOW HEIGHT STORAGE IN NICHE WITH LAMINATE SHUTTERS (600MM DEEP & 750MM HT)**	1.80	SQM	12,100.00	21,780.00
	Providing and fixing shutters with laminate finish. They shall consist of 100mm wide frame made out of 18mm comm. Ply frame on back corners.				

	Vertical shall be 750mm in height & 600mm in deep. The base and top shall laos be 600mm deep and formed out of 18mm thk. Comm ply. All the external surfaces shall be finished with 1.0 mm laminate.. All internal surfaces should be finished in 1.0 mm thk laminate. 75mm high laminate finished skirting shall be provided Division of the shutters shall be made equally according to the length of the storage. Item shall be inclusive of all necessary fittings like hinges, locks, ball catches, handles of approved design and miscellaneous hardware items. (Refer detail drawing) all exposed edges of ply shall be lipped with 6mm BTC beading finished in matching polish/2mm matching PVC edge banding as directed.(Refer Detail Drawing No - IH - 09)				
3	**LOW HEIGHT STORAGE IN NITCH WITH LAMINATE SHUTTERS (450MM DEEP & UPTO 750MM HT)**	9.00	SQM	10,800.00	97,200.00
	Providing and fixing shutters with laminate finish. They shall consist of 100mm wide frame made out of 18mm comm . Ply frame on all four sides. The base and top shall be and formed out of 18mm thk. Comm ply .All the external surfaces shall be finished with 1.0 mm laminate.. All internal surfaces should be finished in 1.0 mm thk laminate. 75mm high laminate finished skirting shall be provided Division of the shutters shall be made equally according to the length of the storage. Item shall be inclusive of all necessary fittings like hinges, locks, ball catches, handles of approved design and miscellaneous hardware items. (Refer detail drawing) all exposed edges of ply shall be lipped with 6mm BTC beading				

	finished in matching polish/2mm matching PVC edge banding as directed. (Refer Detail Drawing No - IH - 06)				
4	**LOW HEIGHT LAB COUNTER WITH LAMINATE SHUTTERS 600MM DEEP & UPTO 750MM HT.(GRANITE TOP)**	3.60	SQM	14,000.00	50,400.00
	Providing and fixing Low height storage with laminate finish. They shall consist of 100mm 18/19mm thk Marine Ply frame on all four sides. Base and top of shall be 600mm deep and formed out of 19mm thk marine ply. All the external surfaces shall be finished with 1.0 mm laminate. All internal surfaces should be finished in 1.0 mm thk laminate. Division of the shutters shall be made equally according to the length of the storage Item shall be inclusive of all necessary fittings like hinges, locks, ball catches, handles of approved design and miscellaneous hardware items. Storage shall have row of 150mm high drawers on top mounted on telescopic channels with suitable framework in 18mm marine ply. Drawers side shall be formed out of 18mm ply & base in 12mm ply. Drawer & shutters shall have fingle pull handles. all exposed edges of ply shall be lipped with 6mm BTC beading finished in matching polish/2mm matching PVC edge banding as directed. (Refer detailed drawing). Storage top shall be finished with 18mm thk approve granite (BR of Granite-1950/smt). Granite exposed edge shall have Champher polish. Cost to include cout out for SS sink with edges to have champher/half round moulding. Upto 200mm granite back splash to be provided with necessary hald round moudling. (Refer detailed drawing). Storage to have 75mm high				

	skirting made out of Marine ply & finished with laminate. (Refer detailed drawing No - IH - 07).				
5	**FULL HEIGHT DECORATIVE STORAGE WITH LAMINATE SHUTTERS 450MM DEEP, (Duco finished Niche) - HEXAGONAL NITCH STORAGE UNIT**	15.66	SQM	14,200.00	222,372.00
	Providing and fixing full height storage with laminate finish. Storage shall have 18 mm thk. block board shutters. 150mm wide Ply frame shall be provided on all four sides. made out of 18mm comm. ply.. All the external surfaces shall be finished with 1.0 mm laminate. All internal surfaces should be finished in 1.0 mm thk laminate. Division of the shutters shall be made equally according to the length of the storage Item shall be inclusive of all necessary fittings like hinges, locks, ball catches, handles of approved design and miscellaneous hardware items. Cost to include 400mm Hexagonal shaped Niches formed out of 18mm ply. 25mm wide and 12mm thick laminate finished border to be provided on all sides of Hexagon. Niche back shall be finished in plastic paint. 50% of Niches shall have 12mm thick glass shelves on brackets. Exposed surfaces of niche shall be cladded with 4mm thick MDF finished with approved duco Paint. (Refer detailed drawing No - IH - 07).				
6	**LOW HEIGHT STORAGE LAMINATE FINISH 450 DEEP & 750MM HT. (LIFE SCIENCE LAB)**	2.18	SQM	12,700.00	27,686.00
	Providing and fixing low height storages in laminate finish. They shall consist of 18mm thk. comm .Ply on all four sides.base and top.Back shall be made out of 6mm thick commercial ply .All the external surfaces shall be finished with 1.0 mm laminate.All internal surfaces should				

	be finished in 1.0 mm thk laminate. Division of the shutters shall be made equally according to the length of the storage Item shall be inclusive of all necessary fittings like soft closing hinges, locks, ball catches, handles of approved design and miscellaneous hardware items. (Refer detail drawing) all exposed edges of ply shall be lipped with 6mm BTC beading finished in matching polish/2mm matching PVC edge banding as directed. Refer Dw. No IH -08				
B	**OTHER ITEMS IN CARPENTRY.**				
1	**READY MADE TRAP DOORS-450x450**	4.00	Nos	4,200.00	16,800.00
	Providing & Fixing of readymade trap doors with metal frame and MDF face to be installed in gypsum ceiling with necessary ply supports. Cost to including groove provision between trap door & gypsum ceiling				
C	**PARTITIONS**				
	NOTE: In ALL PARTITIONS necessary cutouts should be made for HVAC ducts and electrical Cable trays above false ceiling and HVAC and electrical conduit and switch board, switch plate cutouts wherever directed and as required.				
1	**LOW HT SEMI GLAZED GLASS PARTITION**	31.07	SQM	3,900.00	1,21,173.00
	Providing & fixing of Semi glazed glass partitions firmly anchored to wall floor at two one side and MS fabricated member at third side formed out of Aluminium sections of size 50x50x1.5 at 600mm both horizontally & vertically cladded with 12mm ply and further finished with approved 1mm laminate. Laminate shall have grooves as per design. Partition shall have laminate upto 1000mm and rest is				

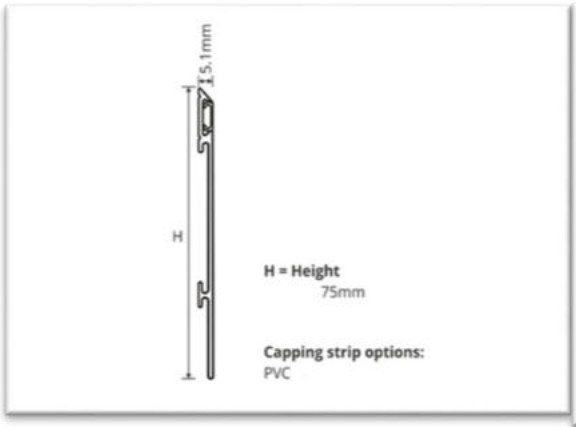
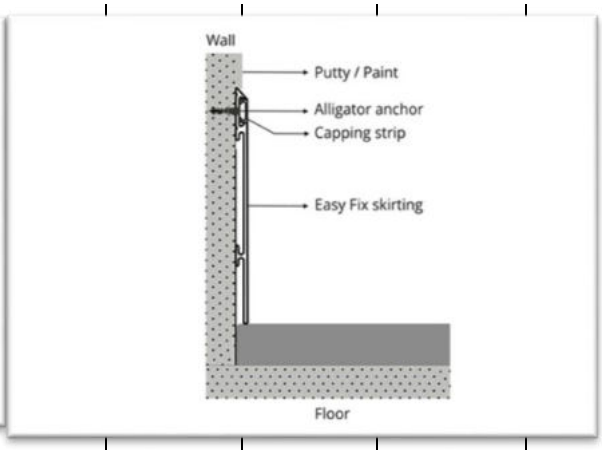
	6mm Non-toughened glass.(Refer detailed drawing IH 04)				
	Glass shall have 100mm band around with aluminum framing cladded with ply & finished with laminate. Glass shall be fixed with 100x12 BTC beading finished with Melamine polish				
	Free end of the partition to be anchored with MS fabricated tube section of 50mmx50mmx5mm. This member shall be grouted in floor atleast 300mm deep using core cut machine. Cut Area shall be filled with GP2 Grout. MS sections shall be finished with 2 coats of Red oxide+ enamel paint. contractor to ensure that MS member shall be perfect line and plumb.				
E	**PANELLINGS**				
PL3	**PANELING WITH 18 MM COMM. PLY AND WITH LAMINATE.(WITHOUT FRAME)**	2.00	SQM	1,300.00	2,600.00
	Providing and fixing paneling with 18 mm thk ply fixed on existing surface and finished in 1mm thk laminate. Grooves as per details shall be provided wherever required. No extra amount will be paid for irregular shapes and forms in paneling. (Refer detailed drawing IH 18)				
PL7	**GYPSUM BOARD PANELLING**	2	SQM	980.00	1,960.00
	Providing and fixing full height gypsum board paneling on wall or column. The paneling will consist of one side 12mm thk gypsum board, fixed on frame work of standard India gypsum partition (G.I.) sections. The Item shall be inclusive of all necessary labor & material. Installation should be done as per manufacturer's guidelines.				

PL9	**BACKSPALSH FOR STORAGES**				
	Providing & fixing 150mm high backsplash above low height storage made out of 18mm commercial ply finished with approved 1mm laminate. Exposed edge shall be finished with laminating /matching PVC edge banding. Cost to include making necessary cutout for electrical points	9.90	SQM	1,800.00	17,820.00
F	**MISCELLANEOUS**				
1	**PIN -UP BOARDS**	1.1	SQM	2,800.00	3,080.00
	Providing and fixing pinup boards. 12mm soft boards of good density to be mounted over 12 mm Comm... ply. The soft board will be covered with a plain cloth (basic rate Rs. 300/mtr.) From front and also edges will be covered laminate and then covered with the plain cloth and will be mounted on 25mm dia S.S studs fixed on the partitions or walls. The cloth should be pasted with 3M make super 77 spary as per manufacturers recommendations etc. completed Size - 1.2 X .9 Mtr - Activity Room				
3	**ROLLER BLINDS.WITH BLACK OUT FABRIC(Basic rate700/smt)**	20.00	SQM	900.00	18,000.00
	Providing & fixing in position Roller blinds as directed of varying length, fabric should be blackout from Vista with heavy duty anodized fittings, nylon rollers, with stainless steel chain and including necessary fittings and fixtures etc. complete.(installed area will be considered for billing)				
4	**PLY PELMET FOR WINDOW BLINDS (250x200 mm wide and 600 mm front ht)**	9.00	RMT	1,450.00	13,050.00
	Providing and fixing pelmet in 19 mm Commercial ply with necessary T supports from True ceiling. ply surface towards				

	external & above ceiling shall be finished with black/approved paint				
	TOTAL AMOUNT BEFORE TAX (in INR)				**8,76,001.00**
	TOTAL AMOUNT BEFORE TAX (in words)	**Rupees Eight Lakhs Seventy Six Thousand and One Only**			

CIVIL WORK

SHEET TITLE	**CIVIL AND ALLIED WORK**				
S.NO.	**DESCRIPTION OF ITEM**	**QTY**	**UNIT**	**RATE**	**AMOUNT**
	CIVIL & ALLIED WORKS				
A	**FLOORING**				
1	**FLOOR CUTTING**	15.00	RMT	1300.00	19500.00
	Cutting of existing floor (Upto 200mm wide) for electrical conduit/cable routing and refinishing the same with Floor tiles close match with existing floor. Cost to incl. necessary new tiles, sand bedding and finishing of joints with approved grouting, claning etc complete (BR of Tile 650/SMT)				
B	**SKIRTING**				
1	**ALUMINIUM SKIRTING**	60.00	RMT	325.00	19500.00
	Providing and fixing skirting 75 mm ht. Aluminum skirting Installed using screws, to camouflage the rivet points, a capping strip is provided in gray PVC gaskept. cost to include Matching PVC corner guards				

	 				
C	**PLUMBDING & DRAINAGE (concealed piping works)**				
1	**Water supply-**Providing and fixing in position 20mm C -Pvc Pipes for below with all required fixtures fastenings etc. including concealing the pipes in the wall or under the floors, chasing the walls, finishing the same, testing, inclusive proper adhesive sealing joints etc. complete. Cost to include tap off from external wall incl. necessary cutouts & refinishing the same (contractor to visit the site and inspect before quoting)				
	Lab counter sinks	2.00	Nos	5500.00	11000.00
2	**Drainage-** Providing, laying and jointing in position heavy quality UPVC, spigot and socket pipes for soil, waste and vent (6 kg/cm2) including all fittings, bends, cowls, single or double junctions of different degrees, with or without access doors, etc. including jointing with rubber ring and solvent compound, fixing them on floors or vertically against walls on hot dip galvanized M.S. brackets and U clamps, so as to keep the pipe minimum 4" away from the wall as shown on drawing so that all connection joints are exposed including testing after laying the pipes as specified and painting etc. complete.				
	Lab counter sinks	2.00	Nos	3500.00	7000.00
D	**SANITARYWARE AND PLUMBING FIXTURES**				

1	Providing & fixing of Satin finished SS sink (Grace plain-Medium) in Lab counter with necessary CP bottle trap, Angle cock (FLR 5053N), Table mounted Sink cock (FLR 5357N) etc with necessary fittings, bolts etc. complete	2.00	Nos	12500.00	25000.00
	TOTAL OF CIVIL, PLUMBING & ALLIED WORKS (in INR)				**82,000.00**
	TOTAL OF CIVIL, PLUMBING & ALLIED WORKS (in Words)	**Rupees Eighty Two Thousand Only**			

FALSE CEILING AND PAINTING

SHEET TITLE	**FALSE CEILING AND PAINTING**				
S.NO.	**DESCRIPTION OF ITEM**	**QTY**	**UNIT**	**RATE**	AMOUNT
	GYPSUM & PAINTING WORKS				
A	**POP / GYPSUM / FALSE CEILING WORK.**				
	IMPORTANT NOTE FOR FALSE CEILING CONSTRUCTION				
	a. Structural members of false ceiling should be located considering lighting & HVAC duct / diffuser & ceiling mounted fitting layout				
	c. Entire false ceiling ie Gypsum sheet ceiling work should be certified from the MANUFACTURERS representative for stability , strength and proper use of brand and material ,hardware ,etc.				
	d. All material, fixtures fastening and other specifications as per manufacturers guidelines				
	e. The measurements of All types of ceiling will be at actual laid area .No any wastage ,Cut tiles calculation will be considered				
1	**FALSE CEILING IN GYPSUM**	190.00	SQ,MT	920.00	174,800.00

	Providing and fixing 12mm thk. Gypsum board false ceiling(saint gobain) at levels as shown in the drg. From FFL. Rate shall be inclusive of providing and fixing standard GI steel frame work (Gypsteel Ultra) as per manufacturer's instructions. Provide25 x10 mm l ceiling angle with soffit cleat as hanger support at 610 mm centers. ,20 x27 x 30 mm Perimeter channel wherever adjacent walls and partitions. Intermediate channels of size 45mm @1220 centers. ceiling section of size 51.5 mm x 26 mm @457 mm centers . All steel members should be 0.55mm thk. The 12.5 mm thk gyp board with tapered edge should be fixed with 25 mm drywall screws at 230 and 150 mm centers . Joints should be filled with universal gyp plaster and joint paper tape etc completed				
2	**FALSE CEILING FOR COVE VERTICAL**	250.00	RMT	225.00	56,250.00
	The vertical of cove front only will be considered for measurement. The cove top offset back side vertical will not be considered				
3	**P.O.P. PUNNING FOR WALLS - subject to the requirement at site**	10.00	SQ,MT	340.00	3,400.00
	Providing and applying Punning on concrete ceilings, walls and columns, zari finishing etc with Gyproc stuco material in line and level 12 mm or required thickness The rate shall include scrapping, levelling and preparing the surface. The rate shall be inclusive of all types of grooves above the skirting, around the window and door frames.All inclusive of required scaffolding and tools etc. completed		20		
B	**PAINTING**				
1	**PLASTIC PAINT FOR GYPSUM CEILING**	190.00	SQ,MT	230.00	43,700.00
	Providing & Applying Plastic emulsion paint in 2 coats of approved shade of Dulux / Asian Paints Co. Ltd., including scrapping, opening of existing cracks, filling up of "V" cracks with epoxy expandable putty to required depths, making good weak plastered				

	TOTAL AMOUNT BEFORE TAX (in INR)				**2,78,150.00**
	TOTAL AMOUNT BEFORE TAX (in words)	**Rupees Two Lakhs Seventy Eight Thousand One Hundred and Fifty Only**			

TABLES

SHEET TITLE	**LOOSE FURNITURE**				
S.No.	**DESCRIPTION OF ITEM**	**QTY**	**UNIT**	**RATE**	**AMOUNT**
	TABLES (contractor to submit shop dwgs for Client's approval)				
1	**CHEMISTRY LAB TABLE**				
	Providing & fixing Meeting table (2000x1200x750Ht) with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. Horizontal cable tray to be provided below table top for housing electrical points. 2 nos power managers to be provided on Table top wire management (Chemistry Lab). Refer drawing No IH - 10	1.00	Nos	27000	27000
2	**LIFE SCIENCE LAB TABLE**				
	Providing & fixing Meeting table (2000x1200x750Ht) with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. Horizontal cable tray to be provided below table top for housing electrical points. 2 nos power managers to be provided on Table top wire management (Life Science Lab). Refer Drawing No IH- 10	1.00	Nos	27000	27000

3	**DESIGN LAB COMPUTER TABLE WITH PARTITION**				
	Providing & fixing Linear workstations (1050x550x750Ht) with 75mm partition system with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. cost to include 1 CPU trolley & 1 Metal keyboard tray with mouse pad. Workstations to have 700x400 apron in between made out of 18 mm thk commercial ply finished with approved laminate, refer detail drawing	6.00	Nos	13000	78000
	75mm thick modular partition shall be framed out of Metal frameworks with prelam board Panels. Partition to have 150mm high continuous metal raceway below table table top for housing electrical plates. Partitions Trims shall be formed out of Ms/Aluminum sections duly finished in approved powder coating. Refer to the drawing no IH -11				
4	**MAKING ZONE MAIN TABLE**				
	Providing & fixing Meeting table (4200x1300x750Ht) with 25mm thick prelam table top with approved edge banding. 250wide x75 thick Understructure shall be formed 18mm commercial ply finished in approved laminate.300mm wide and 50mm deep sunk to be provided along the center of table to house material, equipment required for Making Zone. (Refer Detailed drawing) horizontal cable tray to be provided below table top for housing electrical points (for Making zone) Refer Drawing No IH- 13	1.00	Nos	45000	45000

5	**ACTIVITY ZONE TRAINER TABLE**				
	Providing & fixing of Trainer Table (1200x600x750Ht) with 25mm prelam top,18 mm thk Plywood understructure and 18mm commercial ply, finished with approved laminate Apron. cost to include 1 CPU trolley ,1 Metal keyboard tray with mouse pad and 1 nos pencil drawer of 300mmx100mm formed in plral board. (for Activity Zone)- Refer Drawing No IH- 14	1.00	Nos	8500	8500
6	**ROBOTICS TABLE**				
	Providing & fixing Wedge shaped tables with top (1500x900x600 top and 750mm height) with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. Horizontal cable tray to be provided below table top for housing electrical points. (Robotics Table) Refer Drawing No IH- 16	6.00	Nos	11000.00	66000
7	**ROBOTICS AREA COUMPUTER TABLE**				
	Providing & fixing Linear Computer tables (1200x550x750Ht) with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. cost to include cable manager, CPU trolley & Metal keyboard tray with mouse pad. Refer Drawing No IH- 15	2.00	Nos	9100.00	18200
	This table shall not have any partition/ Electrical points shall be placed on masonary wall				

8	**MAKING ZONE TABLE & STORAGE**	1	Nos	24000	24000
	Providing & fixing Linear tables (2100x450x750Ht) with 25mm thick prelam table top with approved edge banding. Understructure shall be formed out of straight/tapered Metal legs. Legs shall be firmly braced with each other round/square MS framework. MS members shall be finished with wood finish powder coating. Legs to have levelers. cost to include cable manager as required. Refer Drawing No IH- 12				
	Providing & fixing of low height storages (750x450x750 Ht). storage shall have 1 drawer (125mm high) on top and 2 shutters below. Carcass, Drawer fascia & shutter shall be formed out of 18mm prelam board, top shall in 25mm prelam board and back in12mm prelam board. Drawer sides & base shall be in 12mm prelam board. Storage to have levellors and internal shelves as per drawing. Shutter to have auto closing Hinges, clock ,handles.				
	TOTAL AMOUNT BEFORE TAX (in INR)				**293,700.00**
	TOTAL AMOUNT BEFORE TAX (in words)	**Rupees Two Lakhs Ninety Three Thousand Seven Hundred Only**			

SEATING

SHEET TITLE	**LOOSE FURNITURE**				
	SEATING				
1	Providing & fixing of Poufs finished in approved colour,size and finish (BR-5000/nos) (For RoboticsTables)	9	Nos	5750	51750

2	Providing & fixing of height adjustble High stools in approved colour,size and finish (BR-2900/nos) (For Chemistry Lab,Life science Lab, workstations, Making zone)	28	Nos	3500	98000
3	Providing & Fixing of Tablet chair with metal understructure and cushioned seat & back (BR-4000/nos) (For Activity zone)	12	Nos	4600	55200
4	Providing & Fixing of chair with height adjustable armrests. with chromed plated Metal legs with castors .chair shall have fabric finish seat & Mesh back.also it shall have Gas pump for ht. adjustment. (BR-3500/nos) (For Trainer table, computer table)	1	Nos	4100	4100
	TOTAL AMOUNT BEFORE TAX (in INR)				**209,050.00**
	TOTAL AMOUNT BEFORE TAX (in words)	**Rupees Two Lakhs Nine Thousand and Fifty Only**			

ELECTRICAL WORK

	ELECRICAL WORKS						
				RATE			**Total**
Item No.	**Description**	**Qty.**	**Unit**	**Material**	**Labour**	**Total Unit Rate**	**Amount**
1	**Lighting fixture**						
1.1	Ceiling light-10watt	17	Each	679	100	779	13,243
1.2	Wiring for 2 No. 6/16 Amp plug point controlled by Single 6/16 Amp Indicator Switch mounted on an main lighting / power switchboard board using 2 x 2.5Cu + 1x 1.5Cu PE as specified (Myrius)	8	Each	473	100	573	4,584
1.3	Wiring for 2no of 6/16Amp Socket with indicator Switch with 2-USB charger Socket (Myrius)	7	Each	399	100	499	3,493
1.4	6Amp Socket with switch for below storage	15	Each	168	80	248	3,720
2	Supply & installation of switches, sockets including mild steel						

	electro galvanised switch box etc. complete with earthing						
2.1	1 # 6 modul Plate with frame Legrand myrius white	15	Each	205	62	267	4,005
2.2	1 # 8 Modul Plate frame Legrand myrius white	1	Each	67	20	87	87
2.3	1 # 12 Modul Plate BP9712 Wipro or equivalent	6	Each	92	28	120	720
2.4	1 # 16 Modul Plate BP9716S Wipro or equivalent	2	Each	138	41	179	358
2.5	1 # 18 Module Plate BP9718S Wipro or equivalent	2	Each	138	41	179	358
2.6	6 module switch box (214 x 75 x 50 mm)	15	Each	108.9	32.67	141.57	2,123.55
2.7	8 module switch box (230 x 75 x 50 mm)(135 X 135 X 50mm)	1	Each	126.5	37.95	164.45	164.45
2.8	12 module switch box (132 x 207 x 50 mm)	6	Each	189.2	56.76	245.96	1475.76
2.9	16 module switch box (142 x230 x 50 mm)	2	Each	225	67.5	292.5	585
2.10	18 module switch box (207 x207 x 50 mm)	2	Each	255	76.5	331.5	663
3	Supply and installation of single or multi compartment GI raceway of cross section given below laid on floor complete as specified. a) Raceway b) All bends, joints, supports, end plates couplers earth conductivity.						
	Raceway 75x50mm for electrical & LV System	17	Mtr	276	98	374	6,358
3.1	Supply and installation of single or multi compartment GI junction box of cross section given below, laid in floor complete as specified.						
	75 x 75 x 75 mm Junction box with removable cover	15	Each	639	138	777	11,655
	TOTAL OF LIGHT AND OTHER FIXTURES in INR					**Total**	**53,592.76**

	TOTAL OF LIGHT AND OTHER FIXTURES in words	**Rupees Fifty Three Thousand Five Hundred Ninety Two and Seventy Six Paisa Only**					
4	**DISTRIBUTION BOARDS**						
4.1.1	Normal Lighting Distribution Board (LDB) as specified & shown on drgs. consisting of Incomer: i) 1# 40A TPN RCCB Outgoing: iv) 8 x 3 # (10A/16A SP MCB)	1	Each	16,840	2,400	19,240	19,240
4.1.2	UPS Power Distribution Board (UPDB) consisting of: Incomer i) 1# 25A DP RCCB Outgoing: iii) 1X12# 10A/16A SP MCB	1	Each	9,800	1,000	10,800	10,800
						Total	**30,040**
5	**CONDUIT WIRING**						
	POINT WIRING						
5.1	Conduit wiring for lights, fans, switches, socket outlets as shown on drgs. & consisting of: a) Wiring in (HMS) UPVC fire retardant conduit in exposed places and above false ceiling as specified b) 1100V grade FRLS copper wires as specified. c) Insulated Protective Earthing (PE) as specified and earthing of switch boxes etc. d) Wall chasing with finishing As shown on drgs.						
5.1.1	Primary conduit Wiring using 2x1.5Cu + 1x 1.5Cu PE from switch/Dimmer to first LIGHT point on the circuit as specified						-
5.1.1.1	Ceiling Light Point (Average length 10 Mtr)	3	Each	731	150	881	2,643
5.1.2	Secondary conduit wiring extending from primary ceiling	14	Each	402	120	522	7,308

	light point to the various light, switch outlet using 2 x 1.5Cu + 1x 1.5Cu PE as specified (Average length 5 Mtr)						
5.2	Providing sub-Mains Wiring for power Circuit from Distribution Board to Switchboard using 2 X 2.5 + 1 X 1.5 sq. mm copper conductor PVC insulated LS wires in rigid PVC conduits of 25mm and 1.8mm wall thickness ISI mark, concealed in wall & ceiling with necessary boxes/pull boxes complete with continuous earthing up to main switchboard from the Distribution board using 1.5 sq.mm. PVC insulated green color copper earth-wire.	70	m	98	14	112	7,840
5.3	Providing Mains Wiring from PANEL ROOM TO Individual Floor Lighting Distribution Board using pvc copper conductor PVC insulated LS wires in rigid PVC conduits of 32 mm and 1.8mm wall thickness ISI mark, concealed in wall & ceiling with necessary boxes/pull boxes complete with continuous earthing up to main switchboard from the Distribution board Using PVC insulated green color copper earth wire						
5.3.1	4 Sqmm X 2C Cu wire	10	m	109	22	131	1,310
5.3.2	10 Sqmm X 4C Cu wire	10	m	363	30	393	3,930
	TOTAL OF POINT WIRING						**23,031**
	Total Amount before tax (in INR)						**106,663.76**
	Total Amount before tax (in words)	**Rupees One Lakh Six Thousand Six Hundred Sixty Three and Seventy Six Paisa Only**					

LIST OF APPROVED MAKES

SHEET TITLE	LIST OF STANDARD MAKES	
SR.NO	**DESCRIPTION**	**BRANDS**
1	**FURNITURE AND ALLIED**	
	PLYWOOD (Commercial IS 303 BWR)	Green ply , Archid , Anchor ,century
	PLYWOOD (Marine IS 710 BWP)	Green ply , Archid , Anchor ,century
	BLOCK BOARD (IS 1659 MR)	Green ply , Archid , Anchor ,century
	FLUSH DOOR (MARINE)	Green ply , Archid , Anchor ,century
	MDF	Green , Nuwud or equivalent
	LAMINATE	Green lam, merrino, (Rs 2000/ sheet)
	VENEER	Green decowood ,Century ,Natural (Basic rate Rs 1650/sqm)
	GLASS	Saint – Gobain, ASI

	WOOD	Exposed Wood -Imported seasoned Wood Unexposed wood ie beadins ,lippings atc should be BTC
	READY MADE TRAP DOORS	Knauff/Equivalent
2	**HARDWARE**	
	FLOOR SPRINGS AND DOOR CLOSERS	Dorma ,ozone, , Hafele
	GLASS HARDWARE	Dorma ,Ozone, Enox,hafele
	HANDLES FOR DOORS	Dorma ,ozone, , Hafele
	HANDLES FOR STORAGES	S.S. Brush finish as per selection
	TELESCOPIC SLIDERS	Ebco, hafele , hettich
	LOCKS FOR DOORS	Dorma ,ozone, , Hafele
	LOCKS FOR DRAWERS AND STORAGES	Europa,hafele or equivalant
	HINGES TOWER BOLTS AND ALLIED HARDWARE	S.S. Brush finish as per selection
3	**CIVIL**	
	SS sink	Nirali/Equivalent
	CP fittings	Jaquar-Florentien series
	C-PVC, UPVC pipes & allied fittings	Finolex,prince,supreme
4	**CEILING AND ALLIED**	
	GYPSUM FALSE CEILING	Saint gobain (India Gypsum Ltd .)
	WALL PLASTER	Gyprock stuco
	GYPSUM BOARD	Saint gobain (India Gypsum Ltd .)
5	**MISCELLAINEOUS**	
	GLASS FILM	Garware,Equivalent
	PAINT	Asian ,Nerolac,Burger ,ICI dulux
	TEXTURE PAINT	Asian ,Nerolac,Burger,ICI dulux
	ROLLER BLINDS	Rolite/Equivalent
	SEATING LIKE POUFS,HIGH STOOL,CHAIRS	Amardeep,Tangent, Equivalent

	LIST OF STANDARD MAKES FOR ELECTRICAL ITEMS		
1)	**MV Panels**	i)	CPRI approval / ERDA approvals
2)	**MV Switchgear**		

	a) Air Circuit Breakers	i)	ABB – Emax		
		ii)	L & T – C Power / U Power		
		iii)	Schneider – Masterpact		
		iv)	Siemens – 3 WL		
		v)	Legrand		
		vi)	C & S – (WiNmaster)		
	b) Moulded case circuit breakers			Microprocessor	Thermal
				Release	magnetic
		i)	ABB	T max	T max
		ii)	L & T	DNX	D sine
		iii)	Schneider	Compact	Simpact
		iv)	Siemens	3VL	3 VL
		v)	Legrand	DRX	DPX
		vi)	C & S	Winbreak - 2	Winbreak-2
	c) Motor Protection Unit Breaker	i)	Schneider Electric / Siemens/ Legrand/ ABB		
	d) Miniature Circuit Breaker (MCB)	i)	Hager (Larsen & Toubro)		
		ii)	MDS Legrand		
		iii)	Schneider Electric – (Multi 9)		
		iv)	Siemens		
	e) Residual Current Circuit Breaker	i)	Hager (Larsen & Toubro)		
	(RCCB)				
		ii)	MDS Legrand		
		iii)	Schneider Electric – (MG)		
		iv)	Siemens		
	f) Power / Aux. Contactor	i)	Schneider Electric (Telemechanique)		
		ii)	Siemens		
		iii)	ABB		
	g) Switch fuse units, isolators	i)	L & T / Siemens/ G E Power Controls/ Indo Asian		
	h) Contactors	i)	ABB / Schneider/ Siemens/ L & T		
	i) Protection Relay	i)	ABB / Siemens/ Schneider/ L & T		
	j) Indicating Lamps LED type and	i)	Vaishno		
	Push Button	ii)	Schneider Electric		

		iii)	Siemens	
		iv)	Teknik	
	k) Overload relays with built in single	i)	ABB	
	Phase preventer	ii)	Schneider Electric	
		iii)	Siemens	
		iv)	L & T	
	l) Electronic Digital Meters & load	i)	HPL / L &T / MECO/Secure/Conzerv	
	m) Overloads	i)	ABB / L & T / Siemens/ Schneider	
	n) Automatic Transfer switches	i)	ASCO Automatic Switch co (USA)	
		ii)	Socomec (HPL)	
		iii)	Cummins	
3)	**LT cables**	i)	RPG / KEI / Finolex / Polycab/ Rallison / AVOCAB	
4)	**Cable end termination**	i)	Comet / Dowells / Jainson	
5)	**Cable trays**	i)	Indiana	
		ii)	Profab	
		iii)	Asian Ancillary Corporation	
6)	**Conduit wiring**			
	a) Steel	i)	BEC / AKG / Supreme	
		ii)	AKG	
		iii)	Supreme	
		iv)	Sudhakar	
	b) PVC	i)	Precision / Supreme / AKG	
	c) Wires	i)	Finolex / Havells/Polycab/RPG/Rallison/KEI	
	c) Modular switches & sockets	i)	Legrand	Vendor should mention the Model number
		ii)	Wipro	
		iii)	Schnieder	
		iv)	Anchor	

	d) Industrial sockets	i)	Clipsal / Cutler Hammer/ Indo Asian / Scame
7)	**Distribution Board**	i)	Legrand / Schneider / L & T – Hager / GE
8)	**Rotary Switches**	i)	Kaycee / L & T / Siemens
9)	**Data & Telephone cables**	i)	Systemax / AMP/ D-Link
10)	**Capacitors**	i)	L & T / Powercap/ Subodhan
11)	**Sandwich busduct / Rising mains**	i)	Godrej / L &T/ Entraco/Schneider/C&S/Legrand
12)	**Control Transformer / Potential**	i)	Automatic Electric/ Pragati/ Indcoil/ Jyoti
13)	**Current Transformer (Epoxy Cast**	i)	KAPPA / Intrans/Pragati
14)	**Anchor Fastener**	i)	Hilti
15)	**Welding Rod**	i)	L & T / Esab / Ador
16)	**TV Co-axial cable**	i)	Comm scope / BELDOL / Catvison
17)	**Inverters**	i)	Megatech / CONSULE/ APC/ GE/ Saksham
18)	**UPS**	i)	Emerson / Megatech/GE/APC/Saksham
19)	**Batteries**	i)	AMCO / Exide/HBL Life/Amar Raja
20)	**Lighting Fixtures**	i)	WIPRO/ Philips/Bajaj/Thorn/Havells/Osram
21)	**Aviation Obstruction Light**	i)	Bajaj / GE / FOREND
22)	**Electronic Ballast for Fluorescent**	i)	WIPRO / Philips/Osram/Thorn
23)	**Lightning Arrester**	i)	ERICO / Indalec
24)	**Maintenance free Earth Pits**	i)	Ashlok / ERICO
25)	**Fire, PA**	i)	UL Listed
		ii)	Ravel/Jay/Wells

		iii)	Philips/Bosch/Ahuja
26)	**CCTV**	i)	Hikvision / Cpplus
27)	**EPABX, Access Control**	i)	Matrix / HID

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