

## DISCLAIMER

**This tender is not an offer by the All India Institute of Medical Sciences, Raipur, but an invitation to receive offer from bidders/firm/agency etc. No contractual obligation whatsoever shall arise from this tender process unless and until a formal contract is signed and executed by duly authorised officers of AIIMS, Raipur with the selected bidder/firm/agency.**



**All India Institute of Medical Sciences, Raipur**

G.E. Road, Tatibandh, Raipur – 492099, Chhattisgarh

Tele: 0771- 2577279, email: [store@aiimsraipur.edu.in](mailto:store@aiimsraipur.edu.in)

Website: [www.aiimsraipur.edu.in](http://www.aiimsraipur.edu.in)

**Notice Inviting Tender**

**for**

**"Establishment of TB Laboratory"**

**At**

**All India Institute of Medical Sciences, Raipur**

**CRITICAL DATE SHEET**

Published Date	24.08.2018 at 18:00PM
Bid Document Download / Sale Start Date	25.08.2018 at 10:00AM
Clarification Start Date	25.08.2018 at 11:00AM
Clarification End Date	29.08.2018 at 17:00PM
Pre bid meeting	31.08.2018 at 04:00PM
Bid Submission Start Date	07.09.2018 at 10:00AM
Bid Document Download / Sale End Date	22.09.2018 at 15:00PM
Bid Submission End Date	22.09.2018 at 15:00PM
Bid Opening Date	24.09.2018 at 15:30PM



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अखिल भारतीय आयुर्विज्ञान संस्थान, रायपुर, छत्तीसगढ़  
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1. Online bids are invited on single stage two bid system for “Establishment of TB Laboratory for Microbiology Department”. Manual bids shall not be accepted.
2. Tender document may be downloaded from AIIMS web site [www.aiimsraipur.edu.in](http://www.aiimsraipur.edu.in) (for reference only) and CPPP site <https://eprocure.gov.in/eprocure/app> as per the schedule as given in CRITICAL DATE SHEET as under.
3. Bid shall be submitted online at CPPP website: <https://eprocure.gov.in/eprocure/app>.
4. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
5. Tenderer who has downloaded the tender from the **AIIMS web site** [www.aiimsraipur.edu.in](http://www.aiimsraipur.edu.in) and Central Public Procurement Portal (CPPP) eprocurement website <https://eprocure.gov.in/eprocure/app> **shall not tamper/modify the tender form including downloaded price bid template in any manner.** In case if the same is found to be tempered/modified in any manner, tender shall be completely rejected and EMD would be forfeited and tenderer is liable to be banned from doing business with AIIMS Raipur.  

The Technical bid should include the detailed specifications of main item/equipment and its accessories. All items should be numbered as indicated in the Annexure-I (Any deviation should be clearly mentioned and supporting document should be submitted).
6. **Manual bid shall not be accepted in any circumstance.**
7. The complete bidding process in online bidding, Bidder should be possession of valid digital Signature Certificate (DSC) for online submission of bids. Prior to bidding DSC need to be registered on the website mentioned above.
8. **Tenderers are advised to follow the instructions provided in the ‘Instructions to the Tenderer for the e-submission of the bids online through the Central Public Procurement Portal for e Procurement at <https://eprocure.gov.in/eprocure/app>’.**
9. **Quotations should be valid for 180 days** from the tender due date i.e. tender opening date. The bidder should clearly indicate the period of delivery.
10. Relevant literature pertaining to the items quoted with full specifications should be uploaded, where ever applicable.
11. Tenderer must provide evidence of previously establishing TB Laboratory having in any government hospital / reputed private hospital organizations in India similar nature of items of at least **₹ 1,50,00,000.00** of Establishment of TB Laboratory of Tender value in the last three years and the copy of the same should be uploaded.

12. The firm should be registered and should have the average annual turnover at least **₹ 3,00,00,000.00** of the bidder in the last three financial years. Copies of authenticated balance sheet for the past three financial years should be uploaded.
13. The tender document must be accompanied by copy of PAN, Certificate of firm/company registration, GST registration.
14. The quantity shown against each item is approximate and may vary as per demand of the Institute at the time of placement of order.
15. The bidder must be able to provide the product/items within specified time period as prescribed in the Purchase Order, failing which the EMD will be forfeited. Furthermore on completion of the stipulated time period, Purchase Order will be cancelled and award will be given to another qualified bidder with the negotiated terms & conditions as per Institutes norms.
16. In the event of any dispute or difference(s) between the vendee (AIIMS Raipur) and the vendor(s) arising out of non-supply of material or supplies not found according to the specifications or any other cause what so ever relating to the supply or purchase order before or after the supply has been executed, shall be referred to the Director/AIIMS/Raipur who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act 1996. The decision of the arbitrator shall be final and binding on both the parties.
17. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
18. All disputes shall be subject to Raipur Jurisdiction only.
19. **AIIMS Raipur reserves the rights to accept/reject any bid in full or in part or accept any bid other than the lowest bid without assigning any reason thereof. Any bid containing incorrect and incomplete information shall be liable for rejection.**
20. The Tender/Bid will be opened on Store office at AIIMS Raipur Premises.
  - i) Only those financial bids will be opened whose technical bids are found suitable by the expert committee appointed for the concerned instrument/equipment.
  - ii) No separate information shall be given to individual bidders. In incomparable situation, the committee may negotiate price with the technically and financially qualified bidder before awarding the bid.
21. Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm or partnership, etc.
22. **Award of Contract**

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has bided the lowest evaluated quotation price.

  - i) Not with standing the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

- ii) The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the bid validity period. The terms of the accepted bid shall be incorporated in the purchase order.
- 23.** Normal comprehensive warranty/guarantee and CMC (if applicable) shall be applicable to the supplied goods as per Annexure-I.
- 24.** Rates should be quoted inclusive of packing, forwarding, postage and transportation charges etc.
- 25.** The competent authority reserves all rights to reject the goods if the same are not found in accordance with the required description / specifications/quality.
- 26. A brochure displaying clearly the layout LB Laboratory with the tender if required.**
- 27. Earnest Money:** Earnest money Rs.12,00,000.00 by means of a Bank Demand Draft/ FD, a scanned copy to be enclosed. It is also clarified that the bids submitted without earnest money will be summarily rejected. The DD/FD may be prepared in the name of "All India Institute of Medical Sciences, Raipur (AIIMS RAIPUR)". The EMD cost must reach at officer of the Stores Officer Gate no. 5, Medical College Building, 2nd Floor, AIIMS, Raipur before opening of tender.
- i) No request for transfer of any pervious deposit of earnest money or security deposit or payment of any pending bill held by the AIIMS Raipur in respect of any previous supply will be entertained. Tenderer shall not be permitted to withdraw his bid or modify the terms and conditions thereof. In case the tenderer fail to observe and comply with stipulations made herein or backs out after quoting the rates, the aforesaid amount of earnest money will be forfeited.
- ii) Tenders without Earnest Money will be summarily rejected.
- iii) No claim shall lie against the AIIMS Raipur in respect of erosion in the value or interest on the amount of EMD.
- iv) If MSME firm is registered for above tendered item, then the firm will be exempted for submission of EMD amount. Firm must upload scanned copy of following documents in support of exemption. (1) Small Industries Corporation (NSIC).
- v) The earnest money will be returned/refund to the unsuccessful tenderers after the tender is decided.
- vi) EMD should remain valid for a period of 45 days beyond the final bid validity period. When the tenderer agrees to extend the validity of bid, he shall also extend the validity of EMD suitably.
- 29.** In case the supplier requires any elucidation regarding the tender documents, they are requested to contact to the Store Officer, AIIMS Raipur through e-mail: store@aiimsraipur.edu.in on or before end date of clarification as per critical date sheet.
- 30.** The EMD of the successful bidder will be returned to them without any interest after the submission of Security deposit/PSD.

**31.** Other terms and condition applicable as per manual for procurement of goods 2017, GFR-2017 etc.

**Stores Officer,  
AIIMS, Raipur**

**Other Terms&Conditions:****1. Pre-Qualification Criteria:**

- a. The bidder shall have experience of having successfully executed and completed minimum Three Works of construction and Establishment of High Containment Laboratories of Biosafety Level-2 & Level-3 or Higher in Central/State Government Department/Institute of India, in the last 7 years. Copy of the Work Orders & Completion Certificate from clients shall be submitted.
- b. The experience of complete works shall be in the name of Bidder Company. Experience of completed works in Subsidiary/Group Company, Joint Venture Company or as sub-contractor shall not be considered and accepted.
- c. The bidder shall have an average annual turnover of minimum of Rs.3,00,00,000.00 in the last 3 financial years(i.e.F/Y 2015-16,2016-17,2017-18). Copy of Audited Balance Sheets for all three financial years shall be submitted.
- d. The bidder shall be a registered and established firm in India in similar business since more than 5 years. Copy of Registration/Certificate of Incorporation may be submitted.
- e. The bidder shall have the following minimum qualified and experienced personnel for the successful completion of the works.

Role / Responsibility	Educational Qualification	Min. Work Experience	Number of Personnel to be made available for the work
Project Manager	B.Tech	6 Years	01
Engineer –MEP Services	B.Tech/Diploma	5/8 Years	01
Engineer - Electrical	B.Tech/Diploma	5/8 Years	01
Engineer – Instrumentation	B.Tech/Diploma	5/8 Years	01
Site Supervisor	Diploma /ITI	4/7 Years	01
Technician	Diploma/ITI	4/7 Years	01

- e. The site supervisor and technician shall have experience of working on BSL-2 & BSL-3 Laboratories projects and shall be deputed at site for the entire project duration.
- f. Bio-data of the personnel available with the bidder meeting above requirement of qualification and experience shall be submitted.
- g. The bidder shall have the experience and setup for providing Operation and Maintenance Service for similar BSL-3 or higher containment laboratories. Details shall be submitted along with copies of work orders from the client.

**2. Scope of work:**

The scope of work includes ***'Detailed Design, Supply, Installation, Testing, Commissioning (SITC) and Validation of the BSL-2 and BSL-3 Laboratory of area 966 sq ft and clean room area for LPA consisting of four (4) Laboratories of area 485 sq ft and associated works at All India Institute of Medical Sciences, Raipur on "Turnkey Basis" as per the following reference standards and its Operation and Maintenance as per enclosed layout'.***

**3. The Employer:**

All India Institute of Medical Sciences Raipur shall be the employer/owner for the subject work. The Employer shall be represented by the Director, AIIMS Raipur or any other person nominated by him to act as a employer.

In these documents wherever the word tender/tenderer /tendering has been used the same may be considered synonymous with bid/bidder/bidding.

**4. Time for completion:**

The successful bidder shall complete the works within 12(Twelve) Calendar months from the date of award of work, as per the following milestone targets:

Physical completion of the works including installation of equipments, system and services 10 months from the date of award of work.

Completion of Testing, Commissioning of complete installations and validation of BSL-3 Laboratory, within 2 months of physical completion of works.

**5. Information to be submitted along with Bid:**

- i. Copies of original documents defining the constitution, legal status, place of registration and principal place of business of the company or firm.
- ii. A work plan/Program clearly bringing out how the bidder proposes to carry out the work to achieve the quality and the time schedule.

**6. COST OF BIDDING:**

The bidder shall bear all costs associated with the preparation and submission of his bids and "The Employer" will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

**7. SITE VISIT:**

i. The bidder is advised to acquaint himself with the work involved, visit the Site and examine site conditions, assess the dismantling and site preparatory works required to be carried out, the requirement for erection of AC plant, placement of air handling unit and exhaust blowers, placement of outdoor equipments like chillers, DG set etc., climatic conditions, labour, power, water, material availability, transport and communication facilities, environmental regulations, laws and bye-laws of statutory bodies, and collect all information that will be necessary for preparing the bid and, if awarded the work, entering into a contract for successful execution and completion of the work. The cost of visiting the Site and collecting information for the purpose of submission of the bid shall be to the bidder's account. It may be noted that the site shall be handed over to the successful bidder / contractor for execution of the works, in its present existing condition. Any existing fittings/fixtures and items shall be dismantled by the contractor and handed over to AIIMS Raipur.

ii. The bidder and any of his personnel or agents will be granted permission by the Employer to enter upon the site for the purpose of such inspection, but only upon the condition that the bidder, his personnel or agents will release and



indemnify the Employer and Employer's Personnel from and against all liability in respect thereof for personnel injury (Whether fatal or otherwise), damage, loss, costs and expense however caused, to the bidder, his personnel or agents.

## **8. Performance Guarantee Bond:**

- a. The successful bidder shall have to submit a performance guarantee (PG) within 30 days from the date of issue of Letter of Award (LOA). Extension of time for submission of PG beyond 30 days band up to 60 days from the date of issue of LOA may be given by the competent authority to sign the contract agreement however a penal interest of 15% per annum shall be charged for the delay beyond 30 days. i.e. 31<sup>st</sup> day after the date of issue of LOA. In case of the contract fails to submit the requisite PG even after 60 days from the date of issue of LOA the contract shall be terminated duly forfeiting the EMD and other dues if any payable against the contract. The failed contractor shall be debarred from participating in re-tender (if any) for that item. Performance Guarantee Bond is mandatory.
- b. Successful supplier/firm should submit performance guarantee as prescribed in favour of "AIIMS, Raipur" and to be received in the Store Office, 2<sup>nd</sup> Floor, Medical College Building, Tatibandh, Raipur (C.G) Pin-492099 before the date of commencement of supply or 30 days from the date of acceptance of the purchase order, whichever is earlier. The performance guarantee bond to be furnished in the form of Bank Guarantee as per given Proforma of the tender documents, for an amount covering 10% of the contract value.
- c. The Performance Guarantee should be established in favour of "AIIMS Raipur" through any Schedule Bank with a clause to enforce the same on their local branch at Raipur.
- d. Validity of the performance guarantee bond shall be for a period of 60 days beyond of entire warranty period from the date of issue of installation & commissioning.
- e. After completing of warranty period a fresh BG/DD/FDR of 10% of CMC cost will be submitted by the supplier for performance security against CMC validity of this new BG/DD/FDR will be 60 days beyond CMC period. After submission of new security deposits, old security deposit will be released.

**9. Right of Acceptance:** AIIMS, Raipur reserves the right to accept or reject any or all tenders/quotations without assigning any reason there of and also does not bind itself to accept the lowest quotation or any tender. AIIMS, Raipur also reserves the rights to accept all the equipment/instruments in the given tender or only part of it in any given schedule without assigning any reason.

**10. Validity of the bids:** The bids shall be valid for a period of 180 days from the date of opening of the tender. This has to be so specified by the tenderer in the commercial bid which may be extended, if required.

## **11. Risk Purchase & Recovery of sums due:**

- Failure or delay in supply of any or all items as per Requisition / Purchase Order, Specification or Brand prescribed in the tender, shall be treated as 'non compliance' or 'breach of contract' and the order in part or full be arranged from alternative source(s) at the discretion of the hospital authority and the difference in price has to be recovered from the tenderer as mentioned elsewhere.
- The amount will be recovered from any of his subsequent / pending bills or

security Deposit.

- In case the sum of the above is insufficient to cover the full amount recoverable, the contractor shall pay to the purchaser, on demand the remaining balance due.

**12. Designing, Installation, Testing:** Suppliers must give the comprehensive onsite warranty as per Annexure-I as required from the date of successful installation of item/equipment against any manufacturing defects. In the installation report the model number of instrument and all spares parts/ accessories numbers should be in the line of purchase order. And suppliers must be written in the warranty declaration that “everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be completed enough to carry out the experiments, as specified in the tender document.” If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges (shipping cost both ways). **Installation must be done within stipulated time period from the date of delivery of the item/ equipment as specified in the purchase order.**

**13. Communication of Acceptance:** AIIMS, Raipur reserves all right to reject any tender including of those tenderers who fails to comply with the instructions without assigning any reason whatsoever and does not bind itself to accept the lowest or any specific tender. The decision of this Institute in this regard will be final and binding.

**14. Insolvency etc.:** In the event of the firm being adjudged insolvent or having a receiver appointed for it by a court or any other under the Insolvency Act made against them or in the case of a company the passing any resolution or making of any order for winding up, whether voluntary or otherwise, or in the event of the firm failing to comply with any of the conditions herein specified AIIMS, Raipur shall have the power to terminate the contract without any prior notice.

**15. Force Majeure:** If, at any time during the subsistence of this contract, the performance in whole or in part by either party of any obligation under this contract is prevented or delayed by reasons of any war or hostility, act of public enemy, civil commotion, sabotage, fire, floods, exception, epidemics, quarantine restriction, strikers lockout or act of God (hereinafter referred to as events) provided notice of happening of any such eventuality is given by party to other within 21 days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance or delay in performance and deliveries have been so resumed or not shall be final and conclusive.

Further, that if the performance in whole or in part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, AIIMS, Raipur party may, at least option to terminate the contract.

**16. Breach of Terms and Conditions:** In case of breach of any terms and conditions as mentioned above, the Competent Authority, will have the right to cancel the contract without assigning any reasons thereof and nothing will be payable by AIIMS, Raipur. In that event the security deposit shall also stand forfeited.

**17. Subletting of contract:** The firm shall not assign or sublet the contract or any part of it to any other person or party without having first obtained permission in writing of AIIMS, Raipur, which will be at liberty to refuse if thinks fit. The tender is not transferable.

**18. Right to call upon information regarding status of contract:** The AIIMS, Raipur will have the right to call upon information regarding status of contract at any point of time.

**20. BID PRICE:**

The quoted rates in Bill of Quantities (Financial Price Bid) shall be in Indian Rupees only and shall include cost of the material, equipment/item, stores, freight, insurance, transit insurance, packing & forwarding, GST and equipment's, inspection/inspective certificate charges etc. and including all other incidental charges whichever is applicable for the equipment/item supply, erection, installation, testing and commissioning with all men and material, complete as required for the same.

No other charges shall be payable on any account over and above the allinclusive price quoted for the items in the Bill of Quantities (Financial Price Bid) for execution of the works on 'Turnkey Basis', as per the Scope of Work.

The price should be given both in figures and words. The rates quoted in ambiguous terms such as 'packing forwarding extra' or offers with price variation clause will not be accepted, and such Bids shall be summarily rejected.

**21. GST**

GSt rates applicable on your quoted item may please be informed. Please confirm if there is any (Upward/Reduction) in your Basic Price structure. And you are also requested to pass the Input Credit as per the following Anti Profitering Clause of GST. **"Upon Implementation of GST, any reduction in the rate of tax on supply of goods or service or the benefit of input tax credit shall be passed on to AIIMS Raipur by way of commensurate reduction in the prices".**

In the event of increase in price, detailed justification and supporting evidence may be submitted for our consideration.

**19. Fall Clause :**

1. Prices charged for supplies under Rate Contract by the supplier should in no event exceed the lowest prices at which he bids to sell or sells the stores of identical description to any other State Government/DGS&D/Public Undertaking during the period of the contract.
2. If at any time during the period of contract, the prices of tendered items is reduced or brought down by any law or Act of the Central or State government, the supplier shall be bound to inform Purchasing Authority immediately about such reduction in the contracted prices, in case the supplier fails to notify or fails to agree for such reduction of rates, the Purchasing authority will revise the rates on lower side. If there is a price increase for any product after quoting the rates, the bidder will have to supply the item as per quoted rates. This office will not accept any higher rates after wards.
3. If at any time during the period of contract, the supplier quotes the sale price of such goods to any other State Govt./DGS&D and Public Undertakings at a price lower than the price chargeable under the rate contract he shall

forthwith notify such reduction to Purchasing Authority and the prices payable under the rate contract for the equipment's supplied from the date of coming into force of such price stands correspondingly reduced as per above stipulation.

Any deviation in the material and the specifications from the accepted terms may liable to be rejected and the suppliers need to supply all the goods in the specified form to the satisfaction/ specifications specified in the Purchase order and demonstrate at the their own cost.

**20. Arbitration:**

If any difference arises concerning this agreement, its interpretation on payment to the made there under, the same shall be settled out by mutual consultation and negotiation. If attempts for conciliation do not yield any result within a period of 30 days, either of the parties may make a request to the Director, AIIMS Raipur to settle the dispute by Sole Arbitrator. Sole arbitrator will be appointed by the Director, AIIMS Raipur. In case of such arbitrator refusing, unwilling or becoming incapable to act or his mandate having been terminated under law, another arbitrator shall be appointed in the same manner fromamong the panel of three persons to be submitted by the claimant. The provision of Arbitration and Conciliation Act, 1996 and the rule framed there under and in force shall be applicable to such proceedings.

**21. Legal Jurisdiction:**

The agreement shall be deemed to have been concluded in Raipur, Chhattisgarh and all obligations hereunder shall be deemed to be located at Raipur, Chhattisgarh and Court within Raipur, Chhattisgarh will have Jurisdiction to the exclusion of other courts.

**Stores Officer,  
AIIMS Raipur**

## TENDER SPECIFICATIONS FOR ESTABLISHMENT OF TB LABORATORY AT AIIMS RAIPUR

### TECHNICAL SPECIFICATIONS

#### 1. Scope of work:

The scope of work includes ***Detailed Design, Supply, Installation, Testing, Commissioning (SITC) and Validation of the BSL-2 and BSL-3 Laboratory of area 966 sq ft and clean room area for LPA consisting of four (4) Laboratories of area 485 sq ft and associated works at All India Institute of Medical Sciences, Raipur on “Turnkey Basis” as per the following reference standards and its Operation and Maintenance as per enclosed layout’.***

#### **Reference Standards:**

- Fifth edition of BMBL (Biosafety in Microbiological and Biomedical Laboratories) Biosafety Level 1 – 4, Guidelines issued by US department of Health and Human Services, CDC, USA.
- WHO, GENEVA Laboratory Biosafety Manual – 3<sup>rd</sup> Edition, Biosafety Level 1 – 4
- Canadian Standard, Laboratory Biosafety Guidelines – 3<sup>rd</sup> Edition 2004
- EN12128 -1998, Biotechnology- Laboratories for research development and analysis- containment levels of microbiological Laboratories, areas of risks localities and physical safety requirement.
- PCL- 1– 4 Physical Containment Level Laboratory
- NIH Guidelines for research involving recombinant DNA molecules (Jan 2001) Biosafety Level 1—4,

#### **1.1. Scope of Work For BSL-2/BSL-3 Lab Area:**

The scope for BSL-2/BSL-3 lab area of approximately 966 sq.ft. under the contract shall cover and include the following works to be executed by the contractor on ‘Turnkey Basis’.

- a) Preparation and submission of Detailed Design & Engineering including preparation of working drawings for internal construction and finishing work, Plumbing System and associated PHE drawings, Electrical power distribution SLD and Panel GA drawings, Electrical light, power, data & voice Layout, FDA system drawing, HVAC System details and drawings, Door Interlock and Access Control system details and drawings, Shower System, CCTV system details and drawings, Building Management System details and drawings, Furniture Layout plan, construction drawings and details of shed for effluent decontamination system and details and other required and associated systems and services for the proposed BSL-3 Laboratory Facility.
- b) Submission of Technical Data Sheet, Catalogues and Literatures for equipment including Autoclave, Bio-Safety Cabinet, Pass Box, Air Handling Units, Chiller, Compressors, Exhaust Blower, CCTV system, Access Control system etc.
- c) Submission of any other relevant drawing and technical details considered essential and required for successful completion of the works and asked by the employer.

- d) The executing agency/contractor shall submit the working drawings, technical literature, brochure, literature, technical specifications and other details, sufficiently in advance for approval of the Employer, giving sufficient time for its review. The work shall be taken up only after approval of the drawings and specifications.
- e) Supply and erection of materials, items and equipments/s for execution and completion of internal construction and finishing work, construction of shed for effluent decontamination system and PHE works, Electrical and associated works, HVAC work, BMS work, systems and services etc. required as per approved designs and drawings.
- f) Supply and installation of following equipment's and systems shall be done by the executing agency and shall be included in the scope of work:
  - Bio-Safety Cabinets (Class II A2 Type)
  - Pass Box and Dunk Tanks
  - Double Door Autoclave
  - Air compressor
  - UPS & Inverter with Batteries
  - Door interlocks and Access Control System
  - Fire Detection & Alarm System
  - Surveillance (CCTV) System
  - LAN System & Intercom System
  - Laboratory Work Station, Eye wash and Hand Wash Stations
  - Effluent Decontamination System
  - Non ventilated Garment storage cabinets for change room
  - Portable Fire Extinguishers (CO2 /Dry Powder type)
  - Water Softening Plant
  - DG Set
- g) The Employer reserves the right to do minor changes in the given layout plan or change the quantities of fittings and fixture as given in the tender documents. All such changes shall be incorporated and the work shall be executed by the contractor without any additional cost. However, in case, the Employer instructs or make changes in any of the already executed works, which requires demolition/dismantling and re-work by the contractor, than the cost of making such demolition/dismantling and re-work shall be reimbursed and paid to the contractor.
- h) Testing and commissioning of all the equipment/s, items, systems and services supplied and installed in the Laboratory Facility and Validation of the BSL-3 Laboratory as per the BSL-3 Laboratory Certification Guidelines of NIH, USA in the presence of representative/s of Employer and submission of compiled report.
- i) Preparation and submission of 3 sets of AS BUILT DRAWINGS, OPERATION & MAINTENANCE MANUAL AND INSTRUCTION' for the complete installation and 'BIO-SAFETY MANUAL' for the BSL-3 Lab.
- j) Providing training to the Employer staff on operation, servicing and maintenance of all engineering installations and handling of emergencies due to fire or engineering system failures.

## **1.2. Scope of work for LPA Area:**

Scope of Work of LPA Area of 504 sq ft consist of construction of following Labs with HVAC system including complete air management system to maintain Positive pressure Gradient inside the Lab, with all related civil work/ internal lighting and wiring work/furniture work. Any other work related to civil/mechanical/electrical should be treated as a part of scope of the bidder.

- a) Master Mix Preparation Room (114 sq ft)

- b) Amplification Room (114 sq ft)
- c) Hybridization Room Lab (89 sq ft)
- d) Common Air Lock (59 sq ft)
- e) Entry Air Lock (41 sq ft)
- f) Extra Room for other purposes (89 sq ft)

## 2. Tender drawings

The vendors are requested to prepare the designs of BSL-2 and BSL-3 lab taking following points into consideration. Original building layout of the proposed area is attached herewith for the reference.

a. It may be noted that, the area labeled as autoclave room adjacent to the proposed BSL-2 and BSL-3 laboratory in the original layout (designated as AHU room in present layout) is no longer available for keeping the autoclave or extension/inclusion in BSL3 laboratory layout since the AHU placed in that area cannot be shifted elsewhere. Hence, vendors are requested to prepare the design of BSL-2 and BSL-3 lab considering the available area only (labeled as conference room in attached layout).

b. The wall between conference room and TB room as depicted in the present layout may be utilized for installation of double door autoclave.

c. Open space at ground level behind the proposed BSL-3 and BSL-2 lab (in between two buildings) can be used for installing the HVAC systems, Effluent Treatment plant, DG set and other related accessory machines. All the civil and other related work required for installation of these items will be a part of turn key.

d. It may be strictly noted that, additional areas from the existing rooms adjacent to the proposed BSL-2/3 lab and LPA lab **cannot be spared** for inclusion in the revised design as they are meant for functioning of other laboratories.

e. The bricks wall between corridor and BSL-2/3 areas as well as between corridor and LPA area **cannot be demolished**. The corridor needs to be kept open for providing emergency exit from the building.

3. The layout for LPA area remain unchanged.

4. The work shall be executed as given and detailed in the scope of work, technical specifications and the final design and drawings to be submitted by the Bidder and approved by the Employer.

## 3. Technical specifications

### 3.1. INTERNAL CONSTRUCTION & FINISHES & PHE WORKS:

- 3.1.1. The internal partition walls and ceiling construction in BSL-3, BSL- 2 Laboratory, and LPA Lab and the support areas shall be carried out with prefabricated, non-particle shredding panels in Powder Coating finish.
- 3.1.2. The pre-fabricated wall and ceiling panels shall provide impervious and monolithic construction and surface finish. The existing external brick walls shall be provided with cladding from inside with similar pre-fabricated wall panels. The Flooring shall be carried out in 3mm Self Leveling Epoxy, in approved shade.
- 3.1.3. The internal partition and ceiling panels in BSL-2 and BSL-3 lab area shall be able to withstand negative pressure of upto -100 Pa, without any sag or buckling. The ceiling shall be walkable type for access of services above for maintenance purpose.

**a) Modular Wall Panels:**

Panel Thickness	-	45 mm
Outer Skin (both sides)	-	Powder Coated GSS sheet in 0.8 mm thickness
Insulation/Filler material	-	PUF having density of 35-40kg/m <sup>3</sup>
Shade / Color	-	As approved
Services	-	Pre-inserted conduits for electrical wires/cables etc.
Sealing of Joints	-	Silicone Sealant
Sealing of Penetration	-	Silicone Sealant

**b) Ceiling Panels:**

Panel Thickness	-	45mm
Outer Skin (both sides)	-	Powder Coated GSS sheet in 0.8 mm thickness
Insulation/Filler material	-	PUF having density of 35-40kg/m <sup>3</sup>
Shade / Color	-	As approved
Sealing of Joints	-	Silicone Sealant
Sealing of Penetration	-	Silicone Sealant
Installation	-	The ceiling panels shall be installed in uniform manner and there should be no over lapping of panels
Ceiling Cut-Out	-	uniform and symmetrical cut-outs for supply air and return/exhaust air diffusers

**c) View panel/window:**

- View panels/window frame work shall be made in similar construction as partition panels and shall be installed flushed with the wall panel.
- The view panels shall be double glazed type and shall be in size 1000mm × 1000 mm (or as required) in the wall partitions.
- The view panel glazing shall be in 8 mm thick toughened glass on both sides and shall be fully glued fit and sealed along with desiccant to avoid condensation
- The view panels/window frame and glass panel glazing shall be perfectly sealed not to allow any ingress of air, due to negative pressure.

**d) The Radius Coving (wall-to-wall, and wall-to-ceiling, from inside to outside corner):**

Smooth radius covering should be installed at all wall-to-wall and wall-to-ceiling joints. All seams should be carefully sealed with RTV sealant. Corners at floor – covered from PVC floor sheet to the wall.

**e) Flooring**

Flooring shall be in 3 mm Self-level epoxy in approved shade, complete with base coat, sealer coat and 3 mm top coat in self-levelling epoxy conforming to IS :4631.

**f) Doors**

The Air-Lock doors of the BSL-3 Laboratory shall be Air-Tight Biosafety Doors. The Door size shall be as shown in the drawings or as required.

- Shall be of Stainless steel (SS 304)
- The doors meant for entering / exit into the rooms, considered should be double skin GSS with PUF insulation of suitable thickness in between.
- Shutters should be 44mm thick.
- The Entry Air lock door and Exit Air lock doors should be interlocked.
- Doors inside the controlled area are interlocked except the emergency exit. All doors have continuous rubber gasket around the perimeter.



- The interlock logic should be such that while entering or exiting the facility, traffic from the other side should not get access, to ensure privacy.
  - The Door Frames and Shutters in laboratory and support area shall be in metallic construction and factory pre-painted/powder coated in chemical resistant finish. The doors shall be provided with lip gaskets on top and sides and drop down gasket at the bottom. Doors shall be provided with approx. 300mm×600mm vision panel with double glass in 5mm thickness, both sides installed flushed with the door surface.
  - The doors shall be provided with heavy duty door closer, stainless steel kick plate on outer side and Stainless Steel handle. The doors shall be provided with Key-Lock, except for doors inside the BSL-3 Laboratory area.
  - The door frames & door shutters of Biosafety doors for showers and air locks shall be constructed in 16 swg stainless steel 304.
  - The Biosafety Doors of fumigation air lock and BSL-2/3 Laboratory shall be Air-Tight Doors, provided with inflatable gaskets, connected to compressed airline from the air compressor, to ensure perfect sealing when in closed position. The inflatable gaskets shall be interlocked with the door interlock system such that when the door is closed, the gasket should inflate and seal the door and when the door release button is pressed, the gasket should deflate to allow opening of the door. The doors shall be provided with sealed vision glass and shall be complete with door closers and SS handles.
- g)** To minimize penetrations in the ceiling, service pendant/s manufactured in SS 304 (18 gauges) shall be provided for connecting services like steam, water and compressed air inside the BSL-3 Laboratory. The ceiling pendant penetration shall be perfectly caulked and sealed with Epoxy Sealant not to allow any ingress of air.
- h)** All the joints and penetrations in the BSL-3 Laboratory area shall be perfectly sealed with Epoxy Sealant and made leak proof not to allow any ingress of air.
- i)** Floor traps/U-traps in BSL-3 Lab area shall provide double pass and shall have 2" W.C head. The effluent drainage piping from the BSL-3 Lab shall be in chemical resistant material like HDPE with all joints welded and tested to be leak proof. The drain lines from the Containment area shall be segregated from drains of other areas.
- j)** The BSL-3 Lab room shall be provided with stainless steel sink with hands free tap and emergency eye wash station. Water distribution piping in Containment area shall be provided in Polypropylene and shall be provided with non-return valve/backflow prevention device.
- k)** The wall and ceiling surface finish shall provide impervious, monolithic, chemical resistant (organic solvents, acids and alkalis), antibacterial and antifungal finish and shall sustain Formalin/H<sub>2</sub>O<sub>2</sub> fumigation of lab spaces.

### **3.2. HVAC SYSTEM AND BUILDING MANAGEMENT SYSTEM**

The proposed BSL-3 Laboratory, BSL-2 Laboratory, LPA area and support areas shall be air-conditioned through separate dedicated Central AC System comprising of Chiller Pack, Air Handling Units, Exhaust System, Air Filtration System and Air Distribution System complete in all respect. The system shall be with standby and backup provisions capable to provide un-interrupted continuous 24x7x365 days operation of the Laboratory to maintain the required temperature, humidity, air-change rate, differential pressure gradient and air filtration conditions of the Laboratory Facility.

Submit the HVAC system and BMS design and working drawings for prior approval. The HVAC system shall comply with the given specifications and performance requirements and shall be complete in all respect, as required and approved.

The following design and performance conditions shall be maintained in BSL-3, BSL-2 Laboratory:

Inside Temperature	: 24 +/- 2° C
Relative humidity	: less than 60%
Negative Pressure gradient	: As per tender zoning plan
ACPH in BSL-3 Lab	: More than 12
Filtration	: HEPA Filter Supply Air
	: HEPA Filter Exhaust Air
	: Fine Filter Supply in BSL-2
	: Normal Exhaust in BSL-2
	: HEPA Filter Supply in LPA area
	: Normal Exhaust in LPA area
Ventilation	: 100% Fresh Air system
Exhaust Fan location for BSL-3	: Minimum 25 ft from AHU intake
Air velocity at exhaust discharge	: 15-20 m/s (3000-4000 fpm) for BSL-3

### **3.2.1. Air Conditioning Plant:**

The air-conditioning plant shall provide enough flexibility in operation such that selective areas of the facility can be operated, to economize the operating costs.

#### **a. Chiller Pack:**

The Chiller Pack shall be skid mounted with Air Cooled Condenser, Evaporator/Chiller, Micro-processor control panel, interconnecting control and power wiring, refrigerant charge etc. complete in all respect. To economize the operating cost and provide backup capacity, the chiller pack shall have multiple compressors.

The Chiller Pack unit shall be completely factory assembled including:

- Evaporator
  - Air cooled Condenser
  - Oil separator
  - Hermetically sealed Compressors (Screw/Scroll)
  - Compressor Motor
  - Microprocessor based control panel
  - Inter connecting refrigerant piping, wiring and other accessories
  - Refrigerant
  - Chiller Pack mounted on sturdy MS painted base frame
- Anti-vibration mounts/pads
- Provision of chilled water connection to the facility will be in the scope of the bidder.**

#### **b. Chilled Water and Hot Water Piping System:**

Chilled water and hot water piping system shall be provided in accordance with ASHRAE standards. The piping shall be carried out in heavy class MS ERW pipes conforming to IS 1239 for pipe size upto 150 mm dia and IS 3589 above 150 mm dia pipes. The joints in the water piping system shall be welded as per IS 823.

The piping system shall be complete with required butterfly valves, ball valves, balancing valves as per IS 780, IS 5152 & IS 5155. Non-return valves as per IS 778 & IS 5312

- Valves shall be suitable for upto 15 Kg working pressure
- Non return valves shall be disc type
- Strainers shall be provided (Y type/ pot strainers)
- Strainers should have bronze screen with 3mm perforations
- Strainers should be provided on the inlet side of each pump
- Piping, fittings and supports shall be painted with red oxide primer
- The flow-direction shall be visibly marked with arrows
- Pressure Gauge and Thermometers at AHU's & pump inlet and outlet
- Non return valve shall be provided at chilled water, hot water & shower pumps

The Piping shall be tested to hydro static test pressure of at least 2½ times the maximum operation pressure but not less than 8kg per sq.cm gauge for a period of not less than 24 hrs. The pressure testing shall be done before application of insulation.

The piping shall be insulated with 50 mm thick expanded polystyrene insulation or 25 mm thick Class 'O' closed cell nitrile foam insulation with aluminium cladding.

#### **c. Hot Water Generator:**

Hot water generator shall be provided for winter heating and re- heating. The hot water generator shall be electric water heater consisting of a vertical tubular shell, closed to both the ends with bolted end covers. The shell shall be fabricated from M.S. sheet and joints shall be welded. The construction shall conform to the BIS standards/international standards. It shall be designed for a working pressure of 21 Kg/cm<sup>2</sup> and tested accordingly

#### **d. Chilled Water and Hot Water Pumps:**

Chilled water and Hot Water pumps shall be Mono-block Type in 1+1 configuration (1 working + 1 standby). Installation of pumps shall be done on a common MS base frame grouted to concrete foundation

The pumps shall conform to following specifications:

Casing	: Cast iron
Impeller	: Bronze
Shaft	: carbon steel to EN 8
Mechanical seal	: Carbon / ceramic face
Motor	: TEFC squirrel cage induction motor,
Power supply	: 415V +/- 10% / 3Ph/50Hz
Pump Duty	: As required
Base plate	: Cast iron / MS fabricated

#### **3.2.2. Air Handling Units :**

The Air Handling Units shall be Double Skin type and shall be complete with blower, motor, drive set, cooling coil, filter section, drain tray etc. complete in all respect. The Air Handling Units shall be floor mounted type installed on civil foundation with vibration isolation pads. To ensure un-interrupted operation, multiple AHU's

shall be provided for supply air to BSL-3 in manifold arrangement, with n+1 redundancy. The capacity of Air Handling System of BSL-3 Lab shall be 10% higher than the designed required capacity. The BSL-2 Laboratory shall be provided with single AHU,

**AHU Casing:** AHU Casing shall be made of minimum 25 mm thick PUF sandwich panels. The outer wall should be of galvanized sheet, chemically treated having scratch free pre plasticized coating and plain GI inner sheet. In-fill shall be with PUF insulation having density 35-40 kg/m<sup>3</sup> fixed on modular frame. The frame work shall be in extruded aluminium sections with thermal break to avoid condensation/sweating. The AHU should be provided with electric power /control junction box on external side of the unit.

**Fan section:** The Fan Section shall have SISW type, multi blade type Fan / Blower. The Fan/ Blower blades shall be made of treated heavy gauge steel treated. The fans should be statistically and dynamically balanced and should have AMCA approval.

**Cooling coils and heating coils:** Coils shall be constructed in 12.5 - 15mm dia copper tubes, 24 gauge thickness with aluminium fins (atleast 12 fpi) firmly bounded to copper tubes assembled in zinc coated steel frame. Air velocity across the coil should not exceed 500 fpm. The coil shall be factory tested at 21kg/sq.cm air pressure. The cooling coil shall be 8 RD for 100% FA system and 6 RD for re-circulatory system.

**Filter section:** The Filter Section shall be same as that of AHU casing. The Filter section shall be complete with Filters of 5 micron and 0.5 micron particulate size.

**Dampers:** Each AHU shall be complete with OPEN/CLOSED dampers and Fire Dampers. The dampers shall be opposed blade type. Blades shall be made of double skinned aero foil aluminium sections with integral gasket and assembled within extruded aluminium alloy frame. All linkages and supporting spindles should be made of aluminium or nylon. Spindle shall be provided with a bakelite knob for locking the damper blades in position. The OPEN/CLOSE dampers shall be provided with compatible motor actuator.

**Motor and Drive:** Fan motors shall be flame proof and suitable for 415V+/-10%, 50Hz, 3 phase, AC supply. Motor shall be squirrel cage TEFC motors. Motors shall be designed for quiet operation. Drive to fan shall be provided through belt-drive with a standard belt guard housing the belt and adjustable motor sheave.

**AHU Drain piping :** AHU drain piping shall be carried out in GI upto the nearest drain traps complete as required. The drain pipes shall be insulated with 12 mm thick closed cell nitrile foam insulation.

**AHU Controls:** Three way mixing valve with actuator and limit switch for AHU access doors shall be provided complete with power and control wiring.

### 3.2.3. Exhaust System:

The exhaust system of the BSL-3 Laboratory shall comprise of High Static Exhaust Blowers, SISW type, backward curve, complete with motor, drive set, vibration isolation pads, OPEN/CLOSE damper and other fittings and accessories. The Exhaust System shall be provided with redundant backup (1 w+1 s) to ensure uninterrupted operation (24x7x365 days) of the Laboratory. The capacity of the selected Exhaust Blowers shall be 10% higher than the designed required capacity.

The BSL-2 Laboratory and LPA area shall be provided with normal exhaust system complete with Exhaust Blowers, SISW/DIDW type, backward curve, motor, drive set, vibration isolation pads, OPEN/CLOSE damper and other fittings and accessories.

### **3.2.4. Air Filtration System**

BSL-3 Lab Supply Air: Three stage air filters shall be provided

- The first stage shall be for 5 micron particulate size, 90% efficiency
- Second stage shall be for 0.5 micron particulate size, 99.9% efficiency
- Third stage shall be for 0.3 micron particulate size HEPA Filters, 99.97% efficiency

BSL-3 Lab Exhaust Air

- HEPA Filter, 0.3 micron particulate size, 99.97% efficiency.
- The air exhaust should be through double Hepa in BIBO.

BSL-2 Lab and LPA lab Supply Air: Two stage air filters shall be provided

- The first stage shall be for 5 micron particulate size, 90% efficiency
- Second stage shall be for 0.5 micron particulate size, 99.9% efficiency

The system for BSL-3 Lab shall be designed and configured to provide multiple HEPA Filter bank to permit un-interrupted round the clock (24x7x365 days) operation of the BSL-3 Laboratory including during HEPA filter maintenance, replacement and/or change.

The HEPA filters shall be of micro-fibreglass filter media mini pleated type and shall be capable to withstand corrosive agents and gases used for lab fumigation. The HEPA filters shall have minimum 99.97% efficiency for 0.3 micron particulates. The HEPA filters shall be HOT DOP tested at the manufacturer's works, before supply at site, as per ASTM D 2986-71, US-MIL STD 282 to validate the filter efficiency.

The HEPA filter plenums shall be made in SS 304 (14 gauge) with air tight and leak proof construction. The HEPA filter plenums shall have provision to carry out on site HEPA filter scanning, testing and validation, pressure sensors to monitor pressure drop across the HEPA filter, fumigation ports to allow IN-SITU decontamination of HEPA filters and Bag-In-Bag-Out facility for change of filters.

### **3.2.5. Supply and Exhaust Air ducting**

BSL-3 Laboratory Ducting:

**The ducting from AHU upto supply air HEPA Filter Plenum and from exhaust air HEPA Filter Plenum upto Exhaust Blower shall be carried out in GI sheet (class VIII with zinc coating of 120 gm/ sq.m.)**

**The ducting after supply air HEPA Filter Plenum upto BSL-3 Laboratory rooms and exhaust air ducting from BSL-3 Laboratory rooms upto the Exhaust Air HEPA filter plenums shall be carried out in welded Stainless Steel and shall be leak proof.**

BSL-2 Laboratory and LPA area Ducting:

BSL-2 Laboratory and LPA lab supply, return & exhaust air ducting shall be done in GI sheet (class VIII with zinc coating of 120 gm/ sq.m.)

All duct fabrication work, thickness of sheet metal, supports, hangars shall conform to SMACNA standards.

Supply air ducting insulation-19mm thick Al .faced closed cell nitrile foam  
Exhaust air ducting insulation 13mm thick Al.faced closed cell nitrile foam

Volume Control Dampers, Fire dampers, air diverting vanes shall be provided in the supply and exhaust air ducting, as per the requirements, and ASHRAE standards and approved design. Each BSL-3 Lab room/zone supply and exhaust air duct shall be provided with gas tight Isolation Damper to allow isolation of the room/zone and carry out selective decontamination/fumigation. The exhaust system of BSL-3 Laboratory shall be provided backdraft / non-return damper.

#### DESIGN AND SUPPLY OF GSS Ducting:

Supply, Installation Testing and Commissioning of G.S.S. Ducting as per specification complete with threaded supports, nut-bolts, Epoxy prepainted MS angle Flanges, neoprene gaskets duly installed. (Ducts to be fabricated on lock forming machine at site.) Leak Testing of ducts at site shall be carried out with Rola Star leak testing machine as per SMACNA standards. (Sheets should be supplied only after prior approval of GLL) Duct Design shall be designed in such a way that the design Head loss should not be more than 0.08 inch/100 ft. and the Duct Damper shall be able to withstand the Pressure of 500 Pa for continuous 1 minute (in case of emergency) and leakage of air should be at a rate of 02 % as per ASHRAE and SMACNA Duct Design Standard. Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvas connections etc.

#### Duct Insulation:

Duct Insulation: Closed cell, Fire retardant, self extinguishing type cross linked polyethylene insulation density not less than 24 Kg/sqM, "K" value not more than 0.028 Kcal/degC with adhesive tape **OR** made up of **Nitrile rubber insulation "o" grade of density not less than 40 kgs./cum.**

#### Duct Lining:

Supply and fixing resin bonded fibre glass hard board acoustic insulation in supply as well as Exhaust air ducting covered with tissue paper and perforated aluminium sheet as specified to minimize the noise decibel.

### **3.2.6. Pressure Adjustment and Control System:**

The BSL-3 Laboratory area/zone Pressure shall be PLC Controlled through VAV's and VFD's, to automatically balance the negative pressure fluctuations in the BSL-3 Laboratory rooms/zones caused due to varying conditions like opening of doors, operation of BSC's etc. for continued maintenance of the differential pressure gradient.

The AHU motor and Exhaust Blower motors shall be provided with Variable Frequency Drive (VFD). The Adjustment, Control and Monitoring system of the BSL-3 Laboratory room/zone pressures shall be provided through the BMS.

The BSL-2 Laboratory area/zone pressure shall be balanced and achieved through constant air supply system.

**3.2.7. Acoustic Insulation (For Plant Room):**

Supply and fixing of acoustic insulation on walls and ceiling of AHU rooms with 50mm thick resin bonded fibre glass slabs fixed in frame work and finished with vapour barrier and perforated aluminium sheet complete as per specifications and drawings as per IS standards and WHO/BMBL guidelines.

**3.2.8. Motorized Airtight Damper:**

- Consist of Aluminium casing with factory fitted motorized damper. Casing and attachments should be in stainless steel.
- The damper blade with plastic seal when closed should comply with DIN EN 1751, CLASS 4 (Exception normal size 100 and 125, class 3) also complies with the requirement of DIN 1946, Part 4 (leakage < 10 M3/h. M2 of damper cross section with a 100 Pa Pressure differential).

**3.2.9. Fire Dampers:**

Fire Dampers provided in the supply and exhaust air systems shall be interlocked with the AHU blower motors such that in case of fire, the AHU fan motor should trip automatically.

**3.2.10. Alarms:**

The system shall be provided with following alarms:

- HVAC system failure alarm
- Room/zone pressure failure alarm

**3.2.11. Canopy Hood:**

Canopy hood shall be provided above the loading and unloading door of the Autoclave to capture steam vapor and heat generated by the equipment and above aerosol generating equipment like Centrifuges.

The canopy hood on the containment side shall be ducted and connected to the HEPA filtered laboratory exhaust and on non-containment side shall be ducted and connected to normal exhaust. The Canopy hood exhaust air capture velocity shall be minimum 50 fpm.

**3.2.12. FA Louvers:**

Design, supply, installation and commissioning of Fresh air intake louvers made from 2" wide Aluminium Extruded Louvers @ 2" pitch with proper stiffeners complete with G-2 filters & HDPE insect mesh fixed in a removable frame as per approved design to avoid the dust to enter in the AHU. These shall be provided with lever mounting arrangement etc, as per specifications and dwg.

**3.2.13. SS HEPA Filter Housing:**

Supply / Return air Terminal Boxes to be mounted in false ceiling in SS 304/316 construction complete with all accessories for fitting the box. Boxes should be provided with top connection including taper piece in SS construction. The Terminal box shall be with Volume Control Damper with provision of controlling CFM from room.

"Boxes for the Biosafety Level Lab shall be with powder coated finish which shall be easy to clean type as per AMCA (Air Moving and Control Association).

**3.2.14. Control Pressurization:**

Laboratories should remain at a higher negative pressure in relation to the corridors/Airlocks and other non-laboratory spaces. The pressure gradient condition should be maintained in various areas of the laboratory.

**3.2.15. Heat Pipe Heat Recovery (HPHR) System**

The external fins shall be aluminium with a minimum thickness of 0.15 mm. Fins shall be of the continuous plate type and louvered type to optimize the airside heat transfer. Tubes shall be of refrigeration standard seamless copper C106 for heat exchanger use. Tube diameter shall be 12 mm with a grooved inner surface to enhance the internal surface area and minimum root thickness of the tube shall be 0.35 mm. Casings shall be from galvanized sheet steel with a minimum thickness of 1.6 mm. The casing shall incorporate tube plates, continuous side plates and a centre dividing plate to prevent cross-contamination between the two airstreams.

The working fluid could be refrigerant or Water classified as ASHRAE safety group.

**3.2.16. Ultra Violet Germicidal Irradiations (UVGI) System**

Supply ,installation ,testing and commissioning and handling over of the UVGI System for maintaining the indoor air quality .The components of the system must be in strict conformity with the specifications .The prices to include all inter connected wiring between the UVGI lamps. The UVGI system shall be installed in supply air ducts or AHU itself.

**3.3 BUILDING MANAGEMENT SYSTEM (BMS):**

A customized Building Management System shall be designed, programmed and provided to:

- i. Control and monitor the operation of HVAC system and other laboratory operating parameters in the BSL-3 Lab rooms/zones like:
  - o Room/Area/zone pressure,
  - o temperature & RH,
  - o Ambient temperature & RH,
  - o AHU and Exhaust Blower operating status,
  - o VFD status & VCD status,
  - o OPEN/Close dampers status,
  - o Supply & exhaust air quantity in each BSL-3 Laboratory rooms/zone.
- ii. The BMS shall be complete with PLC, Sensors, Controllers, power and control wiring, customized Software and other associated field devices, hardware and accessories complete in all respect, as per requirement and approved design.
- iii. The HVAC system START and STOP sequence shall be interlocked to prevent positive pressurization of the BSL-3 laboratory, at any point of time.
- iv. The Building Management System shall allow START/STOP operation of the Complete HVAC system in AUTO Mode. However, the system shall have the provision to over- ride the parameters (password protected) and to enable START/STOP operation of the HVAC system in MANUAL mode, as well. The BMS shall provide alarm in case of HVAC system failure, collapse in room/zone negative pressure and deviation of any operating parameter from the set limits.
- v. Each BSL-3 Laboratory Rooms/Zones area shall be provided with Pressure Sensors, Temperature Sensors and RH Sensors,wired and integrated with the BMS to display the operating conditions.
- vi. Each room/zone of BSL-2 Laboratory shall be provided with pressure sensor, temperature sensor and RH sensor and shall display the operating condition on HMI screen provided at the BSL-2 entrance.



- vii. A dedicated desktop PC shall be provided for the BMS operation and control along with a parallel secondary display screen of 32" size at the BSL-3 laboratory entrance to show the operating parameters.
- viii. The BMS control panel shall be powered through UPS. Upon restoration of power after a power failure, the BMS shall start the HVAC system automatically without any human interface and restore the normal operational set points of the system.

**Alarm and Monitoring Systems:**

- a) Pressure gauge
- b) Pressure alarm visual/audio
- c) Temperature/RH alarm visual/audio
- d) Emergency panic button (break glass type) - audio all rooms/control room
- e) Emergency door-open" button (For interlock door)

**At the Control Side – Biosafety BSL3- control software**

**a) Computerized Controls (PLC):**

The control System, consist of PLC (Programmable Logic Controller) should automatically adjust system airflow and maintain system as the designated negative pressure.

The PLC should have the following features:

- The system controller (Programmable Logic controller) controlled via a dedicated software program.
- Centralized Control
- Automatic air flow control.
- Pressure, Temperature & Humidity monitor and control.
- Doors interlock - controlled by PLC and display on the PLC control panel.
- HEPA filter resistance and efficiency monitoring. When the pressure of the filters reaches the setting value, the PLC has the alarm.

**b) Door Interlock and Access Control System**

The door interlock and access control system shall be provided with combination of proximity card based, numerical key pad lock based and push button based system. The system shall be complete with access logic controllers, door electromagnets, proximity cards and card reader/s, numerical keypad locks, door release push buttons, emergency door release buttons, PC communicator, control and power wiring and cabling and other required accessories, hardware, and software. The access control system shall be powered through UPS supply for uninterrupted operation even during mains power failure. AccessControlsoftwareshallbeprovidedto perform the followingoperations.

- Assign the access rights to the individual proximitycardholder/s
- Create database for the authorized persons and assign themaccess
- Enable/disable access for specified time periods (for visitorsetc.)
- Record the transactions and generate transactionreports

The door Electromagnetic Lock shall be suitable for installation on doors/frames. The electromagnetic lock and armature shall be constructed and designed to provide trouble free service.

The doorelectromagneticlockshallconformtothefollowing specifications:

HoldingForce - Approx. 650 Lb per door

OperatingVoltage- 12/24VDC

Protectagainstcorrosion- The electromagnetic lock anditsaccessories shall be of anticorrosive material/finish

**ResidualMagnetism-** There should be noresidualmagnetism after release of electromagnetic lock

The doors of BSL-3/2 Laboratory shall be provided with access control system to allow access or opening of only one door at a time. The access through either of the door shall be controlled through a selector switch. The system shall be configured such that after selection of one door for access/operation, the other door shall remain in permanently locked position.

**c) CCTV System**

CCTV System shall be provided for surveillance of the Laboratory. The CCTV system shall be complete with wall/ceiling mounted high resolution color cameras, multiplexer cum DVR, LCD color monitor 32" size (as required), associated power and control cabling etc. and required hardware and software. The output of the CCTV system cameras shall be displayed on LCD monitor, to be installed at approved location.

**d) Fire Detection and Alarm System**

The complete BSL-3 Laboratory and support areas shall be provided with Addressable type Fire Detection and Alarm System. The Fire Detection & Alarm System shall be complete with Smoke detectors, Heat detectors, Fire Alarm Panel, manual call points, response indicators, power and control wiring and cabling etc. complete in all respect. The FDA system shall be provided as per NBC and shall meet the statutory requirements and guidelines.

- a) Temp/RH/Pressure Sensor
- b) Pressure alarm visual/audio
- d) Emergency panic button (break glass type) - audio all rooms/control room
- e) Emergency door-open" button (For interlock door)

**ELECTRICAL SYSTEM AND ASSOCIATED WORKS:**

The contractor shall provide the electrical power distribution system scheme for the complete BSL-3 Laboratory. The electrical distribution system shall be designed and installed as per the Indian Electricity Rules and shall conform to NBC. The executing agency shall submit the electrical load calculation sheet, power and light wiring diagrams, GA and Single Line diagrams for Electrical Distribution Panels, cable routing etc., before proceeding with the work.

All the materials, items, fittings and appliances to be used for the works shall conform to the specification given hereunder and manufactured in accordance with current Bureau of Indian Standard specifications wherever they exist or with CPWD specifications.

**a) Power Distribution System:**

The executing agency shall design and provide the main power distribution (LT) panel, sub-distribution boards and panels complete with required switchgears, breakers, circuit breakers, power and control wiring, etc. for power distribution system for complete Laboratory Facility. The power distribution system shall include supply and laying of cabling/wiring for HVAC System and Fixed equipment and systems like Autoclaves, Bio-safety cabinets, access control system, CCTV system etc., required and provided for the Laboratory.

The main Power Distribution panel (LT Panel) shall be manufactured by a CPRI approved manufacturer. The LT Power cables for use on 415 V system shall be of 1100 volt grade, aluminium conductor, PVC insulated, PVC sheathed, armoured and overall PVC sheathed, strictly as per IS: 1554 (part I) - 1976 amended upto date. Cable Glands shall be provided for end termination of cables. These shall be provided at both

ends of armoured/unarmoured electrical cables. Cable glands shall conform to BS-6121 amended as on date. Double compression glands shall be complete with check-nut, gland body, neoprene outer ring, armour clamping cone, armour-clamping ring, armour clamping nut, skid washer & outer seal nut. The power cables shall be neatly dressed on cable trays.

The Cable Trays shall be perforated type heavy duty, return flange or inward bend shape, manufactured from mild steel conforming to IS 226 and hot dip galvanised as per IS 2629/BS 729. The width of cable tray shall be as per the requirement.

For circuit and power distribution, the DB's shall be 8/12 way TPN vertical/Horizontal with double door 3 phase/ 1 phase, fitted with ELCB, RCCB, MCB etc. complete as required. The circuits, lighting and power distribution shall be fully wired and complete in all respect. Only multi-stranded copper conductor wires shall be used for sub-main wiring, circuit wiring, light and power wiring.

All joints shall be made at main switches, distribution board socket and switch boxes only. No joint shall be made in conduits and junction boxes. Conductors shall be continuous from outlet to outlet.

b) Backup Power System:

A dedicated Diesel Generator Set of 150 KVA prime power capacity OR Prime power capacity at 0.85 load factor as per clause 13.3.2 of ISO-8528 (Part-1). The DG Set shall be complete with Engine, Alternator, sound proof enclosure, fuel handling system, earthing etc. complete as required. The DG set shall be suitable for outdoor installation. The unit shall comply with noise and emission norms as per latest CPCB guidelines for DG set

The unit shall include the following:

- Dynamically balanced flywheel
- Air cleaner (dry/oil bath type) as per manufacturer standard
- A mechanical/electronic governor to maintain engine speed at varying load
- Day oil tank with interconnecting piping
- Fuel control solenoid
- Foundation for installation of DG set
- Dry exhaust manifold with silencer
- Battery with Battery charging unit
- Lubrication oil cooler
- Radiator / Heat exchanger
- Fuel injection system

The DG set shall be complete with engine, alternator, AMF panel, day oil tank and fuel piping system, exhaust ducting and chimney as per the latest pollution control board norms, power and control wiring, foundations, earthing etc. complete in all respect. The required statutory approval/clearance for the installation and operation of the DG set shall be obtained by the contractor and included in the scope of work.

DG Set power supply available from the centralized DG set of AIIMS Raipur shall also be connected with the BSL-3 and BSL-2 Facility to provide backup-to-backup power supply. The contractor shall plan, design and provide the backup electrical power system and main LT panel accordingly, to connect to the main (DG set supplied by the contractor) as main backup power source and also to the DG set power supply made available by AIIMS Raipur to be used as backup-to backup. The electrical switches and sockets in BSL-2 Laboratory, LPA area and other support areas shall be modular type.

**c) Internal Light Points, Power Points, Fittings and Fixtures**

The Electrical fittings and fixtures in the BSL-3 Laboratory, BSL-2 laboratory, LPA and support areas shall be sealed type, capable to withstand chemical exposures during laboratory fumigation. The Laboratory rooms shall provide 400-450 lighting Lux level and the light fixtures shall be surface mounted type. The switches, sockets and light fixtures in BSL-3 Lab and support areas shall have IP 55 or better protection.

All the electrical points, power points, light and power sockets shall be fully wired with switches, sockets, connections complete in all respect as required. Only multi-stranded copper conductor wires shall be used for light and power wiring. The internal wiring shall conform to the Indian Electricity Rules and BIS standards. The conduit work for light points, power points, voice and data points, FDA system etc., shall be concealed type and shall be done in rigid PVC as per IS specifications. All the conduit pipes shall be sealed to prevent ingress of air.

**d) Communication Facility (Intercom & LAN)**

The Laboratory areas and support and service areas shall be provided with Data (LAN) and Voice points (Intercom) for communication. The system shall be complete with required conduit and wiring. The incoming voice lines and internet connection for the facility shall be procured and provided by AIIMS Raipur. The Data and Voice points shall be fully wired with CAT6 cable complete with output terminals.

A suitable EPABX shall be provided for upto 2 incoming lines and 10 outgoing lines for the laboratory for internal communication. All the rooms shall be provided with intercom connection and telephone instrument set.

**e) UPS and INVERTER**

An UPS of required capacity (Upto 30 KVA) shall be provided for power backup to critical components like Door Interlock and access control system, BMS Operation and shower control panel operation. The power backup through the UPS shall be for minimum 30 minutes. The UPS shall be complete with battery bank, battery rack, interconnecting cabling and wiring, complete in all respect.

An Inverter of required capacity (Minimum 5 KVA) shall be provided for backup power to the facility lighting. The power backup through the Inverter shall be for minimum 30 minutes. The Inverter shall be complete with battery bank, battery rack, interconnecting cabling and wiring, complete in all respect.

**3.5. EQUIPMENTS & SYSTEMS****a) BIOSAFETY CABINET – 03 in Nos. (02 in BSL-3 and 01 in BSL -2 area)**

BSCs shall be Class II A2 type and shall be as per NSF 49 standards. The Bio-Safety Cabinet body, frame and supports shall be constructed in SS 316 L (18 gauge). The work surface shall be perforated SS 316 L (18 gauge). The front shall have SS 316 L (18 gauge) top section and sliding sash in toughened glass with required counter weight.

Bio-Safety Cabinet shall be complete with following accessories, features and specifications with hard ducting to outside.

- Work Space area shall be approx. 1150 mm (W) x 600 mm(D) x 660 mm (H).
- HEPA filter (Two) 99.999 efficiency at 0.3um. Filter life indicator.
- Work area surrounded by negative pressure
- Front window: Motorized, Two layer laminated toughened glass 5mm or more, anti UV. Audio and visual alarm.
- Illumination should be 1000Lux or above.
- Large LCD display is easy to monitor all the safety parameters at a glance.
- All functions to be control with remote control.

- Adjust front window height by foot with the help of foot switch during experiment to avoid air flow turbulence caused by arm movement.
- Supply Air Face velocity not to exceed 0.65 m/sec
- Working chamber to operate under > 10 mm negative pressure
- Drain receptable with drain faucet
- Flourescent light & UV light
- Extract plenum and Air control dampers
- 2 Nos. Power outlet switch/sockets
- 80 to 100 fpm air inlet velocity at 8-10 inches of sash opening
- Supply and Exhaust Blowers with motor, statically and dynamically balanced.
- Magnehelic differential pressure gauge for chamber and HEPA filters
- Control console with indication lamps

**b) AUTOCLAVE - (01 in Nos)**

- The autoclave shall be double door, rectangular, steam operated, high pressure high vacuum, suitable for horizontal loading of waste. The autoclave shall be with bio-seal design. The autoclave shall be free standing type.
- The Autoclave shall be PLC controlled, programmable and shall be loaded with different pre-programmed decontamination and sterilization cycles. The logic of preprogrammed cycles shall be developed as per the requirement of the end users.
- The autoclave chamber shall be constructed of heavy duty SS 316(min. 6 mm thickness) with full argon welding. Chamber size shall be approx. 450mm x 450mm x 900mm. The chamber material and construction shall meet ASME standards for unfired vessels. The chamber shall be duly reinforced with the help of carbon steel.
- Doors and jackets shall be constructed of SS sheet of 304 grade(min. 5 mm thickness). Doors must be provided with automatic safety locking and unlocking devices. All doors shall be with gasket to ensure a high temperature seal.
- Chamber and doors shall be designed for working under positive pressures upto 31 psig at temperature upto 135o C.
- The autoclave shall be insulated with 50 mm thick resin bonded glass wool to minimise heat loss and restrict the skin temperature within reasonable limits so as not to cause burn due to accidental touch.
- Pipes and fittings shall be of stainless steel and bronze. Key locked main power switch should be provided for additional safety and security.
- The autoclave shall be provided with a vacuum pump mounted on a mini skid. The vacuum line shall be provided with an absolute vent filter cartridge (0.22 micron or better) for safe vent and shall allow In-Situ decontamination of filter for Safe Change when the filter is to be accessed.
- The in-built steam generator shall be provided with the autoclave. The steam generator shall be fabricated from SS 316 L (16 gauge) with industrial immersion heater of reputed make. The immersion heaters shall be heavy duty type in stainless steel construction. The heater shall be of suitable capacity so as to achieve the required operating

temperature and pressure in about 30 minutes to start the autoclave cycle and should be capable of maintaining the pressure and temperature thereafter during various load cycles of the autoclave.

**c) DYNAMIC PASS BOX - (02 in Nos.)**

Pass boxes shall be provided at required locations for transfer of samples, chemicals and materials into the laboratory. The Pass Box shall be constructed in SS 304 (18 gauge). The corners inside the Pass Box chamber shall be coved for easy cleaning. The unit shall be complete with, HEPA filters, blower, motor, door electromagnets, door interlock, UV Lamp with timer, necessary wiring, controls and all other accessories. etc. complete. The pass box dimension shall be approx. 610 mm x 610 mm x 610 mm.

The Pass Box doors shall be interlocked by providing suitable electromagnet, so that both the door cannot be opened simultaneously. The interlock shall provide visual indicator for door open/close conditions. The blower motor of Pass Box shall of suitable rating and shall be dynamically and statistically balanced. Magnehelic differential pressure gauge shall be provided to indicate the pass box chamber pressure. The pass box shall be provided with UV light with ON/OFF switch and shall be interlocked with the pass box doors.

The Supply Air velocity across the terminal HEPA filter in Pass Box shall be approximately 0.45 m/sec. Noise level shall be less than 70 dB. The pass box shall be installed flushed with the wall on BSL-3 Lab side and projected on the other side. The projected side shall be provided with SS coving at the pass box and wall junction.

**d) DUNK TANK (01 in Nos)**

Dunk tank shall be provided at the required location. The dunk tank shall be constructed in SS 304 (16 gauge) for active use of disinfectant chemical like NaOH, Sodium Hypo-Chloride Solution. Approx size of dunk tank shall be 550x550x900 mm.

**e) AIR COMPRESSOR**

Compressed Air system shall be provided complete with two nos. 5 hp Skid Mounted Air Cooled Compressor (1 working + 1 standby). The air compressor shall be complete with in-built compressed air reservoir, oil and particulate removal filters, starter controls, compressed air distribution piping, pressure regulating valves, ball valves etc. complete in all respect as required and as per approved design and drawing. The compressed air piping shall be done in heavy class GI pipes with isolation valves fitted at required location to permit uninterrupted maintenance and service of distribution line. The compressed air outlet points shall be provided at the required locations for operation of pneumatic valves and inflatable gasket of fumigation air-lock doors.

**f) LABORATORY WORKSTATIONS:**

The BSL-3 , BSL-2 Laboratory rooms and LPA rooms shall be provided with workstations, as per approved layout drawing. The work stations shall be provided with the most optimum utilization of space in the laboratories. Hand wash sinks and emergency eye wash stations shall be provided integrated with the work station. Taps shall elbow operated laboratory taps. The workstations in BSL-3 Laboratory shall be constructed in SS 304 (16 gauge). The workstations in BSL-2 Laboratory and LPA rooms shall be modular type in powder coated mild steel construction and with granite top. The workstation shall have under counter storage space and drawers. Each work station and Bio-safety cabinet shall be provided with a laboratory chair. The chair in BSL-3 Laboratory shall be in SS frame and seat (fabric and non-leather finish seats shall not be accepted).

**g) FURNITURE INSIDE THE LAB:**

**Garment Storage Cabinet-** One garment storage cabinet that can be locked shall be provided in the Change room/Ante Room. It shall be of SS 304 with two compartments and shelves for storage of clean items of suitably large dimension to fit in the Ante/ Change Room (size to be consulted with site i/c)

**Coat hangers** 8-10 individual hangers made of SS30, in group of 4-5 each, will be provide to hang gowns/ aprons in Ante Room and change room (in consultation with site i/c)

**Shoe rack** (one)- It should be made of SS 304 with 5 shelves, open type and wide enough to hold two pairs of shoes in each shelf and shall be able to fit in available space as per design.

**Wash Basin** (three in BSL-3, One in BSL-2 and One in clean room area): Modular standalone hand washing sinks made of SS 304 with elbow or foot operated mechanism shall be provided as per design inside lab and in change or ante room. Wall hanging soap dispenser to be provided along with each wash basin unit. A Tissue paper rack with a mechanism to pull out tissue papers, will be provided near the wash basin to dry hands. Water lines that penetrate the TB Containment space shall be equipped with back-flow prevention devices. Outlet pipes should be made of PVC with closure outside lab made of SS plate.

**Trolleys:** Two tier trolleys (three in quantity) made of SS 304, size 2'x1'6" with side walls to prevent fall of items from sides and wheels at bottom for smooth movement, shall be provided for each BSC.

**h) WATER SOFTENING PLANT**

The HVAC system, the laboratory rooms, sinks and showers shall be supplied with filtered soft water. A water softening plant of 2000 litre/hour output capacity shall be supplied and installed. The contractor shall get the existing water quality tested from laboratory and provide the system accordingly. The water softening system shall be complete with interconnecting piping, pumps and piping upto the soft water storage tanks.

**i) EFFLUENT DECONTAMINATION SYSTEM** The Chemical Decontamination System for BSL-3 Laboratory effluent shall comprise of Two nos. Effluent Collection tanks (1 Working +1 Standby), each of full required Capacity (at least 1000 litres). The decontamination tanks shall be constructed in SS 304 (14 gauge). The drain line from BSL-3 Laboratory containment area shall be terminated to the effluent decontamination tanks. The effluent decontamination tanks shall be provided with motorized OPEN/CLOSE valves connected with liquid level sensor such that when one tank get filled up to approx. 800 litres volume, the supply valve shall automatically close and the supply valve of the standby tank shall automatically open to allow collection of effluent. One number chemical storage tank in SS 304 (14 gauge) fitted with transfer pump and measuring device, piped and connected to both the decontamination tanks shall also be provided for introducing disinfectant chemical into the decontamination tanks. The system shall be complete with items:

- Motorized valve connected with liquid level sensor through control panel
- Disinfectant Chemical storage tank
- Disinfectant Chemical dosing pump
- Non return valves
- Interconnecting piping including piping for chemical dosing
- Pumps for discharging decontaminated effluent into sewer/drain (1W+1S)
- Power and control cabling/wiring for pumps and motorized valves with control panel.

**j) SHOWER SYSTEM**

The shower system for BSL-3 Lab shall comprise of pre-fabricated cubicle and doors constructed in SS 304 (16 gauge) of approximately 1.5 mtr. dia. All the joints shall be argon welded and perfectly buffed and shall be free from any blurs and sharp edges. The shower cubicle shall be provided with supply & return air diffusers and light fixture. The shower cubicle door shall be of approximately 750x 2100 mm size. The shower floor shall be perforated type with effluent collection tray at the bottom to allow connection with the effluent drain line without making any opening or puncturing the existing RCC floor slab. A water heater/calorifier shall be provided for supply of continuous heated water to the showers at controlled temperature (30-35 Deg. C) during winters. The shower system shall be complete with a separate shower water storage tank, insulated water distribution/recirculation piping, water distribution pumps (1W+1S), valves, flow meters, batch controllers (to set each shower cycle), hot water generator, control panel and all other necessary controls, wiring, piping etc. complete as required.

### **3.6. SERVICE & UTILITIES**

#### **a) Power:**

The required Power for the BSL-3 Laboratory, BSL-2 Laboratory and LPA area shall be arranged and provided by the institute, upto the main LT Panel of the BSL-3 Laboratory.

#### **b) Water:**

Water supply for the BSL-3 Laboratory shall be arranged and provided by institute up to the nearest available water storage tank of the BSL-3 Laboratory. The required piping work for water connection to storage tanks and further distribution in BSL-3 and BSL-2 Laboratory shall be done by the Contractor.

#### **c) Drain & Sewer Line**

The drain from the BSL-3 and BSL-2 Laboratory, after decontamination, shall be connected to the nearest available drain line by the contractor.

#### **d) Utilities for laboratory equipment/s**

Piping and cabling for utilities like power, water, drain etc. required for the laboratory equipment (to be supplied by institute) shall be provided by us.

### **3.7. STATUTORY APPROVALS**

The required statutory approvals from authorities like Fire Authorities, Pollution Control Board, Electrical Inspectors, etc., if required and applicable, shall be obtained by the Contractor. AIIMS Raipur shall only provide the required assistance in getting such clearance/s, as required. Official Statutory fees, if any, shall be paid to the concerned department/authority directly by AIIMS Raipur.

### **3.8. TESTING, COMMISSIONING AND VALIDATION**

**a)** After completion of the construction and installation works, all the equipment, systems and services shall be commissioned and tested to check the operation and performance of each of the equipment and system.



**b)** Once all the equipment and systems are found to be working satisfactory, the Validation of the BSL-3 Laboratory shall be carried out by the contractor in the presence of authorized representatives/committee of the Institute. The Validation of the BSL-3 Laboratory shall be carried out in accordance with the NIH Guidelines for commissioning and validation of BSL-3 Laboratories. During the validation process, operation and functioning of complete installations shall be checked to verify that the equipment and systems are delivering the desired and approved performance results. It will be checked to ensure that all the biosafety and biosecurity requirements are met, are in place and are functional.

**c)** Before start of the validation process, the contractor shall submit a detailed validation document giving details of validation checks and tests to be performed, the acceptance criteria as per the approved designs and drawings and the formats for recording the check and test results.

The list of test to be performed is as below:

- Containment Barrier Integrity Test
- HEPA Filter Leak Test – According to the US Federal Standard 209E
- Ducting Pre-welding leak test
- Ducting post-welding leak test
- Room Differential Pressure test
- Particle Count Test for Cleanliness
- Air Velocity/ Pattern smoke Test
- Room Air change Rate Test
- Light intensity Test
- Noise level Test
- Biological Safety Cabinet Test
- Temperature and RH

**d)** After completion of the validation process, the contractor shall compile the validation results and submit to the Institute.

**e)** The Contractor shall provide all the test and measuring instruments, tools, tackles, manpower etc. required for the Testing, Commissioning and Validation Process.

### **3.9. DOCUMENTS & DETAILS TO BE SUBMITTED ON COMPLETION**

**a)** On Completion of the works, the following documents shall be submitted by the contractor to the Institute in three sets:

- Complete Set of 'AS BUILT DRAWINGS'
- Operation and Maintenance Instructions & Manuals for individual Equipment and Systems
- Recommended List of Spares and Consumables
- Preventive Servicing and Maintenance Schedule

**b)** "Bio-Safety Manual" need to be submitted clearly highlighting all the bio-safety aspects, precautions, safeties and emergencies, applicable to this BSL-3 Laboratory Facility.

**c)** Technical Specifications and Data sheet should be submitted for all the equipment/s and systems supplied and installed.

**d)** A written undertaking must be submitted stating that spares and after sales services for all the equipment, systems and services installed in the facility shall be made available for a period of at least five years from the date of handing over the

facility. The after sales services may be availed by the Employer from the executing Contractor under a separate Operation and Maintenance Contract.

### **3.10. EXTERNAL VALIDATION**

AIIMS Raipur may desire to get the BSL-3 Laboratory validation done by external experts and the contractor shall provide all the required assistance for carrying out the validation by external experts.

The Contractor shall extend full cooperation and provide the validation instruments, tool, tackles and manpower etc., as required and asked by the employer

### **3.11. COMPREHENSIVE ANNUAL OPERATION & MAINTENANCE SERVICES**

3.11.1. After Completion of Works and Handing Over, AIIMS Raipur may ask the Contractor to provide Comprehensive Operation and Maintenance services for a period of 1-10 years at the quoted and pre-approved rates invited in the tender, and enter into a contract for comprehensive annual operation and maintenance services with the Contractor.

3.11.2. The Comprehensive Operation and Maintenance Services to be provided by the contractor include:

- a) Providing qualified, experienced and trained manpower for handling operation of the Laboratory Facility on day-to-day basis on all working days
- b) To carry out routine and preventive servicing and maintenance of the equipment, system and services like Chiller, AHU, Exhaust Blowers, Autoclave, Biosafety Cabinet, Pass Box, Access Control System, BMS, Building Electrical System, Fire Alarm system etc., installed in the facility.
- c) Attend to and carry out any breakdown maintenance works required from time to time, as and when it occurs and notified by the Employer.
- d) Maintain daily Log Sheet of laboratory operating parameters
- e) Providing Spares and Consumables for various equipment, systems and services like BMS, Access Control System, Gaskets (for Doors and Pass Box), Filters, Valves, Light Fittings, spare switches and sockets etc. and maintain suitable inventory at site during the period.
- f) Maintenance of electrical system, services and construction works executed by us
- g) Annual Validation of the Laboratory Facility

3.11.3. The following works and consumables shall not be included and covered in the scope of Contractor in the Comprehensive Operation and Maintenance Services:

- a) Supply of power, water and fuel
- b) Internal and External Painting of the Building
- c) Chemicals/reagents for use in laboratory for Fumigation/Decontamination
- d) Water and Power including change of batteries for UPS and Inverter
- e) General Housekeeping works including associated consumables
- f) Day-to-day operation of equipment/item installed inside the BSL-3 Lab.
- g) Maintenance of any external works or roads
- h) Maintenance of equipment and items supplied directly by the Institute.
- i) Damage or loss of item/equipment caused due to fire and theft.

3.11.4. In case the performance during the Comprehensive Operation and Maintenance Services is found to be un-satisfactory, the Employer may terminate the Contract by giving one month notice to us and proceed to appoint a new agency

3.11.5. During the operation and maintenance period, the RESPONSE TIME should not exceed 48 hours from the time the breakdown intimation is given by the user.

3.11.6. During the operation and maintenance period, it is expected to attend the breakdown and rectify the faults promptly with minimum possible downtime. The maximum permitted DOWNTIME shall be 48 Hours from the time the intimation is given by the user.

If the repair/rectification is not carried out within the maximum permitted DOWNTIME of 48 Hours, the Employer shall charge penalty for each breakdown instance, subject to a maximum amount of 10% of the Annual Maintenance Contract Value.

Above 48 hours & Below 96 hours - Penalty of 1% of the Annual Contract Value

Above 96 hours & Below 192 hours - Penalty of 1.5% of the Annual Contract Value

Above 192 Hours - Penalty of 2% of the Annual Contract Value and get the work repair/rectification done from third party at the Contractor's Risk and Cost

3.11.7. The contractor shall maintain sufficient Inventory of required spares and consumables must be maintained at site to minimize the downtime and to ensure smooth operation and functioning of the Laboratory.

3.11.8. Before entering into the Comprehensive Operation and Maintenance Contract, the contractor shall submit the details of manpower proposed to be deployed at site, detailed schedule of preventive servicing and maintenance works, the formats for maintaining daily log sheet and servicing and maintenance records and details of spares and consumables shall be submitted to the Employer.

3.11.9. Payment for Comprehensive Annual Operation and Maintenance Contract Services shall

be made by the Employer to the Contractor on QUARTERLY basis, in proportionate amount to the yearly quoted price for the services.

**List of Approved Makes/Manufactures**

## ITEM APPROVED MAKES /MANUFACTURER

Air Cooled Chiller Pack	: Voltas/Blue Star /Carrier
Hot water Generator/Calorifier	: Rapidcool / Khokar / Emerald
Double skin type AHU	: Blue Star/Caryaire/Suvidha/Carrier/Zeco
Pumps	: Kirloskar/Beacon/Greaves
Centrifugal blower for AHU	: Nicotra/ Comferi/ Flakt / Kruger
Motors	: Crompton/Siemens/ Bharat Bijlee/ ABB
Exhaust Blowers	: TCF / Caryaire/Carrier/Zeco/Dynamic
MS Pipes	: ITC/ Jindal/ Tata/ SAIL/ HSL
Isolation Damper	: Trox/Camfil/YIT/Klenzaid's/Fresh Air
VAV	: Trox/ Airtek/ Aldes/Celmec/Fresh Air
HEPA Filters	: AAF/ Camfil/YIT/Klenzaid's /Thermadyne /Thermadyne Containment/Mechmark
Containment HEPA Filter housing	:Camfil/YIT/Klenzaid's/Thermadyne/Meckmark.
VFD	: ABB/Seimens/AllenBradley/Danfoss
Pressure sensor & transmitter	: Honeywell/Dawyer/Danfoss/Siemens
Temperature sensor & transmitter	: Honeywell/Dawyer/Danfoss/Siemens
Humidity sensor & transmitter	: Honeywell/Dawyer/Danfoss/Siemens
BMS system	: Rockwell / Siemens /ABB
PLC	: AllenBradley/Siemens
Magnehelic Gauges	: Dawyer
Grilles/Diffusers	: Carryaire/MK precision/System Air/Fresh Air
Biosafety Cabinet	: Esco/Nuaire/Klenzaid's/Biosafe.
Autoclave	: Pharmalab/Klenzaid's/Machinfabrik/Fabtech/Natsteel
Dynamic Pass Box	: Esco/Klenzaid's/I-Clean/Biosafe/AITOS/Glzo
Fire Alarm System	: Honeywell/System Sensor/GST/Siemens/Agni /Coper
Door Interlock & Access Control	: HID/LG/ESSL/Spectra/Real Time.
UPS & Inverter	: Tata Emerson/APC/Sukam
CCTV Camera	: BOSCH/Pelcin/Sony
LCD for CCTV display	: Samsung/LG/Sony/Panasonic
Butterfly Valves	: Audco/ C&R/ Castle/ Arrow/Intervalve

Gate Valves	: Leader/ BankimSarkar/ Divine/ Sant
Balancing Valves	: Advance / C&R/ Castle/ Arrow/ Audco
Y – Strainers	: Emerald/ Scientific device/Rapidcool
NR Valves	: Advance /C&R/ Castle/ Arrow/ Univass
Flow Switch.	: Jhonson/Honeywell/Staefa
HVAC Control valves	: Honeywell/ Johnson/ Danfoss
3-Way Valves	: Johnson/ Honeywell/Siemens
Modulating Motors	: Honeywell./Jhonson/Siemens/Danfoss
Pressure & Temperature gauges	: H. Guru/ Fiebig/ Japsin/Forbesmarshall
LT Panel	: CPRI approved manufacturer
Electrical Switch Gears	: L&T/ABB/Siemens/Schneider
Starters.	: L & T/Siemens/ABB
Distribution Board	: Legrand/L7T/ABB/Havells/Schneider
Diesel Generator Set	: Kirloskar/Cummins/Volvo Penta
Cables and wires	: Polycab/Finolex/Gloster/National
CAT6 cables	: AT&T/KABEL/LUCENT/LAPP/Digilink
Protection Relays	: ABB/L&T/Seimens/Schneider
Single phase preventor	: L&T / Minilec
Fire damper with controls	: Caryaire/ Dynacraft/ Ravi star
V belt/ Pulley	: Fenner/ Dunlop
Heaters	: Daspass/Escorts
Ammeter/Voltmeter	: Rishabh/L&T/Schneider
PVC Conduits and accessories	: Precision/Polycab/Supreme
Prefabricated wall and ceiling panels	: Nicomac/I-Clean/GMP/Fabtech
Laboratory Doors	: Nicomac/I-Clean/GMP/Fabtech
Epoxy Coating	: Dr. Beck / Apurva / Fosrok/Fabtech

**CHECKLIST FOR SUBMISSION OF TECHNICAL PROPOSAL & COMPLIANCE**

The Bidder shall submit the technical proposal and details for the offered item / equipment along with supporting details like drawings, catalogues and brochures in support of compliance.

Sr.No.	Item of Work	Propo sed Make /Mode 1	Offered Specific ations w.r.t. Tender	Supporting documents submitted (drawing/catalo gue/brochure)	Reference BSL-2 & BSL-3 Lab, where similar item/equipment is supplied and installed by the contractor
1	Chiller Pack				
2	Air Handling System for BSL-3 Lab area				
3	Air Handling System for BSL-2 Lab areas				
4	Hot water generator				
5	Exhaust Blower				
6	Chilled and Hot water Pump				
7	Supply and exhaust/return air ducting				
8	Insulation				
9	HEPA Filters				
10	HEPA Plenums				
11	AHU Controls				
12	VAV Devices				
13	VFD's				
14	Isolation dampers				
15	Dampers & Actuators				
16	BMS System				
17	Double Door Autoclave				
18	Biosafety Cabinet				
19	Garment Cabinet				
20	Dynamic Pass Box				
21	Dunk Tank				
22	Main Electrical Panel (LT panel)				
23	Electrical SLD				

24	Electrical Light Fittings & Fixtures				
25	Electrical Switches & Sockets				
26	Data and Voice Outlet Sockets				
27	Fire Detection & Alarm System				
28	Door Interlock and Access control system				
29	CCTV system				
30	UPS & batteries				
31	Inverter & batteries				
32	Shower System				
33	Air Compressor				
34	Effluent Decontamination system				
35	Service Pendant				
36	Hand and eye wash station				
37	Exhaust Canopy/Hood				
38	Workstations and Chairs				
39	Prefabricated wall and ceiling panels				
40	Doors				
41	View panels / windows				
42	Epoxy Flooring/ Coating				
43	Plumbing system				
44	Shed for effluent decontamination system and CO2 cylinder bank				
45	DG Set				
46	Water Softening System				

## CONDITIONS OF CONTRACT

### 1.0 Definitions

- 1.1** In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
- 1.2**
- (a) i. "Principal Employer/Employer" means The DIRECTOR, All India Institute of Medical Sciences Raipur and the legal successors in title to such person.
  - ii. "Employer's Representative" means a person appointed from time to time by the Employer.
  - iii. "Contractor" means an individual or firms (proprietary or partnership) whether incorporated or not, that has entered into contract (with the employer) and shall include his / its heirs, legal representatives, successors and assigns, successors in interest of individuals or persons. Changes in the constitution of the firm, if any shall be immediately notified to the employer, in writing and approval obtained for continued performance of the contract.
  - iv. "Subcontractor" means any person named in the Contract as a Subcontractor for a part of the Works or any person to whom a part of the Works has been subcontracted by the contractor with the consent of the Employer and the legal successors in title to such person, but not any assignee of any such person.
  - (b) i. "Contract" means these Conditions of Contract, the Specifications, the Drawings, the Price Schedule, the Letter of Acceptance, the Contract Agreement and such further documents as may be expressly incorporated in the Letter of Acceptance or Contract Agreement.
  - ii. "Specification" means the specification of the Works included in the Contract and any modification thereof or addition thereto made or submitted by the Contractor and approved by the Employer.
  - iii. "Drawings" means all drawings, calculations and technical information of a like nature provided by the Employer to the Contractor under the Contract and all drawings, calculations, samples, patterns, models, operation and maintenance manuals and other technical information of a like nature submitted by the Contractor and approved by the Employer.
  - iv. "Price Schedule" means the priced and completed bill of quantities forming part of the Tender and Agreement.
  - v. "Tender" means the Contractor's priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance. The word Tender is synonymous with "Bid" and the words "Tender Documents" with "Bidding Documents".
  - vi. "Letter of Acceptance/Award" means the formal acceptance by the Employer of the Tender.
  - vii. "Appendix to Tender" means the appendix comprised in the form of Tender annexed to these Conditions.
  - (c) i. "Commencement Date" means the date upon which the Contractor receives the notice to commence the works as issued by the Employer
  - ii. "Time for Completion" means the time for completing the execution of and passing the Tests on Completion of the Works or any Section or part thereof as stated in the Contract calculated from the Commencement Date.
  - (d) i. "Tests on Completion" means the tests specified in the Contract or otherwise agreed by the Employer and the Contractor which are to be made by the Contractor before the Works or any Section or part thereof are taken over by the employer.
  - ii. "Taking-Over Certificate" means a certificate issued by the Employer of having accepted and taken over the completed works.



(e) i. "Contract Price" means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract.

ii. "Retention Money" means the aggregate of all monies retained by the Employer.

(f) i. "Works" means the Permanent Works and the Temporary Works or either of them to be executed in accordance with the contract.

ii. "Permanent Works" means the permanent works to be executed (including Plant) in accordance with the Contract.

iii. "Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required in or about the execution and completion of the Works and the remedying of any defects therein.

iv. "Plant" means machinery, apparatus and the like intended to form or forming part of the Permanent Works.

v. "Contractor's Equipment" means all appliances and things of whatsoever nature (other than Temporary Works) required for the execution and completion of the Works and the remedying of any defects therein.

vi. "Section" means a part of the Works specifically identified in the Contract as a Section. vii. "Site" means the places provided by the Employer where the Works are to be executed and any other places as may be specifically designated in the Contract as forming part of the Site.

(g) i. "Cost" means all expenditure properly incurred or to be incurred, whether on or off the Site, including overhead and other charges properly allowable there but does not include any allowance for profit.

ii. "Day" means calendar day and "Month" means calendar month. iii. "Foreign Currency" means a currency of a country other than that in which the Works are to be located.

iv. "Writing" means any hand-written, type-written, or printed communication, including telex, cable and facsimile transmission.

## **2.0 Employer's Representative**

(a) The Employer's Representative shall be appointed by and be responsible to the Employer and shall carry out such duties and exercise such authority as may be delegated to him by the Employer under Sub-Clause 2.2 (b). Employer's Authority to Delegate

(b) The Employer may from time to time delegate to the Employer's Representative any of the duties and authorities vested in the Employer and he may at any time revoke such delegation. Any such delegation or revocation shall be in writing and shall not take effect until a copy thereof has been delivered to the Contractor.

## **3.0 Instructions in Writing**

Instructions given by the Employer shall be in writing, provided that if for any reason the Employer considers it necessary to give any such instruction orally, the Contractor shall comply with such instruction. Confirmation in writing of such oral instruction given by the Employer, whether before or after carrying out of the instruction shall be deemed to be an instruction, within the meaning of this Sub-Clause. Provided further that if the Contractor, within 7 days, confirms in writing to the Employer any oral instruction of the Employer and such confirmation is not contradicted in writing within 7 days by the Employer, it shall be deemed to be an instruction of the Employer.

The provisions of this Sub-Clause shall equally apply to instructions given by the Employer's Representative and any assistants of the Employer or the Employer's Representative

#### **4.0 Employer to Act Impartially**

Wherever, under the Contract, the Employer is required to exercise his discretion by :

- (a) giving his decision, opinion or consent, or
- (b) expressing his satisfaction or approval, or
- (c) determining value, or
- (d) otherwise taking action which may affect the rights and obligations of the Employer or the Contractor he shall exercise such discretion impartially within the terms of the Contract and having regard to all the circumstances. Any such decision, opinion, consent, expression of satisfaction, or approval, determination of value or action may be opened up, reviewed or revised.

#### **5.0 Priority of Contract Documents**

The several documents forming the Contract are to be taken as mutually explanatory to one another. In case of discrepancy between the schedule of quantities, the specifications and or the drawings, the following order of preference shall be observed :

- (1) Description of Schedule of Quantities and scope of work
- (2) Particular specifications and special condition, if any
- (3) Drawings ALL INDIA INSTITUTE OF MEDICAL SCIENCES
- (4) Specifications (As, applicable and given in tender documents and as approved by the Employer)
- (5) Indian Standard specifications of B.I.S and other relevant reference standards, wherever applicable

If there are varying or conflicting provisions made in any one document forming part of the Contract, the accepting authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.

Any error in description, quantity or rate in schedule of quantities or any omission there from shall not vitiate the Contract or release the contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the Contract.

#### **6.0 Site Operations and Methods of Construction**

The Contractor shall take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction. Provided that the Contractor shall not be responsible (except as stated hereunder or as may be otherwise agreed) for the design or specification of Permanent Works, or for the design or specification of any Temporary Works not prepared by the Contractor. Where the Contract expressly provides that part of the Permanent Works shall be designed by the Contractor, he shall be fully responsible for that part of such Works, notwithstanding any approval by the Employer.

#### **7.0 Cost of Securities**

The cost of complying with the requirements of securities shall be borne by the Contractor

#### **8.0 Inspection of Site**

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself (so far as is practicable, having regard to considerations of cost and time) before submitting his Tender, as to:

- (a) the form and nature thereof, including the sub-surface conditions,

(b) the hydrological and climatic conditions,  
 (c) the extent and nature of work and materials necessary for the execution and completion of the Works and the remedying of any defects therein, and  
 (d) the means of access to the Site and the accommodation he may require.  
 And in general, shall be deemed to have obtained all necessary information, subject as above mentioned, as to risks, contingencies and all other circumstances which may influence or affect his Tender

## **9.0 Sufficiency of Tender**

The Contractor shall be deemed to have based his offer on the data made available by the Employer in the Tender document and on his own inspection and examination, all as aforementioned.

The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the offer and of the rates and prices stated in the Bill of Quantities, all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, Plant or services or of contingencies) and all matters and things necessary for the proper execution and completion of the Works and the remedying of any defects therein

## **10.0 Programme to be Submitted**

The Contractor shall, within 20 days after the date of the Letter of Award, submit to the Employer for his consent a detailed programme including labour & material resources, in such form and detail as the Employer shall reasonably prescribe, for the execution of the Works. The Contractor shall, whenever required by the Employer, also provide in writing for his information a general description of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

## **11.0 Contractor's Superintendence**

The Contractor shall provide all necessary superintendence during the execution of the Works and as long thereafter as the Employer may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor, or a competent and authorised representative approved of by the Employer, which approval may at any time be withdrawn, shall give his whole time to the superintendence of the Works. Such authorised representative shall receive, on behalf of the Contractor, instructions from the Employer or, the Employer's Representative. If approval of the representative is withdrawn by the Employer, the Contractor shall, as soon as is practicable, having regard to the requirement of replacing him as hereinafter mentioned, after receiving notice of such withdrawal, remove the representative from the Works and shall not thereafter employ him again on the Works in any capacity and shall replace him by another representative approved by the Employer

## **12.0 Contractor's Employees**

The Contractor shall provide on the Site in connection with the execution and completion of the Works and the remedying of any defects therein : (a) only such technical assistants as are skilled and experienced in their respective callings and such foremen and leading hands as are competent to give proper superintendence of the Works, and (b) such skilled, semi-skilled and un-skilled labour as is necessary for the proper and timely fulfilling of the Contractor's obligations under the Contract.

## **13.0 Setting-out**

The Contractor shall be responsible for :

- (a) the accurate setting-out of the Works in relation to original points, lines and levels of reference given by the Employer in writing,
- (b) the correctness, subject as above mentioned, of the position, levels dimensions and alignment of all parts of the Works, and

(c) the provision of all necessary instruments, appliances and labour in connection with the foregoing responsibilities. If, at any time during the execution of the works, any error appears in the position, levels, dimensions or alignment of any part of the Works., the Contractor, on being required to do so by the Employer, shall, at his own cost, rectify such error to the satisfaction of the Employer.

#### **14.0 Safety, Security and Protection of the Environment**

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

(a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons, and

(b) provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Employer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others. Storage space, if any, available at site may be provided to the contractor by the Employer. However all necessary security, safety arrangements for the materials, equipment, goods so stored shall be provided by the contractor

(c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods or operation.

(d) Screen all lights provided by the Contractor so as not to interfere with any signal light on the railways or with any traffic or signal lights of any local authority.

#### **15.0 Care of Works**

The Contractor shall take full responsibility for the care of the Works and materials and Plant for incorporation therein from the Commencement Date until the date of issue of the Taking-Over Certificate, when the responsibility for the said care shall pass to the Employer, Provided that:

(a) if the Employer issues a Taking-Over Certificate for any Section or part of the Permanent Works the Contractor shall cease to be liable for the care of that Section or part from the date of issue of the Taking-Over Certificate, when the responsibility for the care of that Section or part shall pass to the Employer, and

(b) the Contractor shall take full responsibility for the care of any outstanding Works and materials and Plant for incorporation therein which he undertakes to or is otherwise required to finish such outstanding Works till the works have been completed

#### **16.0 Responsibility to Rectify Loss or Damage**

If any loss or damage happens to the Works, or any part thereof, or materials or Plant for incorporation therein, during the period for which the Contractor is responsible for the care thereof, from any cause whatsoever, other than the risks defined in Sub-Clause 19.0, the Contractor shall, at his own cost, rectify such loss or damage so that the Permanent Works conform in every respect with the provisions of the Contract to the satisfaction of the Employer.

#### **16.0 Loss or Damage Due to Employer's Risk**

In the event of any such loss or damage happening from any of the risks defined in Sub-Clause 20.0, or in combination with other risks, the Contractor shall, if and to the extent required by the Employer, rectify the loss or damage and the Employer shall determine an addition to the Contract Price and shall notify the Contractor accordingly. In the case of combination of risks causing loss or damage any such determination shall take into account the proportional responsibility of the Contractor and the Employer.

### **17.0 Employer's Risks**

The Employer's risks are :

- (a) (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (ii) rebellion, revolution, insurrection, or military or usurped power, or civil war,
- (iii) ionising radiations, or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component thereof,
- (iv) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speed,
- (b) loss or damage due to the use or occupation by the Employer of any Section or part of the Permanent Works, except as may be provided for in the Contract,
- (c) loss or damage to the extent that it is due to the design of the Works, other than any part of the design provided by the Contractor or for which the Contractor is responsible, and
- (d) any operation of the forces of nature (insofar as it occurs on the site) which a contractor could not have reasonably foreseen.

### **18.0 Insurance of Works**

The Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 17.0 to 20.0, insure:

(a) the Works, together with materials and Plant for incorporation therein, to the full replacement cost and it being understood that such insurance shall provide for compensation to be payable to rectify the loss or damage incurred.

(b) an additional sum of 15 percent of such replacement cost, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature, and it being understood that such insurance shall provide for compensation to be payable to rectify the loss or damage incurred.

(c) the Contractor's Equipment and other things brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

The insurance policy (CAR Policy) under this clause shall be issued by an acceptable insurance company. The insurance policy shall be in the joint names of the Contractor and the Employer and shall cover:

(i) the Employer and the Contractor against all loss or damage from whatsoever cause arising (including natural calamities, earthquake, subsidence, landslide, rock slide, flood, storm, cyclone, fire, theft, burglary, strike, riot, sabotage, terrorism), from the commencement date until the date of completion and issue of Taking-Over Certificate in respect of the Works or any Section or part thereof as the case may be, and

#### **22.0 Third Party Insurance**

The Contractor shall, without limiting his or the Employer's obligations and responsibilities, insure, in the joint names of the Contractor and the Employer, against liabilities for death of or injury to any person or loss of or damage to person or any property arising out of the performance of the Contract.

### **19.0 Damage to Persons and Property**

The Contractor shall, except if and so far as the Contract provides otherwise, indemnify the Employer against all losses and claims in respect of:

- (a) death of or injury to any person, or
  - (b) loss or damage to any property (other than the Works) :
- Which may arise out of or in consequence of the execution and completion of the Works and the remedying of any defects therein, and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

### **20.0 Compliance with Statutes, Regulations**

The Contractor shall conform in all respects, including by the giving of all notices and the paying of all fees, with the provision of :

- (a) any National or State Statute, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted authority in relation to the execution and completion of the Works and the remedying of any defects therein, and
- (b) the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works, and the Contractor shall keep the Employer indemnified against all penalties and liability of every kind for breach of any such provision. Provided always that the Employer shall be responsible for obtaining any planning, zoning or other similar permission required for the Works to proceed and shall indemnify the Contractor.

### **21.0 Opportunities for other Contractors**

The Contractor shall, in accordance with the requirements of the Employer, afford all reasonable opportunities for carrying out their work to:

- (a) any other contractors employed by the employer and their workmen,
- (b) the workmen of Employer, and
- (c) the workmen of any duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which the employer may enter into in connection with or ancillary to the Works

### **22.0 Clearance of Site on Completion**

Before the issue of any Taking-Over Certificate the Contractor shall clear away and remove from that part of the Site to which such Taking-Over Certificate relates all Contractor's Equipment, surplus material rubbish and Temporary Works of every kind, and leave such part of the Site and Works clean and in a workmanlike condition to the satisfaction of the Employer. Provided that the Contractor shall be entitled to retain on Site, until the end of the Defects Liability Period, such materials, Contractor's Equipment and Temporary Works as are required by him for the purpose of fulfilling his obligations during the Defects Liability Period.

### **23.0 Observance of Legislation**

The Contractor shall at all times during the continuance of the Contract comply fully with all existing Acts, regulations and bylaws including all statutory amendments and re-enactments and acts that may be passed in future either by the state or the Central Government or local authority, including, Indian Workmen's Compensation Act, Contract Labour (Regulation and Abolition) Act 1970 and Equal remuneration Act 1976. Factories Act, Minimum Wages Act provident fund regulations employees provident Fund Act and schemes made under same Act, Health and Sanitary Arrangements for workmen, Insurance and other benefits and shall keep the Employer indemnified in case any action is commenced for contravention by the contractor.

If the Employer is caused to pay or reimburse any amounts for non-observance of the provisions of this clause on the part of the contractor the Employer shall have the right to deduct from any moneys due to the contractor or recover from the contractor personally any sum required or estimated to be required for making good the loss or damage suffered by the Employer. All registration and station inspection fees if any in respect of his work pursuant to the contract shall be to the account of the contractor.

### **24.0 Safety Provisions**

The Contractor shall comply with all the precautions as required for the safety of the workman by the I.L.O Convention (NO.62) as far as they are applicable to the Contract.

The Contractor shall provide all necessary safety appliances, gears like goggles, helmets, masks, etc. to the workmen and the staff.

The Contractor shall be responsible for observance by his sub-Contractors of the foregoing provisions.

### **25.0 Suspension of Work**

The Contractor shall, on the instructions of the Employer, suspend the progress of the Works or any part thereof for such time and in such manner as the Employer may consider necessary and shall, during such suspension, properly protect and secure the Works or such part thereof so far as is necessary in the opinion of the Employer.

Unless such suspension is:

- (a) otherwise provided for in the Contract, or
- (b) necessary by reason of some default of or breach of contract by the Contractor or for which he is responsible, or
- (c) necessary by reason of extra-ordinary climatic conditions on the Site, or
- (d) necessary for the proper execution of the Works or for the safety of the Works or any part thereof (save to the extent that such necessity arises from any act or default by the Employer or from any of the risks defined in Clause 20.0)

### **26.0 Employer's Determination following Suspension**

Where, pursuant to Sub-Clause 29.0, this Sub- Clause applies the Employer shall, after due consultation with the Contractor determine

- (a) any extension of time to which the Contractor is entitled under Clause 32, and
- (b) the amount, which shall be added to the Contract Price, in respect of the cost incurred by the Contractor by reason of such suspension.

And shall notify the Contractor accordingly.

### **27.0 Time for Completion**

The whole of the Works shall be completed within the time Completion Time stated in the Contract, calculated from the Commencement Date, or such extended time as may be allowed under Clause 32.0

### **28.0 Extension of Time for Completion**

In the event of

- (a) the amount or nature of extra or additional work, or
  - (b) any cause of delay referred to in these Conditions by reference to clause 29.0, or
  - (c) exceptionally adverse climatic conditions, or
  - (d) any delay, impediment or prevention by the Employer, or
  - (e) other special circumstances which may occur, other than through a default of or breach of contract by the Contractor or for which he is responsible,
- being such as fairly to entitle the contractor to extension of time for completion of the works or any section or part thereof, the Employer shall after due consultation with the contractor, determine the amount of such extension and shall notify the contractor accordingly.

### **29.0 Liquidated Damages for Delay**

If the Contractor fails to complete the execution of the works by the stated time for completion given in the Contract, then the Contractor shall pay to the Employer a sum of 5% of Contract Price per week of delay, as liquidated damages for such default and not as a penalty, for every day or part of a day which shall elapse between the relevant Time for Completion and the date of Actual Completion of the Works. The maximum amount of Liquidated Damages shall be 10% of the Contract Price. Provided that the provisions of this clause shall not be applicable for the extended time for completion in accordance with Clause 32.0

The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the contract.

### **30.0 Taking-Over Certificate**

When the whole of the Works have been completed and all the equipment and systems have satisfactorily passed the Tests on Completion and the equipment and systems

have been satisfactorily Validated in accordance with the Contract, the works shall be considered as Completed by the Contractor. The Employer shall, within 21 days of the date of receiving a completion notice from the Contractor, shall either issue to the Contractor, a Taking-Over Certificate / Completion Certificate, stating the date on which, in his opinion, the Works were completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the work which in the Employer's opinion, is required to be done by the Contractor before the issue of such Certificate.

### **31.0 Guarantee and Defects Liability Period**

The expression "Defects Liability Period" shall mean the specified period calculated from the date of completion and acceptance of the Works in accordance with Clause 33.0 .The Contractor during the defect liability period shall rectify and execute all such work of remedying defects, shrinkages or other faults, excluding fair wear and tear excepted, as the Employer may, during the Defects Liability Period or within 14 days after its expiration, as a result of an inspection or observation made by or on behalf of the Employer prior to its expiration, instruct the Contractor to execute.

All the installations, equipment/s, items, systems and services executed by the Contractor shall remain under Guarantee and Defects Liability for a period of one year, for delivering the design and approved performance.

The Guarantee and Defects Liability for the construction works including epoxy flooring, plumbing lines, any temporary/permanent structure work constructed by the Contractor, shall be for a period of 3 years against any defect or damage arising due to faulty material or improper workmanship. Any defect or damage, whenever notified during the Guarantee and Defects Liability period, shall be repaired and rectified by the Contractor to the satisfaction of the Employer, at his own cost.

If the contractor fails to timely rectify and execute any such instructed work of remedying defects, the Employer shall reserve the right to proceed and get all such work executed by another agency and debit the entire cost to the contractor and recover the amount from the money due or will become due for payment to the contractor.

### **32.0 Variations**

The Employer may make any variation of the form, or the Scope Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do any of the following:

- (a) execute additional work of any kind necessary for the completion of the Works
- (b) change any specified sequence or timing of construction of any part of the Works.

The provisions under this clause shall apply only to the varied works, which are not covered and included in the scope of the work given in the Contract.

Provided that, No such variation shall in any way vitiate or invalidate the Contract, but the effect and financial implication, if any, of all such variations shall be valued in accordance with Clause 36.0 .

### **36.0 Valuation of Variations**

All variations referred to in Clause 35.0 and any additions to the Contract Price which are required to be determined, shall bevalued in the following order of preference:

- a) shall be valued at the rates and prices set out in the Contract if, in the opinion of the Employer, the same shall be applicable.
- b) If the contract does not contain any such rates or prices applicable to the varied work, the rates and prices in the Contract for similar works shall be used as the basis for valuation so far as may be reasonable and the same shall be agreed upon between the Employer and the Contractor.
- c) In the event of disagreement, the varied works shall be derived, as appropriate based on CPWD norms/market rates.

Until such time as rates or prices are agreed or fixed, the Employer shall determine provisional rates or prices to enable on-account payments to be included in interim/adhoc payments certificates issued.



**37.0 Terms of Payment**

The Contractor shall submit a Statement for Payment in 3 copies to the Employer between 7th to 15th day of each month for the work executed upto the end of previous month in a tabulated form, showing the amounts to which the Contractor considers himself to be entitled. The statement shall include the following items, as applicable, which shall be taken into account in the sequence listed:

- (a) The estimated contract value of the Temporary and Permanent Works executed up to the end of the month in question, at approved unit rates and prices.
- (b) The actual value certified for payment for the Temporary and Permanent Works executed up to the end of the previous month, at unit rates and prices.
- (c) The estimated contract value due for payment at unit rates and prices of the Temporary and Permanent Works for the month in question, obtained by deducting (b) from (a);
- (d) The value of any variations executed up to the end of the month in question, less the amount certified in the previous Interim Payment Certificate
- (e) Any amount to be withheld under the retention provisions, determined by applying the percentage set forth to the amounts due
- (f) Any amounts to be deducted as repayment of the Advance under the provisions of Clause 42; and (i) Any other sum, to which the Contractor may be entitled under the contract.
- (j) The amount to be deducted towards the advance income tax and the advance works contract tax as per the statutory requirements in this regard.

Notwithstanding the terms of this Clause or any other Clause of the Contract, no amount will be certified by the Employer for payment until the performance security has been provided by the Contractor and Contract Agreement has been signed.

**38.0 Place of Payment**

Payments to the Contractor shall be made by the Employer, within 15 days of submission of Bill, in Indian Rupees into a bank account or accounts nominated by the Contractor or by Account Payee Cheque/Demand Draft/ RTGS transfer.

**39.0 Retention Money**

A retention amounting to 10 (Ten) percent of the Bill Amount, determined in accordance with the procedure set out in Sub-Clause 38.0 shall be made by the Employer in the first and following Interim Payment Certificates, until the amount so retained reaches a limit of retention money, which will be Five Percent (10%) of the Contract Price.

**40.0 Payment of Retention Money**

Upon complete deduction of the retention money (i.e 10% of contract value) from the running bills, the retention money amount shall be released to the contractor on submission of Bank Guarantee (in the format of Performance Security Bank Guarantee) issued from Nationalised/Scheduled Bank and valid for a period of One Year from the date of completion and acceptance of the Works in accordance with Clause 33.0 . No interest shall be paid to the contractor on retention money.

**41.0 Advance Payment**

The Employer will make an advance payment to the Contractor exclusively for the costs of mobilization in respect of the Works in an amount equivalent to 10 % (Ten percent) of the Contract Price named in the Letter of Award at an interest rate @ 10% (Ten Percent) per annum. Payment of such advance amount will be due under separate certification by the Employer after (i) execution of the Form of Agreement by the parties hereto; (ii) provision by the Contractor of the performance security; and (iii) provision by the Contractor of an unconditional bank guarantee in the given format from a nationalised/scheduled bank of equal amount and valid till the schedules completion period of the work.

The Interest on **Mobilization** Advanced during the period shall commence in the First and subsequent monthly Running Account Bill and shall be deducted from each Running Bill payments to the Contractor, till such time the total gross certified Running Account Bill amount reaches 50% of the total contract value.

**42.0 Breakdown of Turnkey Lump-Sum Price**

To facilitate release of interim Running Account Bill payments, within one month of award of work, the contractor shall submit a detailed Price Breakup and Bill of Quantity for the 'Turnkey Lump-Sum Price' Contract Award Value. The detailed Price Breakup shall be used only for the purpose of release of Running Account bill payments to the Contractor and the Turnkey Lump-Sum Price Contract Award Value shall remain unchanged.

The following percentage payments shall be considered for the items in the detailed Price Breakup and Bill of Quantity, submitted by the Contractor:

Mobilization Advance (paid as per Clause 42.0) - 10% of Contract Price On supply of item/material/equipment at site - 70% of item rate or 80% of

Item rate if no advance is taken

On completion of construction/erection - 10% of item rate

On completion of Testing & Commissioning - 05% of item rate

On completion of Validation and Handover - 05% of item rate

**43.0 Taxation**

The contractor shall pay all taxes, duties, levies, GST etc. of the Government Provisions as applicable as per the advice of the Income Tax, Sales Tax Authority. Deduction of Income-Tax/ other taxes shall be made from each certificate of payment as per the relevant provisions of the Income Tax Act or as per the advice of the Income Tax authority/ other competent authority

**44.0 Settlement of Disputes**

If a dispute of any kind whatsoever arise between the Employer and the Contractor in connection with , or arising out of, the Contract or the execution of the Works, whether during the execution of the Works or after their completion and whether before or after repudiation or other termination of the Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer, the matter in dispute shall, in the first place, be referred in writing to the Employer. Such reference shall state that it is made pursuant to this Clause. On receipt of such reference the Employer shall give notice of his decision to the Contractor. Such decision shall state that it is made pursuant to this Clause.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the Work with all due diligence and the Contractor and the Employer shall give effect forthwith to every such decision of the Employer unless and until the same shall be revised, as hereinafter provided in an amicable settlement or an arbitral award.

If either the Employer or the Contractor be dissatisfied with any decision, then either the Employer or the Contractor may give notice to the other party of his intention to commence arbitration as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute. The Arbitrator shall be appointed by the Director, AIIMS Raipur.

Where notice of intention to commence arbitration as to dispute has been given, arbitration of such dispute shall not be commenced unless, the parties have explored the possibility of conciliation as per the provisions of Part-III of the Arbitration and Conciliation Act, 1996. When such conciliation has failed, the parties shall adopt the procedure for arbitration, as per Indian Arbitration and Conciliation Act.

For settlement of all disputes & Arbitration the place of jurisdiction shall be Raipur, Chhattisgarh.

**45.0 Default of Contractor**

If the Contractor is deemed by law unable to pay his debts as they fall due, or enters into voluntary or involuntary bankruptcy, liquidation or dissolution (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or becomes insolvent, or makes an arrangement with, or assignment in favour of, his creditors or

agrees to carry out the Contract under a committee of inspection of his creditors, or if a receiver, administrator, trustee or liquidator is appointed over any substantial part of his assets, or if, under any law or regulation relating to reorganisation, arrangement or readjustment of debts proceedings are, commenced against the Contractor or resolution passed in connection with dissolution or liquidation or, if any, step are taken to enforce any security interest over a substantial part of the assets of the Contractor, or if, any act is done or event occurs with respect to the Contractor or his assets which under any applicable law has a substantially similar effect to any of the foregoing acts or events, or if the Contractor has an execution levied on his goods, or if the Employer certifies, with a copy to the Contractor, that, in his opinion the contractor

- (a) has repudiated the Contract, or
- (b) without reasonable excuse has failed
  - (i) to commence and complete the work in accordance with contract, or
  - (ii) to proceed with the Works, or any section thereof, within 28 days after receiving notice , or
- (c) despite previous warning from the Employer, in writing, is otherwise persistently or flagrantly neglecting to comply with any of the obligation under the Contract,

then for the avoidance of doubt the contractor shall be in default of its obligations under this contract and furthermore the Employer may, after giving fourteen days' notice to the Contractor, enter upon the Site and expel the Contractor there from without thereby voiding the Contract, or releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Employer by the Contract, and may himself complete the Works or may employ any other contractor to complete the Works.

#### **46.0 Valuation at Date of Expulsion**

The Employer, as soon as may be practicable after any such entry and expulsion by the Employer, shall fix and determine ex parte, or by or after reference to the parties or after such investigation or enquiries as he may think fit to make or institute, and shall certify :

- (a) what amount (if any) had, at the time of such entry and expulsion, been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract, and
- (b) the value of any of the said unused or partially used materials, any Contractor's Equipment and any Temporary Works.

#### **47.0 Default of Employer**

In the event of the Employer:

- a) becoming bankrupt or being a company, going into liquidation, other than for the purpose of a scheme of reconstruction or amalgamation, or
  - b) giving notice to the Contractor that for unforeseen reasons, due to economic dislocation, it is impossible for him to continue to meet his contractual obligations,
- the Contractor shall be entitled to terminate his employment under the contract by giving notice to the Employer, with a copy to the Employer. Such termination shall take effect 14 days after the giving of the notice.

#### **49.0 Payment on Termination**

In the event of such termination by the Contractor as per Clause 48.0, the employer shall determine the amount due or payable to the contractor, but, in addition the Employer shall pay to the Contractor the amount of any loss or damage to the Contractor arising out of or in connection with or by consequence of such termination.

#### **48.0 Water Supply& Power Supply**

Water and power supply at site for drinking purpose as well as for construction purpose shall be made available to the contractor. The contractor shall make his own arrangements at his cost to avail water and power from the source made available at site by the Employer. In case the Employer is unable to provide water and power for

construction purpose, the contractor shall make his own arrangements at site at his cost.

Non availability of power supply and/or water from whatever source shall not entail any additional claims or extension of contract period.

**49.0 Arrangement of Labour and workers**

The contractor shall make his own arrangement for labour and workers required to execute the works and shall make all the required arrangements for travel, food, lodging etc. at his own cost and the cost of the same is deemed to have been included in the quoted price by the Bidder. Labour hutments shall not be allowed inside the campus of AIIMS Raipur.

**50.0 TRAINING**

On completion of the work, the contractor shall provide training to the Employer's staff. The training shall cover the following aspects:

- a) Handling, operation, servicing and maintenance of all the equipment/s, systems, services and engineering installations in the facility.
- b) Training on emergency response in situation like fire, spill, power outage etc.
- c) Training on carrying out laboratory fumigation
- d) Training on loading & unloading of autoclave and selection and operation of decontamination cycle
- e) Training on operation of effluent decontamination system
- f) Any other training, as desired and requested by the Employer on the installations made by the contractor.

**PARTICULARS FOR PERFORMANCE GUARANTEE BOND**

**(To be typed on Non-judicial stamp paper of the value of Indian Rupees of Two Hundred)**  
 (TO BE ESTABLISHED THROUGH ANY OF THE SCHEDULED BANK (WHETHER SITUATED AT RAIPUR OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT RAIPUR. BONDS ISSUED BY CO- OPERATIVE BANKS ARE NOT ACCEPTED)

To,  
 The Director  
 All India Institute of Medical Sciences (AIIMS),  
 Tatibandh, GE Road, Raipur-492 099 (CG)

**LETTER OF GUARANTEE**

WHERE AS All India Institute of Medical Sciences (AIIMS) Raipur (Buyer) have invited Tenders vide Tender No.....Dt.....for purchase of.....AND WHERE AS the said tender document requires the supplier/firm(seller)whose tender is accepted for the supply of instrument/machinery, etc. in response there to shall establish an irrevocable Performance Guarantee Bond in favour of "AIIMS Raipur" in the form of Bank Guarantee for Rs.....[10% (ten percent)of the purchase value] which will be valid for entire warranty period from the date of installation & commissioning, the said Performance Guarantee Bond is to be submitted within 30(Thirty) days from the date of Acceptance of the Purchase Order.

NOW THIS BANKHERE BY GUARANTEES that in the event of the said supplier/firm (seller) failing to abide by any of the conditions referred to intender document/purchase order/performance of the instrument/machinery, etc. This Bank shall pay to All India Institute of Medical Sciences (AIIMS) Raipur on demand and without protest or demur ..... (Rupees.....).

This Bank further agrees that the decision of All India Institute of Medical Sciences (AIIMS) Raipur(Buyer) as to whether the said supplier/firm (Seller) has committed a breach of any of the conditions referred in tender document/ purchase order shall be final and binding.

We,.....(name of the Bank& branch) here by further agree that the Guarantee herein contained shall not be affected by any change in the constitution of the supplier/firm(Seller)and/or All India Institute of Medical Sciences (AIIMS) Raipur(Buyer).

Not with standing anything contained herein:

a.Our liability under this Bank Guarantee shall not exceed`..... (Indian Rupees.....only).

b.This Bank Guarantee shall be valid upto..... (date) and

c.We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if AIIMS Raipur serve upon us a written claim or demand on or before..... (Date)

This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at .....situated at..... (Address of local branch).

Yours truly,

Signature and seal of the Guarantor

Name of the Bank:.....

Complete Postal Address: .....

**Form-A****PARTICULARS FOR REFUND OF EMD TO SUCCESSFUL/UNSUCCESSFUL BIDDER  
RTGS/National Electronic Fund Transfer(NEFT)Mandate Form**

1	Name of the Bidder	
2	Permanent Account No(PAN)	
3	Particulars of Bank Account	
	a) Name of the Bank	
	b) Name of the Branch	
	c) Branch Code	
	d) Address	
	e) City Name	
	f) Telephone No	
	g) NEFT/IFSC Code	
	h) RTGS Code	
	i) 9 Digit MICR Code appearing on the cheque book	
	j) Type of Account	
	k) Account No.	
4	Email id of the Bidder	
5	Complete Postal Address of the bidder	

**FORM-B**

**Declaration by the Bidder:**

1. I/We have downloaded the tender from the internet site and I/We have not tampered /modified the tender documents in any manner. In case the same is found tampered/ modified, I/We understand that my/our offer shall be summarily rejected and I/We are liable to be banned from doing business with AIIMS Raipur and/or prosecuted as per laws.
2. I/We have read and fully understood all the terms and conditions contained in Tender document regarding terms & conditions of the contract& rules and I/we agree to abide them.
3. The bidder should not have been blacklisted before at any government organisation
4. No other charges would be payable by Client and there would be no increase in rates during the Contract period.

Place:.....

(Signature of Bidder with seal)

Date:.....

Name :

Seal :

Address :

**Form-C**

**MANUFACTURER's / PRINCIPAL's AUTHORIZATION FORM**

To  
The Stores Officer,  
All India Institute of Medical Sciences Raipur

Dear Sir,

TENDER: \_\_\_\_\_.

we, \_\_\_\_\_, who are  
established and reputable manufacturers of \_\_\_\_\_, having  
factories at \_\_\_\_\_ and \_\_\_\_\_, hereby  
authorize Messrs. (Authorised Dealer/Sole Distributor/Supplier) \_\_\_\_\_  
(name and address of agents) to bid, negotiate and conclude the contract with you  
against  
Tender No. \_\_\_\_\_ for the above goods manufactured by  
us. No company or firm or individual other than Messrs.  
\_\_\_\_\_ are authorized to bid, negotiate and  
conclude the contract in regard to this business against this specific  
tender.

We hereby extend our full guarantee and warranty as per the conditions  
of tender for the goods bided for supply against this tender by the above  
firm.

The authorization is valid up to \_\_\_\_\_

Yours faithfully,

(Name)

For and on behalf of M/s. \_\_\_\_\_  
(Name of manufacturers)/Principal



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

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.

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
- 3) 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.

- 4) 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.
- 5) 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) Bidder has to select the payment option as “offline” to pay the tender fee / EMD as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
- 6) The server time (which is displayed on the bidders’ dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) The documents being submitted by the bidders would be encrypted using PKI encryption all techniques to ensure the secrecy of the data. 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.
- 8) Further this key is subjected to asymmetric encryption using buyers/bid opener’s public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 9) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

- 10) Upon the successful and timely submission of bids (ie 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.
- 11) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

**ASSISTANCE TO BIDDERS**

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 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 number 0120-4200462, 0120-4001002.

Basic architectural layout of the building (first floor) for proposed BSL-2/3 Lab  
(expanded view)

