INVITATION TO BIDS (ITB)

National Competitive Bidding (NCB) for the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C&DST Laboratory under RNTCP across India

Country: INDIA

***Name of the Project:* -Procurement of Equipment, Goods, Works Services and Reagents for GFATM Project [Foundation for Innovative New Diagnostics (FIND) Contract no. PA/GFATM/001/2013-14]**

ITB No.: SAMS-FIND-NCB-WORKS-06/2014

Issuance Date	**17th July, 2014**
Date and Time of Pre-Bid Meeting	**1500 Hrs on 30th July, 2014 at** **Strategic Alliance Management Services Pvt. Ltd.** 1/1 B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110025, INDIA
Last Date and Time for receipt of request for clarifications	**By 1700 Hrs of 11th August, 2014** E-mail ID: procurement@samsconsult.com
Last Date, Time and Place for receipt of Bids	**1530 Hrs on 20th August, 2014 at** **Strategic Alliance Management Services Pvt. Ltd.** **1/1 B, Choudhary Hetram House,** **Bharat Nagar, New Friends Colony,** **New Delhi 110025, INDIA**
Date, Time and Place for opening of bids	**1600 Hrs on 20th August, 2014 at** **Strategic Alliance Management Services Pvt. Ltd.** 1/1 B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110025, INDIA

1. **Strategic Alliance Management Services Pvt. Ltd. (SAMS)** has been engaged by FIND for providing procurement consultancy services for equipment, goods, works and services for use in TB Laboratories across India under GFATM Project.

2. SAMS hereby invites bids from eligible and qualified Bidders for the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C & DST Laboratory under RNTCP across India.

3. Bidding will be conducted through **Two Envelope National Competitive Bidding** procedures as per World Bank Procurement Guidelines, and is open to all eligible Bidders as defined in this Invitation to Bid (ITB).

4. Interested eligible Bidders may obtain further information by writing email to procurement@samsconsult.com.

5. Qualifications requirements are specified in the ITB.

6. A complete set of Bidding Documents in English may be purchased upon payment of a non refundable fee of Rs. 5000/- on submission of a written application to **Strategic Alliance Management Services Pvt. Ltd. (SAMS), 1/1 B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110025, INDIA** or to the following email address: procurement@samsconsult.com.

7. The bid document can also be downloaded from SAMS website i.e.www.samsconsult.com on payment of Bid Document Fee Rs.5000/- as per mode prescribed.

   The bidders are advised to frequently visit SAMS website i.e.www.samsconsult.com for amendments / addendum / clarifications to the Bid Document, issued subsequently and take the same into consideration while preparing and submitting the bids.

8. The payment can be made by Demand Draft / Banker's Cheque / Pay Order in favour of **Strategic Alliance Management Services Pvt. Ltd.** payable at Delhi. Payment can also be made through RTGS/NEFT/SWIFT to following account :-

Account Name:-	**STRATEGIC ALLIANCE MGMT SERVICES P L**
Bank's Name:-	**HDFC Bank Ltd.**
	2901-2902, Bedanpura, Arya Samaj Road,
	Karol Bagh, New Delhi – 110005 (India)
Account No. :-	**50200005653042**
IFSC/RTGS Code: -	**HDFC0002008**
MICR Code:-	**110240237**

9. **SAMS will only evaluate the bids accompanied by the Bid Document Fee, as stated in para 6 to 8, above.**

10. Bids must be delivered as specified in the Instructions to Bidders of this ITB (Please read this part carefully). **Late bids or bids not submitted at the designated address will be summarily rejected.** Bidder's representatives are invited to attend the Bid opening. If you plan to attend, please advice SAMS at least 24 hours in advance of the bid opening by sending an email to procurement@samsconsult.com. Please indicate the bid reference number in the email subject.

    A bid opening report indicating the total price of each offer will be posted on the SAMS website. As soon as a contract award has been approved by all parties the result will be posted on www.samsconsult.com

CONTENTS

INVITATION LETTER

Dear Sir/Madam,

Subject: Invitation to Bid for Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C&DST Laboratory under RNTCP across India

ITB No.: SAMS -FIND- NCB-WORKS-06/2014

The Strategic Alliance Management Services Pvt. Ltd. (SAMS) is pleased to invite prospective bidders to bid in accordance with the requirements and process as set out in this Invitation to Bid (ITB).

The ITB consists of the following:

- This Invitation Letter;
- Section I - Bid Particulars;
- Section II - Instructions to Bidders;
- Section III - Evaluation Method and Criteria;
- Section IV –Technical Proposal- Standard Forms
- Section V- Financial Proposal- Standard Forms
- Section VI- Schedule of requirement, technical specifications, drawings/ layout of laboratories and required works
- Section VII- SAMS Short Form Construction Contract (the Contract).

A complete set of the above bidding documents in English may be obtained from SAMS office or by downloading them from our website at http://www.samsconsult.com

To be eligible to obtain the bidding documents bidders must pay a non-refundable fee of Rs. 5,000/-. Payment for the bidding documents shall be made by Banker's cheque or DD. Kindly refer to Invitation to Bid - General Instructions for Bid Document Fee and Submission of Bids in response to this ITB. Please prepare your bid in accordance with the requirements and process as set out in this ITB and submit your bid to SAMS by the Closing Date set out in the Bid Particulars in Section-I of the ITB.

We look forward to receiving your bid.

Yours sincerely,

Associate Director (MCS)

Strategic Alliance Management Services Pvt. Ltd.,
1/1 B, Choudhary Hetram house, Bharat Nagar,
New Friends Colony, New Delhi 110025, INDIA
Ph. No. 8800257774, 9958994797
Fax No. 91-11-26312514
E-mail ID: procurement@samsconsult.com

SECTION I - BID PARTICULARS

Works (Article 1)	The works include the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C & DST Laboratory under RNTCP across India,(*as described in Section VI of this ITB).*
Contact person and address for communications (Article 1)	All correspondence, notification and bids in relation to this ITB shall be sent to: **The Associate Director (MCS)** Strategic Alliance Management Services Pvt. Ltd. (SAMS) 1/1B, Choudhary Hetram House, Bharat Nagar,New Friends Colony, New Delhi 110 025 INDIA Telephone: +91-11-26842162
Excluded nationalities (Article 4)	No nationalities are excluded from submitting a bid.
Clarifications (Article 8)	Requests for clarification from bidders will not be accepted later than five days before the Closing Date. Any reply to a particular request for clarification may be copied to all other firms invited to bid, at the discretion of SAMS.
Clarification Meetings (Article 9)	A Pre-Bid meeting will be held on the following date, time and place: **Date: 30th July, 2014 at Time: 1500 Hrs** Place: Conference Room, Ground Floor, 1/1BChoudharyHetram House, Bharat Nagar, New friends Colony, New Delhi-110025 The presence in Pre-Bid meeting is not mandatory. **All queries must be made available by 1700 Hrs of 29th July, 2014.**
Site Inspections (Article 10)	It is strongly recommended that Bidders may visit and examine, at their own expense, the Site of Works and its surroundings and obtain all information that may be necessary for preparing the bid and entering into a contract for construction of the Works.
Bid validity period (Article 13)	Bids shall remain valid for acceptance by SAMS for 120 days from the Closing Date.
Alternative bids (Article 15)	**Alternative bids will NOT be evaluated**
Bid security (Article 16)	Bidders shall provide bid security in the form set out in Technical Proposal – Standard Forms i.e. Form of Bid Security – Form TECH-2 (see Section IV). **The bid security for the individual schedule is reflected in Section VI.** If the bidder is submitting bids for more than one schedule the amount of the Bid Security shall be the sum of specified Bid Security for the respective Schedule. The bidder has the option to submit individual bid security instrument for different schedules.
Bid Currency (Article 17)	Prices shall be quoted in INR only.
Duties and Taxes (Article 18)	**The Financial Bids shall be inclusive of all Duties and Taxes(such as *customs duties, works contract tax, VAT/Sales Tax, Service Tax and any other taxes/duties/levies of whatsoever nature)*** as per INCOTERM DDP.

Language of bids (Article 20)	All bids, information, documents and correspondence exchanged between SAMS and the bidders in relation to this bid process shall be in English.
Closing Date (Article 21)	**All bids must be submitted by 20th August, 2014 before Time: 1530 Hrs (Indian Standard Time)**
Bid Submissions (Article 22)	Bids must be submitted as follows: By mail or personal delivery in sealed envelopes by the Closing Date. **The Technical and Financial Proposals should be packed in separate sealed envelopes, with clear markings on envelopes. Both these envelopes are to be kept in other envelope which shall also be sealed.** **The Technical Proposal in sealed envelope shall contain one soft copy and two hardcopies. One of the hardcopy must be marked "Original" and the other "Duplicate". In the event of any discrepancy between the soft and/or original and duplicate hardcopies of the bid, the bid marked as "Original" shall govern.** The Outer Envelope shall be labelled as follows: *****CONFIDENTIAL BID - DO NOT OPEN UNLESS AUTHORIZED***** **The bids shall be addressed to the following:-** The Associate Director (MCS) Strategic Alliance Management Services Pvt. Ltd. (SAMS) 1/1B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110 025 INDIA From: _____(***Insert bidder's name & details)*** **Closing Date and time: 20th August, 2014 till 1530 Hrs** Personal delivery shall be made between the hours of 09.00 AM and 05.30 PM on SAMS regular Working Days by the Closing Date.
Bid Opening (Article 23)	Bids will be opened at Strategic Alliance Management Services Pvt. Ltd. (SAMS) 1/1B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110 025 INDIA **Date: 20th August, 2014 at Time: 1600 Hrs (Indian Standard Time)**

SECTION II - INSTRUCTIONS TO BIDDERS

1.0 INFORMATION FOR BIDDERS

Bidders are invited to submit a bid for the works described in the Bid Particulars in Section I, and further described in the Schedule of Requirements in Section VI and Standard Contract Form in Section VII, in accordance with this ITB.

All correspondence, notification and bids in relation to this ITB shall be sent to the contact person and address set out in the Bid Particulars in Section I.

2.0 INTERPRETATION OF THE ITB

This ITB is an invitation to treat and shall not be construed as an offer capable of being accepted or as creating any contractual, other legal or restitutionary rights.

No binding contract, including a process contract or other understanding or arrangement, will exist between the bidder and SAMS and nothing in or in connection with this ITB shall give rise to any liability on the part of SAMS unless and until the Contract is signed by SAMS and the successful bidder.

3.0 AMENDMENTS TO THE ITB

Prior to the Closing Date, SAMS may at its discretion modify the bidding documents by way of a written addendum. All written addenda to the bidding documents shall form part of the ITB.

In the event SAMS modifies the ITB, SAMS will notify in writing to all bidders that have received the ITB from SAMS, of such modification.

In order to give the bidders reasonable time to take such modification into account, SAMS may extend the Closing Date as may be appropriate under the circumstances.

4.0 ELIGIBLE BIDDERS

A bidder may be a private, public or government-owned legal entity or any association, including a joint venture or consortium with legal capacity to enter into a binding contract with SAMS.

A bidder, and all parties constituting the bidder, may have the nationality of any country with the exception of those nationalities, if any, listed in the Bid Particulars in Section I.
A bidder shall not be eligible to submit a bid if and when at the time of bid submission, the bidder:

(i) has been suspended or declared ineligible by SAMS or any other entity of the Indian system, including FIND and Ministry of Health & Family Welfare, Govt. Of India;
(ii) has not attended a mandatory site inspection or mandatory clarification meeting, if applicable, in accordance with Articles 9 and 10.

If a bidder does not have all the expertise required for the provision of the works to be provided under the Contract, such bidder may submit a bid in association with other entities, particularly with an entity in the country where the works are to be provided. An entity may not submit more than one bid in response to this ITB, whether alone or in association with other entities.

In the case of a joint venture, consortium or association:

(i) all parties of such joint venture, consortium or association shall be jointly and severally liable to SAMS for any obligations arising from their bid and the Contract that may be awarded to them as a result of this ITB;

(ii) the bid shall clearly identify the designated entity designated to act as the contact point to deal with SAMS. Such entity shall have the authority to make decisions binding upon the joint venture, association or consortium during the bidding process and, in the event that a contract is awarded, during the duration of the contract; and
(iii) The composition or the constitution of the joint venture, consortium or association shall not be altered without the prior consent of SAMS.

5.0 ERRORS OR OMISSIONS

Bidders shall immediately notify SAMS in writing of any ambiguities, errors, omissions, discrepancies, inconsistencies or other faults in any part of the ITB, with full details of those ambiguities, errors, omissions, discrepancies, inconsistencies or other faults.
Bidders shall not benefit from such ambiguities, errors, omissions, discrepancies, inconsistencies or other faults.

6.0 BIDDERS' RESPONSIBILITY TO INFORM THEMSELVES & ACKNOWLEDGEMENT

Bidders shall be responsible to inform themselves in preparing their bid. In this regard, bidders shall ensure that they:

(i) examine and fully inform themselves in relation to all aspects of the ITB, including the Contract and all other documents included or referred to in this ITB;
(ii) review the ITB to ensure that they have a complete copy of all documents;
(iii) obtain and examine all other information relevant to the project and the scope of the works available on reasonable enquiry;
(iv) verify all relevant representations, statements and information, including those contained or referred to in the ITB or made orally during any clarification meeting or site Inspection or any discussion with SAMS, its employees or agents;
(v) attend any clarification meeting or Site Inspection that is mandatory under this ITB;
(vi) fully inform and satisfy themselves as to requirements of any relevant authorities and laws that apply, or may in the future apply, to the execution of the works; and
(vii) form their own assessment of the nature and extent of work required to execute the works and properly account for all work in their bid.

Bidders acknowledge and agree that the ITB does not purport to contain all relevant information in relation to the works and is provided solely on the basis that bidders shall be responsible for making their own assessment of the matters referred to in the ITB, including the Contract (Section VII).

Bidders acknowledge that they have not relied upon any and that SAMS, its directors, employees and agents make no representations or warranties (express or implied) as to the accuracy, currency or completeness of this ITB or any other information provided to the bidders.

7.0 SAMS SHORT FORM CONSTRUCTION CONTRACT

Bidders shall be willing to sign the Contract (Section VII), without departure, qualification, amendment, limitation or exclusion should they be selected as a result of this bid process.

8.0 CLARIFICATION OF THE ITB

Bidders may request clarification of the ITB or bid process by submitting a written request to the contact person stated in the Bid Particulars in Section I up to the time stated in the Bid Particulars in Section I and thereafter requests for clarification will not be accepted.

SAMS shall gather all requests for clarification and may respond in writing to all such requests at the same time. Responses to requests for clarification shall be communicated to all bidders that received the ITB from SAMS and, if stated in the Bid Particulars in Section I, responses will be posted online without disclosing the names of the bidders who submitted the requests for clarification.

Alternatively SAMS shall gather all requests for clarification and may respond to all requests in writing after a clarification meeting which may be held as set out in Article 9 of this Section.

9.0 CLARIFICATION MEETINGS

Unless otherwise instructed in writing by SAMS, a clarification meeting will only be held if stated in the Bid Particulars in Section I, at the time and place and in accordance with any instructions set out in the Bid Particulars in Section I.

If the Bid Particulars in Section I state that a clarification meeting shall be mandatory, a bidder which does not attend the clarification meeting shall become ineligible to submit a bid under this ITB.

The names of representatives of bidders who will attend the clarification meeting shall be submitted in writing by bidders to the SAMS contact person listed in the Bid Particulars in Section I, including the full name and position of each representative at least 24 hours before the clarification meeting is to be held.

SAMS will not issue any formal answers to questions from bidders regarding the ITB or bid process during the clarification meeting. All questions shall be submitted in accordance with Article 8.

The clarification meeting shall be conducted for the purpose of providing background information only. Without limiting Article 6, bidders shall not rely upon any information, statement or representation made at the clarification meeting unless that information, statement or representation is confirmed by SAMS in writing.

SAMS shall prepare minutes of the clarification meeting and communicate them in writing to all bidders which received the bid documents from SAMS shortly after the clarification meeting.

10.0 SITE INSPECTION

It is strongly recommended that Bidders may visit and examine, at their own expense, the Site of Works and its surroundings and obtain all information that may be necessary for preparing the bid and entering into a contract for construction of the Works.

Bidders undertaking site inspection shall be responsible for:

(i) arranging for and wearing personal protective equipment, including at a minimum safety helmets, boots and reflective vests; and
(ii) making and obtaining any visa arrangements that may be required for the bidders to participate in a site inspection.

Prior to attending a site inspection, bidders shall execute an indemnity and a waiver releasing SAMS in respect of any liability that may arise from:

(i) loss of or damage to any real or personal property;
(ii) personal injury, disease or illness to, or death of, any person;
(iii) financial loss or expense, arising out of the carrying out of that site inspection; and
(iv) as a result of any accidents or malicious acts by third parties.

SAMS will not issue any formal answers to questions from bidders in respect of site visit/ inspection. All questions shall be submitted in accordance with Article 8.

A site visit is for the purpose of providing background information only. Without limiting Article 6, bidders shall not rely upon any information, statement or representation made at a site visit unless that information, statement or representation is confirmed by SAMS in writing.

11.0 CONTENT OF BID SUBMISSIONS

11.1Technical and financial Proposals- STANDARD FORM

Bids shall include only a fully completed and dated set of the Technical and Financial Forms, including only the information required by each standard forms, either completed on the Standard Forms or annexed to the document, as the case may be, each signed in accordance with Article 19 by a person authorised by the bidder to bind it. The Technical & Financial Proposals STANDARD FORMS are set out in Sections IV and V.

11.2 Bids shall also include fully completed Annexures I, VIII and X under Section VI along with supporting documents as per instructions.

11.3 Bids shall also include proposed design/ layout for required laboratories under each schedule as per instructions and requirement given under technical specifications of laboratories (Part A, B and C under Section VI).

11.4Other Information:

Bids submitted shall only include information required to be submitted in accordance with the ITB.

12.0 REMUNERATION FOR AND COSTS OF BIDS

Bidders shall not be entitled to any remuneration or compensation for the preparation and submission of their bid.

Bidders acknowledge that their participation in any stage of the bid process for this ITB is at the bidders' own risk and cost. SAMS shall not be responsible for any costs or expenses incurred by bidders in the preparation and submission of bids or participation in the bid process, including as part of any clarification meeting or site or plant inspection.

SAMS is not liable to bidders for any costs, expense or loss on any legal, contractual, quasi contractual or restitutionary basis incurred or suffered in connection with the ITB or bidders' participation in the bid process, including where:

(i) clarifications and addenda are provided or not provided to bidders;
(ii) a bidder is not selected or not engaged to carry out the works;
(iii) SAMS varies, terminates, suspends or delays any aspect of the bid process or conducts another process in its place;
(iv) SAMS elects not to proceed with the ITB in whole or in part; or
(v) SAMS exercises any rights under the ITB.

13.0 BID VALIDITY PERIOD

Bids shall remain valid for acceptance by SAMS for the entire period set out in the Bid Particulars in Section I.

14.0 PARTIAL BIDS

Bidders shall respond to all applicable technical and financial standard forms (section IV & V) and shall bid for all sections of the works. SAMS will NOT accept bids for one or several sections of the works only, nor will SAMS accept bids for only part of the works or part of any section of the works.

15.0 ALTERNATIVE BIDS

Not Applicable.

16.0 BID SECURITY

If the Bid Particulars in Section I state that bidders shall provide bid security, the bid security shall be in the form set out in Technical Proposal- Standard Forms – Form TECH 2: Form of Bid Security (see Section IV) and shall be for the amount set out in the Bid Particulars in Section I.

The bid security shall be issued by a reputable banking institution. Reputable banking institutions are banks certified by the central bank of the country where the bank is located, to operate as a commercial bank. SAMS may, at its discretion, reject any bid security that does not comply with this requirement.

The bid security shall be valid until fifteen (15) days from the notice from SAMS that the bid of the bidder has been rejected in the case of a rejected bid or after fifteen (15) days from the signature of a contract between SAMS and the successful bidder, after which this bank guarantee will automatically become null and void, unless a dispute arises in relation to this bank guarantee.

SAMS shall have the right to request payment under the bid security:

(i) if the bidder withdraws its bid prior to the end of the Bid Validity Period; or
(ii) in the case of a successful bidder, if the bidder fails to sign the Contract resulting from this bid process in accordance with the terms and conditions set forth in its bid.

Unsuccessful bidders shall liaise with SAMS to collect their bid security, which SAMS shall make available to bidders within fifteen days after a bid has been rejected.

SAMS shall return the bid security to the successful bidder within fifteen days after SAMS and the successful bidder have entered into the Contract.

17.0 BID PRICE(S)

Prices in the bid shall be required to quote in INR only.

18.0 DUTIES AND TAXES

The bid submitted shall be inclusive of all Duties and Taxes such as custom duties, works contract tax, VAT/Sales Tax, Service Tax and any other taxes / duties / levies of whatsoever nature.

19.0 SIGNATURE OF BIDS

Bids shall be signed by the person authorized to do so in Form TECH-1: Form of Bid (see Section IV). That person shall be authorized by the bidder to bind the bidder. A copy of such authorization shall be submitted along with the bid.

20.0 LANGUAGE OF BIDS

All bids, information, documents and correspondence exchanged between SAMS and the bidders in relation to this bid process shall be in English language only as set out in the Bid Particulars in Section I.

21.0 CLOSING DATE

All bids shall be received by SAMS by no later than the time and date set out in the Bid Particulars in Section I. It shall be the sole responsibility of the bidders to ensure that their bid is received by the Closing Date. SAMS may reject any bid received after the Closing Date.

22.0 BID SUBMISSION

All bids shall be submitted to SAMS in accordance with the requirements set out in the Bid Particulars in Section I.

Bids that are not submitted in accordance with the provisions set out in the Bid Particulars in Section I may be rejected.

23.0 OPENING OF BIDS

Bidders may attend the opening of the bids. However, they shall not be allowed to attend the evaluation of the bids.

Bids will be opened at the time and location set out in the Bid Particulars in Section I.

24.0 PRELIMINARY EXAMINATION

Upon opening of the bids, SAMS shall proceed to a preliminary examination of the bids. SAMS may reject any bid during the preliminary examination which does not comply with the requirements set out in this ITB, without further consultation with the bidder.

Bids which are incomplete, frivolous, clearly not competitive or contain material deviations from or reservations to the terms of the Contract, may, in SAMS' absolute discretion, be rejected or excluded from further consideration at any time during the evaluation, including after preliminary examination. A bidder may not be permitted to correct or withdraw material deviations or reservations in a bid once the bids have been opened.

25.0 CLARIFICATION OF BIDS

SAMS may request clarification or further information in writing from the bidders at any time during the bid process. The bidders' responses shall not contain any changes regarding the substance or price of the bid.

SAMS may use such information in interpreting and evaluating the relevant bid but is under no obligation to take it into account.

26.0 EVALUATION METHODOLOGY AND CRITERIA

SAMS shall evaluate bids and select a preferred bidder pursuant to Section III of this ITB.

27.0 OTHER SAMS RIGHTS

Subject to Section III of the ITB, SAMS shall have no obligation to accept any bid, including the bid with the lowest price.

In addition to its rights to clarify and amend this ITB, SAMS may, in its absolute discretion, do all or any of the following:

(i) require additional information from bidders;
(ii) change the structure and timing of the ITB;
(iii) alter, terminate, suspend or defer the bid process or any part of or activity in it;
(iv) consider or accept or reject any bid which is non-conforming;
(v) request, attend or conduct any site inspections or clarification meetings;
(vi) request, attend or observe any product, plant, equipment or other demonstration, trial or test, provided SAMS acts reasonably in so doing;
(vii) abandon, cancel or otherwise not proceed with the bid process at any time prior to the award of a contract, without any liability toward the bidders and without providing any reason or notice to bidders.

28.0 COLLECTION OF REJECTED OR UNSUCCESSFUL BIDS

SAMS shall make rejected bids available for collection by the bidders within fifteen days of their rejection in the case of rejected bids, or within fifteen days of the execution of the Contract between SAMS and the successful bidder in the case of unsuccessful bids.

SAMS shall not be responsible for returning rejected and unsuccessful bids to the bidders at its own costs.

29.0 CONFIDENTIALITY

All information and documents provided to the bidders by SAMS shall be treated as confidential by the bidders and shall:

(i) remain the property of SAMS;
(ii) not be used for any purpose other than the purpose of preparing a bid; and
(iii) be immediately returned to SAMS in the event the bidder declines to respond to this ITB, or, in the event of a rejected or an unsuccessful bid, within fifteen days of being notified by SAMS that its bid was rejected or unsuccessful.

All information and documents provided to the bidders by SAMS shall not be disclosed to any third party, except:

(i) with the prior written consent of SAMS;
(ii) where the third party is assisting a bidder in preparing the bid, provided the bidder has previously ensured that party's adherence to this duty of confidentiality;
(iii) if the information or documents is/are at the time of this ITB lawfully in the possession of the bidder through a party other than SAMS;
(iv) if required by law, and provided that the bidder has previously informed SAMS in writing of its obligation to disclose the information or documents; or
(v) if the information is generally and publicly available other than as a result of breach of confidence by the person receiving the information.

30.0 ETHICS AND CORRUPT PRACTICES

SAMS requires that all bidders observe the highest standard of ethics during the entire bid process, as well as the duration of any contract that may be awarded as a result of this bid process. Therefore, all bidders shall represent and warrant that they:

(i) have not unduly obtained, or attempted to unduly obtain, any confidential information in connection with the bid process and any contract that may be awarded a result of this bid process;
(ii) have no conflict of interest that would prevent them from entering into a contract with SAMS, and shall have no interest in other bidders or parties involved in this bid process or in the project underlying this bid process;
(iii) have not engaged, or attempted to engage, in any Corrupt Practices in connection with this bid process or the contract that may be awarded as a result of this bid process. For the purposes of this provision, Corrupt Practices shall mean any of the following:

- bribery: the act of unduly offering, giving, receiving or soliciting anything of value to influence the process of procuring works, or executing contracts;
- extortion or coercion: the act of attempting to influence the process of procuring works, or executing contracts by means of threat of injury to person, property or reputation;
- fraud: the misrepresentation of information or facts for the purpose of influencing the process of procuring works, or executing the contracts, to the detriment of SAMS or other participants; or
- collusion: the agreement between bidders designed to result in bids at artificial prices that are not competitive.

(iv) have not been involved in, either directly or indirectly, nor have they funded, either directly or indirectly, any terrorist activities, notably upon basis of the consolidated list of individuals belonging to or associated with terrorist entities as established and maintained by the United Nations 1267 Committee.

In the event that a bidder fails to comply with any of the above representations and warranties, SAMS shall have the right to reject the bid submitted by such bidder, and to terminate any contract that may have been awarded as a result of this bid process immediately upon notice, without any liability for termination charges or any other liability of any kind of SAMS. In addition, the bidder may be precluded from doing business with SAMS and any other entity of the Indian System in the future.

31.0 AUDIT

Any bidder participating in this bid process shall agree to cooperate with the office of SAMS, Internal Audit and Investigations Group as well as with any other investigation units authorized by SAMS Executive Director and SAMS Ethics Officer to investigate any allegation of misconduct, and in particular any allegation of a breach of Article 30 above, in connection with this bid process or any contract that may be awarded as a result of this bid process.

In cooperating with SAMS, the bidders shall give access to SAMS, upon written request, to all employees, representatives, agents and assignees, as well as to all documents, records and other elements of the bidder that may be required to conduct such investigation.

The failure of a bidder to comply with any of the above representations and warranties shall give SAMS the right to disqualify the bid submitted by such bidder, and to terminate any contract that may have been awarded as a result of this bid process immediately upon notice, without any liability for termination charges or any other liability of any kind of SAMS. In addition, the bidder may be precluded from doing business with SAMS and any other entity of the Indian System in the future.

32.0 BID PROTEST

Any bidder that believes to have been unjustly treated in connection with this bid process or any contract that may be awarded as a result of such bid process may submit a complaint to SAMS.

SECTION III - EVALUATION METHOD AND CRITERIA

1.0 EVALUATION

Bids shall be evaluated according to a two-step procedure.

Firstly, the Bids shall be evaluated for technical compliance based on:

- technical expertise and experience;
- safety, quality and insurance; and
- capacity, resources and key personnel.

Secondly, bids that are found to be technically compliant shall be evaluated based on price and value for money, analysing all relevant costs, risks and benefits of each bid throughout the whole life cycle of the works and in the context of the project as a whole. The lowest priced bid will not necessarily be accepted.

2.0 CRITERIA

This section contains all the criteria that SAMS shall use to evaluate bids and qualify Bidders if the bidding was not preceded by a prequalification exercise and post-qualification is applied. No other methods, criteria and factors shall be used.

Evaluation of the bids shall be made based on pre-determined technical and financial evaluation criteria.

1. Technical Evaluation Criteria

For the technical evaluation, a "pass or fail" method based on objective thresholds for each evaluation criteria, combined with a qualitative assessment based on professional judgement where an objective threshold cannot be determined for a given technical criteria, will be used. Note if a bid fails a pass fail criteria they are ineligible and require no further evaluation. In addition, the evaluation of bids will be done as follows:

Sl. No.	Name of Form	Particulars of Evaluation Criteria	Method of Evaluation	Form No. to be referred and filled (Section IV & V)
1	Form of Bid	Whether the bid is complete and correctly filled	Check and clarify	Form TECH-1
2	Bid Security	Bid security submitted complies with the ITB's requirement	Pass / Fail	Form TECH-2
3	Bidder Details	Bidder's details are correctly filled	Check and clarify	Form TECH-3
4	Project Team and Organizational Structure	The bidder's project team and organizational structure demonstrates the capacity of its core team to execute the works and shall include all essential roles filled with personnel's of the required experience. CV's shall be used to verify the expertise and experience of the bidder's core project team personnel's.	Pass / Fail	Form TECH- 5
5	Insurances	Insurances obtained comply with the ITB's requirements	Pass / Fail	Form TECH-10

6	Technical Compliance sheet	Compliance with Technical specifications of Bid. Technical proposals submitted in the specified Annexures I, VIII & X under section VI	Pass / Fail, after clarifications, if required	Annexures I, VIII & X under section VI
7	Proposed Drawings/ plans	Proposed design/ layout of BSL-3, LPA clean rooms and C&DST lab by Bidders as per requirement under Section VI	Pass / Fail, after clarifications, if required	Refer Sub Section 4 & 5 of Section VI
8	Proposed Methodology	Planned methodology and schedule for execution of Works as per timelines specified in Bid	Pass / Fail, after clarifications, if required	Form TECH- 4 and 9
9	Capacity Experience, Work in Hand and Completed	a. Five (5) similar contracts executed successfully during the last three (3) years. b. Turnover at least Rupees 3.00 Crores during last three (3) years. This is the minimum requirement for each schedule and will be cumulative for multiple schedules.	Pass / Fail	Form TECH- 6
10	Works Management System	The bidder's management system proposal demonstrates the bidder's capacity to carry out the works properly	Pass / Fail	Form TECH- 7
11	Proposed Subcontractors and Suppliers	The bidder's proposed subcontractors and suppliers are of an appropriate quantity and quality and their location is appropriate.	Pass / Fail	Form TECH- 8
12	Declaration	The bidder's declaration is correctly filled out.	Check and clarify	Form TECH-11
13	Conflict of Interest	The bidder's must fill this form.	Check and clarify	Form TECH- 2
14	Dispute Details	The bidder's must fill this form.	Check and clarify	Form TECH-13
15	Addenda to ITB	The bidder's must fill this form.	Check and clarify	Form TECH-14

2. Financial Evaluation Criteria

Financial evaluation of the bids shall be conducted only for the bids found to be technically compliant and shall be carried out in the following way:-

For the purpose of evaluating the bids, only the value of all inclusive Lump Sum Contract Price will be used.

TECHNICAL & FINANCIAL PROPOSAL (STANDARD FORMS)

The Technical (TECH) & FINANCIAL (FIN) Forms are provided under Section IV & Section V, the bidders must fill up all the forms, irrespective of the fact that some of the Forms may not be applicable, in such a case they must mention Not Applicable in the relevant form or forms.

Please complete the technical and financial forms as per instructions placed alongside. For convenience of the bidders the places wherein information is to be provided, relevant portion has been coloured blue, besides description of relevant information.

Section IV - TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-1 : Form of Bid (Technical)

The Associate Director (MCS)
M/s Strategic Alliance Management Services Pvt. Ltd.
1/1B, Choudhary Hetram House, Bharat Nagar,
New Friends Colony,
New Delhi 110 025 INDIA

Dear Sir,

Subject: **Bid for the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C & DST Laboratory under RNTCP across India.**

ITB No.: **SAMS -FIND-NCB-WORKS-06/2014**, dated 17th July 2014

1. We, [***Name of Bidder***], hereby submit a bid for the above-referenced works in response to the above-referenced ITB.

2. We warrant that in preparing and submitting this bid, we have complied with, and are willing to be bound by, any and all of the requirements and provisions of the above-referenced ITB, including the terms and conditions of the Contract as set out in Section VII of the ITB.

3. Our bid shall remain valid for SAMS' acceptance until **120 *days*** from the Closing Date.

4. We acknowledge and agree that:

   - subject to Section III of the ITB, SAMS is not bound to accept the lowest bid or any other bid it may receive in response to the above-referenced ITB;
   - no liability of SAMS and no binding contract exists until the Contract is executed by both parties;
   - each party constituting the bidder is bound jointly and severally by this bid; and

5. If we attend a site inspection we agree to release SAMS from all, and indemnify SAMS in respect of any damage, expense, loss or liability of any nature suffered or incurred by SAMS as a result of;

   (i) loss of or damage to any real or personal property;
   (ii) personal injury, disease or illness to, or death of, any person;
   (iii) financial loss or expense, arising out of the carrying out of that site inspection; and
   (iv) transportation to the site (if provided) as a result of any accidents or malicious acts by third parties.

6. Enclosed is a bid security in the sum of [***insert amount***]in the form set out in the Form TECH 2 – Form of Bid Security, issued by [***insert name of bank***].

I, the undersigned, certify that I am duly authorized by [***insert name of bidder***] to sign this bid and bind [***insert name of bidder***] should SAMS accept this bid:

Name: _____

Title: _____

Date: _____

Signature: _____

In witness of:

Name: _____

Title: _____

Date: _____

Signature: _____

[***Stamp form of bid with official stamp of the bidder***]

TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-2 : Form of Bid Security

BANK GUARANTEE FOR BID

[***Insert Letterhead of Bank***]

Date: [***insert***]

To:

The Associate Director (MCS)
M/s Strategic Alliance Management Services Pvt. Ltd.
1/1B, Choudhary Hetram House, Bharat Nagar,
New Friends Colony,
New Delhi 110 025 INDIA

Re: Bank Guarantee for Bid in response to Invitation to Bid No. SAMS-FIND-NCB-WORKS-06/2014.

The Strategic Alliance Management Services Pvt. Ltd. (SAMS) issued an Invitation to Bid No.**SAMS-FIND-NCB-WORKS-06/2014 (ITB)**for the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C & DST Laboratory under RNTCP across India. In response to this ITB, [***insert name of bidder***] has informed you of its intent to submit a bid.

As required in the ITB, we, [***insert bank***], at the request of [***insert name of bidder***], hereby irrevocably and unconditionally undertake that whenever SAMS gives written notice to us stating that in your sole and absolute judgment [***insert name of bidder***] has failed to comply with the terms and conditions of its bid, we will, notwithstanding any objection which may be made by [***insert name of bidder***], and without any right of set-off or counterclaim, immediately pay to SAMS the sum of [***insert amount of bid security***].

This bank guarantee is valid and will continue to be valid from the date of this letter until fifteen (15) days from the notice from SAMS that the bid submitted by [***insert name of bidder***] has been rejected in the case of a rejected bid or after fifteen (15) days from the signature of a contract between SAMS and the successful bidder, after which this bank guarantee will automatically become null and void, unless a dispute arises in relation to this bank guarantee.

Any payment by us in accordance with this bank guarantee shall be in immediately available and freely transferable in INR/USD, free and clear of and without any deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, set off, counterclaims, deductions or withholdings of any nature whatsoever and by whomever imposed.

Our obligations under this bank guarantee constitute direct primary, irrevocable and unconditional obligations do not require any previous notice to or claim from [***insert name of bidder***]and will not be discharged or otherwise prejudiced or adversely affected by any:

- time, lenience or tolerance which you may grant to [***insert name of bidder***];
- intermediate payment or other fulfilment made by us;

- change in the constitution or organisation of the [***insert name of bidder***]; or
- other matter or thing which in the absence of this provision would or might have that effect, except a discharge or amendment expressly made or agreed to by you in writing.

This bank guarantee may not be assigned by SAMS to any person, firm or company other than an affiliate, without our prior written consent, which shall not be unreasonably withheld. SAMS shall notify us in writing of any assignment, after which we shall make any payment claimed under this bank guarantee to the person, firm or company specified in the notice which will constitute a full and valid release by us in relation to that payment.

Any notice required by this bank guarantee is deemed to be given when delivered (in the case of personal delivery) or forty-eight (48) hours after being dispatched by prepaid registered post or recorded delivery (in the case of a letter) or as otherwise advised by and between the parties.

We agree that part of the bid may be amended, renewed, extended, modified, compromised, released or discharged by mutual agreement between you and [***insert name of bidder***], and this security may be exchanged or surrendered without in any way impairing or affecting our abilities under this bank guarantee without notice to us and without the necessity of any additional endorsement, consent or guarantee by us, provided, however, that guaranteed sum does not increase or decrease.

No action, event or condition which by any applicable law may operate to free us from liability under this bank guarantee will have any effect. We waive any right we may have to apply such law so that in all respects our liability under this bank guarantee will be irrevocable and, except as stated in this bank guarantee, unconditional in all respects.

This bank guarantee is governed by the Uniform Rules for Demand Guarantees, ICC Publication No. 758, provided that the supporting statement under Article 15 (a), and Articles 34 and 35 are excluded. Any disputes arising out or in connection with this bank guarantee, or the breach, termination, or invalidity thereof will be referred to and finally resolved by arbitration in accordance with the UNCITRAL Arbitration Rules then in effect, the language of the proceedings being English.

Nothing in or relating to this bank guarantee shall be deemed a waiver including its subsidiary organs, of which SAMS is an integral part, which are hereby expressly reserved.
Notices under this bank guarantee shall be made to:

[***insert contact information for notices***]

IN WITNESS of which the [***insert name of bank***] has duly executed this Guarantee on the date stated above.

SIGNED by [***insert***]

as attorney for [***insert***]

under power of attorney dated [***insert***]

in the presence of

_____

Signature of witness

_____

Name of witness

_____
_____
_____
_____

Address of witness

_____

Occupation of witness

_____

By executing this agreement the attorney states that the attorney has received no notice of revocation of the power of attorney

TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-3 : Bidder's Details

ITB No.:
_____

Name of bidder:
_____

Trade Licence title and No.:
_____

Address of registered office:_____

_____

PAN No.
_____

Sales Tax/VAT No.
_____

Name of bidder representative:
_____

Address for service of notices (if different than above):

_____

_____

Phone number:
_____

Facsimile number:
_____

Mobile phone number:
_____

Email:
_____

TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-4 : Bidder Preliminary Programme

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

***Note to bidders*: Bidders shall submit a preliminary programme for the execution of the works.**

Bidders are required to make their own detailed assessment of the time, work methods and activities that shall be required for the successful and timely completion of the works, and shall submit their bid on the basis of an assurance that the works can be completed by the Time for Completion and the milestone dates identified in the Contract.

The preliminary programme shall be prepared in sufficient detail to enable SAMS to adequately evaluate the planned execution, staging and allocation of resources for the works.

The preliminary programme shall show the dates when the milestones identified in the Contract shall be achieved. It shall also include and/or be accompanied by:

- **a programme narrative that describes the mechanisms and assumptions made in preparing the programme; and**

- **a critical path analysis for the execution of the works which shall clearly show the float times available within the programme and the earliest start/earliest finish and latest start/latest finish times for each and every activity.**

If a bidder is selected as the preferred bidder, it shall be required to further develop and complete this programme in accordance with the contract for works.

TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-5 : Proposed Project Team And Organizational Structure

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

***Note to bidders*: Bidders shall set out below:**

1. *the key personnel that the bidder proposes to assign to the execution of the works;*

2. *the qualifications and relevant experience of each of the key personnel that the bidder proposes to assign to the execution of the works, including a CV/resume for each of the key personnel;*

3. *the proposed organisational structure for carrying out the works. Bidders are to attach a chart indicating the bidder's organisation structure; and*

4. *the bidder's representatives who are authorized to sign Contract. The bidder shall provide a copy of such authorization*

Key Personnel

No.	Position Description	Name	Years Exp
1	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
2	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
3	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
4	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
5	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
6	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
7	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]
8	[*Insert Description*]	*[Insert Name]*	[*Insert No.*]

Contractor's Representative as per the Contract:

No.	Position Description	Name	Years Exp
1	Contractors Representative	*[Insert Name]*	[*Insert No.*]

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-6: Capacity, Experience, Works in hand and Works Completed

[Using the format below, provide information on each assignment for which your firm, and each associate for this assignment, was legally contracted either individually as a corporate entity or as one of the major companies within an association, for carrying out consulting services similar to the ones requested under this assignment during last five years.]

ITB No.:_____

Name of bidder: _____-_____

Date: _____

Signature: _____

1. **Similar projects during the last[5] years:**
   [***List names, locations and value as per format below***]

2. **All projects during the last [5] years:**
   [***List names, locations and value as per format below***]

3. **All current projects underway or committed to start:**
   [***List names, locations and value as per format below***]

4. **Assets**
   [***List information regarding relevant facilities, fixed and/or mobile plants and equipments that would be used on this project. If such facilities, fixed and/or mobile plants and equipments are not owned by the bidder, please include information on how facilities, fixed and/or mobile plants and equipments will be hired or leased.***]

Assignment name:	Approx. value of the contract (in Indian Rupees):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Address & Contact Details of such Client:
Whether assignment was carried out in joint venture or association with other contractor/s : (Yes/No)	Name/s of such associated contractor/s:
Address & Contact Details of such associated contractor/s:	Approx. value of the services provided to your firm by them under the said contract (in Indian Rupees):
Start date (month/year): Completion date (month/year):	Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Manager, Project Engineer, Officer and Supervisors etc.):
Narrative description of Project:	
Description of services provided by your staff within the assignment:	
(Kindly indicate whether your agency has been blacklisted/ debarred by any client in the past. If yes, kindly provide complete details.)	

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-7 : Works Management System

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

[Note to SAMS: The information provided in this Technical form will be included in Schedule 2 of the Contract]

Note to bidders:

- *Bidders are required to provide the following information:*

Project implementation/quality management
- *Project implementation/quality management manual/policy (if any);*
- *An outline project implementation/quality management plan for the project.*

Health and safety management
- *Health and safety management* manual/*policy (if any);*
- *An outline health and safety management plan for the project.*

Environmental management
- *Environmental management manual/policy(if any);*
- *An outline environmental management plan for the project.*

- *After selection of the successful bidder, SAMS, in consultation with the bidder, will review above information with a view to determining how it can be integrated with SAMS' own works management system. Please note that SAMS' management system sets a standard minimum and shall apply by default.*

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-8 : Proposed Subcontractors And Suppliers

[Note to SAMS: This Technical Form is for information only but will not be included in the contract. If you wish to include it in the contract, we recommend that you use the Measured Price Construction Contract or the Lump Sum Construction Contract or consult with your Legal Advisor]

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

Note to bidders: Bidders shall provide details of their subcontractors and suppliers they propose to use on the project, including:

- *Companies' names; and*
- *Particulars of the works which the bidder proposes to be undertaken by them.*

TECHNICAL PROPOSAL- STANDARD FORMS

Form TECH-9 : Outline Statement of Proposed Methodology to Execute the Works

I. PROPOSED METHODOLOGY

II. SCHEDULE OF EXECUTION OF WORKS

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-10 : Insurances

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

Note to bidders: Bidders shall provide details of insurance policies required under clause 14 and the Schedule of Details of the Contract. Bidders are advised that SAMS may request copies of the insurance policies and any endorsements during the review of bids, including amounts of any deductibles and all exclusions.

1. Construction All Risks Insurance/Third Party Liability Insurance

Name of Insurer:	
Policy No.:	
Insured Amount:	
Renewal Date:	
Name of Broker:	
Contact details of Broker:	

2. Workers' Compensation/Employer's Liability Insurance

Name of Insurer:	
Policy No.:	
Insured Amount:	
Renewal Date:	
Name of Broker:	
Contact details of Broker:	

3. Contractor's Plant and Equipment Insurance

Name of Insurer:	
Policy No.:	
Insured Amount:	
Renewal Date:	
Name of Broker:	
Contact details of Broker:	

4. Other Insurances

Name of Insurer:	
Policy No:	
Insured Amount:	
Renewal Date:	
Name of Broker:	
Contact details of Broker:	

(Note:- Apart from above the bidder may provide details of any other relevant insurance policies obtained.)

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-11 : Declaration

The Associate Director (MCS)
M/s Strategic Alliance Management Services Pvt. Ltd. (SAMS)
1/1B, Choudhary Hetram House, Bharat Nagar,
New Friends Colony,
New Delhi 110 025 INDIA
Telephone: +91-11-26842162

Dear Sir,

Subject: **Bid for the Up-gradation, Commissioning, Testing, and Validation of 05 Bio-safety Level (BSL-3) Laboratories, 04 LPA Clean Rooms, and Works for One C & DST Laboratory under RNTCP across India.**

ITB No.: **SAMS -FIND-NCB-WORKS-06/2014**, dated 17th July 2014

I, [***insert name and title***], [***insert title***], do solemnly and sincerely declare that:

1. I am duly authorised by [***Insert name of bidder***] (the Bidder)to make this declaration on its behalf.

2. I make this declaration on behalf of the Bidder.

3. Before the Bidder submitted its bid, neither the Bidder, nor any of its employees or agents, had knowledge of the bid price proposed by any other bidder who submitted, or of any person, company, other body corporate or firm that proposed to submit, a bid in response to this ITB.

4. Before the closing date of this bid process, neither the Bidder, nor any of its employees or agents, disclosed the Bidder's bid price to:

   (i) any other bidder who submitted a bid in response to this ITB;
   (ii) any person, company, other body corporate or firm proposing to submit a bid in response to this ITB.

5. Neither the Bidder, nor any of its employees or agents, has provided information to:

   (i) any other bidder who has submitted a bid in response to this ITB;
   (ii) any person, company, other body corporate or firm proposing to submit a bid in response to this ITB; or
   (iii) any other person, company, body corporate or firm for the purpose of assisting in the preparation of a bid in response to this ITB.

6. The Bidder is genuinely competing for the Contract.

7. Neither the Bidder, nor any of its employees or agents, has entered into any contract, agreement, arrangement or understanding, other than as disclosed to SAMS in the bid, that the successful bidder for the Contract shall pay any money to, or provide any

other benefit or other financial advantage to, an industry association in respect of the Contract.

8. Neither the Bidder, nor any of its employees or agents, has entered into any contract, agreement, arrangement or understanding that the successful bidder for the Contract shall pay any money to, or provide any other benefit or other financial advantage to, any other bidder who unsuccessfully tendered for the Contract.

9. Neither the Bidder, nor any of its employees or agents, has entered into any contract, agreement, arrangement or understanding that bidders for the Contract would include an identical or similar condition or qualification in their bids.

I acknowledge that this declaration is true and correct, and I make it in the belief that a person making a false declaration is liable to penalties.

DECLARED at [***insert place***] on [***insert date***] before me:

_____
Signature of declarant/authorised person

_____
Name of authorised person
(capital letters)

Date & Place_____

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-12 : Conflict of Interest

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

***Note to Bidders**: Bidder shall submit a declaration that they do not have any Conflict of Interest if considered for award of contract*

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-13 : Dispute Details

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

Note to Bidders: Bidder shall submit a statement below providing details of any current contract dispute and/or arbitral or legal proceeding involving the bidder. The statement shall include details of any dispute which has been, or is reasonably likely to be, referred to formal dispute proceedings (e.g. mediation or arbitration) or is the subject of litigation in any court locally or overseas. This information shall be provided regardless of whether such action has been instigated by the bidder against a client or a client of the bidder against the bidder.

TECHNICAL PROPOSAL-STANDARD FORMS

Form TECH-14 : Addenda to ITB(if any)

ITB No.:_____

Name of bidder: _____

Date: _____

Signature: _____

We acknowledge receipt of the following Addenda, which have been taken into account in preparing the bid:

Addendum Number	Dated

SECTION V – FINANCIAL PROPOSAL-STANDARD FORMS

Form FIN- 1: Form of Bid (Financial)

(To be submitted separately in a sealed envelope)

The Associate Director (MCS)
M/s Strategic Alliance Management Services Pvt. Ltd. (SAMS)
1/1B, Choudhary Hetram House, Bharat Nagar,
New Friends Colony,
New Delhi 110 025 INDIA

Dear Sir,

Subject: **Bid for the Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level (BSL-3) Laboratories, four (04) LPA Clean Rooms, and Works for One (1) C & DST Laboratory under RNTCP across India.**

ITB No.: **SAMS -FIND-NCB-WORKS-06/2014**, dated 17th July 2014

1. We, [***Name of Bidder***], hereby submit a bid for the construction of the above-referenced works in response to the above-referenced ITB.

2. We warrant that in preparing and submitting this bid, we have complied with, and are willing to be bound by, any and all of the requirements and provisions of the above-referenced ITB, including the terms and conditions of the Contract as set out in Section VII of the ITB.

3. Based on the above, our proposed Contract Price is: [***Insert Proposed Contract Price in figures and words***].This amount is inclusive of all relevant taxes.

4. Our bid shall remain valid for SAMS' acceptance until **120 *days*** from the Closing Date.

5. We acknowledge and agree that:

    - subject to Section III of the ITB, SAMS is not bound to accept the lowest bid or any other bid it may receive in response to the above-referenced ITB;
    - no liability of SAMS and no binding contract exists until the Contract is executed by both parties;
    - each party constituting the bidder is bound jointly and severally by this bid; and

6. Enclosed is a bid security in the sum of [***insert amount***]in the form set out in the Form TECH 2 – Form of Bid Security, issued by [***insert name of bank***].

I, the undersigned, certify that I am duly authorized by [***insert name of bidder***] to sign this bid and bind [***insert name of bidder***] should SAMS accept this bid:

Name: _____

Title: _____

Date: _____

Signature: _____

In witness of:

Name: _____

Title: _____

Date: _____

Signature: _____

[***Stamp form of bid with official stamp of the bidder***]

NOTE: *Amount must coincide with the ones indicated under Total Cost of Financial bids in Form FIN-2.*

FINANCIAL PROPOSAL- STANDARD FORMS

Form FIN-2 : Lump sum Contract Price

(To be submitted with Form FIN-1)

ITB No.: _____

Name of bidder: _____

Date: _____

Signature: _____

Description	Costs
Schedule wise Cost of Financial Bid[1]	

Note to bidders:

1. *Bidders shall submit detailed workings of Lump Sum Contract Price with Form FIN-2. (or annexed to Form FIN-2 if files size is prohibitively large, soft copy may be submitted with FIN-1 & FIN-2 in sealed envelope).*
2. *The Bidder must quote fixed price in Indian rupees towards cost of Works to be carried out in the individual laboratory as set out in individual schedule. The Bidder can quote any no. of/ all schedules.*
3. *Variable price proposals will be treated as non responsive and summarily rejected.*
4. *Copy of Service tax registration to be enclosed.*
5. *Bidder to enclose copy of PAN Card also.*

(The total works fee for each laboratory should be inclusive of all the taxes including the service tax, expenditures on subcontracting, third party validation and expenditure on manpower such as daily allowances, traveling expenses etc. The Bidder should estimate the approximate duration of stay of Personnel at Laboratory's Premises and include the expenditure thereof in the total Works fee of each laboratory quoted. Laboratory will not provide any facilities (like guest house or vehicles) apart from administrative support in carrying out Works at site.

Section VI: SCHEDULE OF REQUIREMENT, TECHNICAL SPECIFICATIONS AND DRAWINGS/ LAYOUTS OF LABORATORIES AND REQUIRED WORKS

This Section provides Schedule of Requirement, Technical Specifications, Drawings/ Layouts of BSL 3 Laboratories and Clean Rooms to be upgraded and commissioned. The details of Works to be undertaken for C & DST Lab have also been provided.

For reference of bidders Technical Specification of HVAC for BSL-3 Lab commissioned elsewhere has also been provided.

The relevant information has been segregated in different Sub-sections, Parts and Annexures, the bidders are expected to go through these sections very carefully and comply with requirements for furnishing the bids.

1. **List of Works, scheduling and Bid Security**
2. **Consignee Addresses**
3. **Delivery & Completion Schedule**
4. **Schedule of Works – Scope of Works, Technical Specifications with Annexures**

   Part A: SPECIFICATION FOR CONSTRUCTION, TESTING, COMMISSIONING AND VALIDATION OF BSL-3 LABORATORY

   - **Annexure I**: Technical Compliance sheet alongwith proposed specifications / make / manufacturer **to be submitted by Bidder along with Bid**
   - **Annexure II:** Details of sites for BSL 3 Infrastructure establishment and list of equipments to be placed in BSL 3 area
   - **Annexure III:** Technical Specifications of HVAC **for reference of bidders**
   - **Annexure IV:** Floor Plan Standard Design Ventilation and Schematic Diagram Standard design Ventilation
   - **Annexure V:** Detailed AHU component specifications **for reference of bidders**.
   - **Annexure VI:** List of ventilation components and a detailed specifications of ventilation components **for reference of bidders**

   Part B: SPECIFICATION FOR THE DEVELOPMENT OF LPA CLEAN ROOM INFRASTRUCTURE

   - **Annexure VII:** Common Quantification for LPA Clean rooms development.
   - **Annexure VIII**: Technical Compliance sheet along with proposed specifications / make / manufacturer **to be submitted by Bidder along with Bid**
   - **Annexure IX:** Details of the site for LPA clean room infrastructure establishment.

   Part C: SPECIFICATION FOR DEVELOPMENT OF C&DST LAB, JLNMC BHAGALPUR

   - **Annexure X:** Instruction for an undertaking and Technical Compliance sheet along with proposed specifications / make / manufacturer **to be submitted by Bidder along with Bid**
5. **Schedule Wise existing and proposed Drawings/ Layout of BSL 3 Lab, LPA clean room and C&DST Lab**
6. **Inspections and Validation**
7. **Schedule of Payment for Contract under ITB**
8. **Reporting Requirements**

1. List of Works, Schedules & Bid Security

Schedule No.	Name of Laboratory	Description of Works			Bid Security (INR)
		BSL-3	LPA Clean Room	Up-gradation & Works for C&DST Lab	
I	JLNMC, Bhagalpur Medical College	Yes	Yes	Yes	1,70,000
II	BMHRC, Bhopal	Yes	-	-	1,00,000
III	RMRC, Bhubaneswar	Yes	Yes	-	1,35,000
IV	Madurai Medical College	Yes	Yes	-	1,35,000
V	RIMS, Raichur	Yes	Yes	-	1,35,000

2. CONSIGNEE ADDRESS

Detailed Consignee address and contact details for all laboratories where LPA lab/ BSL-3/ C&DST labs are to be Upgraded, Commissioned and constructed is given below. Bidders may inspect the site in consultation with SAMS/FIND before submitting the bids.

S. No	State	List of Labs	Name of consignee	Contact Name	Designation	Mobile	Email	STO/ Director	Contact No.	Email Id
1	Bihar	**Bhagalpur**	Department of Microbiology,J.L.N.Medical College (Navlakha Building), Bhagalpur – 812001	Dr. (Prof.) S. N. Tiwari	Head of the Department	Mbl: (91) 9431214639	sntiwari52@yahoo.com	Dr. Arjun Singh	9470003145	principal.jlnmc@rediffmail.com
2	Madhya Pradesh	**Bhopal**	Brig. (Dr). K.K.Maudar, Director, BMHRC Department of Microbiology, Bhopal Memorial Hospital and Research Centre, Raisen Bypass Road, Karond, Bhopal, Madhya Pradesh-462038 Tel : 0755-2742212	Dr. Prabha Desikan	Head, Department of Microbiology	Tel : 0755-2742212 Mbl: 9425017316	prabhadesikan@yahoo.com	Dr. V A Joshi Dr Tara Saxena(Acting STO) Dr Kaushal Kumar	755-2571694/ 9893250638 9755769611 9425677704; 9713417704	stomp@tbcindia.nic.in/stomp@rntcp.org/ stdcmp@rntcp.org
3	Orissa	**RMRC Bhubanes-war**	Regional Medical Research Centre Nandankanan Road, Eco Railway Complex, P.O Chandrasekharpur Bhubaneswar - 751023,	Dr D Das	Scientist-D	Tel: 06742305626 Mbl: 09437920085	drdas60@rediffmail.com	Dr. S K Kar	0674 2305626	skk@icmr.org.in
4	Tamil Nadu	**Madurai**	Dept of Microbiology Madurai Medical College Near Anna Bus stop Panagal park Road Madurai – 625020	Dr Jagatheeshwari	Director and HOD Microbiology	9443408749	patjags@rediffmail.com	Dr J Airvoli	9443057664	stotn@rntcp.org
5	Karnataka	**Raichur**	Raichur Institute of Medical Sciences, Raichur (RIMS) Hyderabad Road, RAICHUR – 584101 Tel : 08532-238488	Dr.Thipperudrayya	Dean/Director	Tel : 08532-238488 Mbl: 9448748278	tchandra64@gmail.com; info@rims-raichur.com	Dr. Suryakanth MD	080-22249364; 9449843405	stoka@rntcp.org

3. Delivery & Completion Schedule

Delivery of all completed Works for Inspection by SAMS / FIND should be as per schedule mentioned below:-

Schedule No.	Name of Laboratory	Description of Works			Timelines for completion of whole of the Works
		BSL-3	LPA Clean Room	Up-gradation& Works for C&DST Lab	
I	JLNMC, Bhagalpur Medical College	Yes	Yes	Yes	Four (4) months from the Commencement date
II	BMHRC, Bhopal	Yes	-	-	Three (3) months from the Commencement date
III	RMRC, Bhubaneswar	Yes	Yes	-	Three (3) months from the Commencement date
IV	Madurai Medical College	Yes	Yes	-	Three (3) months from Commencement date
V	RIMS Raichur	Yes	Yes	-	Three (3) months from Commencement date

4. Schedule of Works – Scope of Works& Technical Specifications

PART-A: SPECIFICATIONS FOR CONSTRUCTION, TESTING, COMMISSIONING AND VALIDATION OF BIO-SAFETY LEVEL 3 LABORATORY UNDER THE GLOBAL FUND ROUND 9 PROJECTS

DESCRIPTION AND SCOPE OF WORK

1. SCOPE OF WORK:

The Scope of work involves' Construction, Testing, Commissioning and Validation of Bio-safety level 3 (BSL-3) Laboratory & associated works in compliance with CDC, USA guidelines as minimum and its maintenance during the defect liability period'.

The scope of work shall include complete construction and establishment of BSL-3 laboratory facility including minor civil works, electrical works, public health engineering works etc. complete in all respect. All the fixed equipment and systems like autoclave, bio-safety cabinets, pass box, HVAC system and its components (including A/C plant, air handling, exhaust systems, filters, controls etc.),computers, laboratory workstations, uninterrupted power supply system, door interlocks, access control system, building management system, fire detection & alarm, system, surveillance systems CCTV with remotely placed monitor control, fire extinguishers and any other equipments/systems essentially required to meet the intent and purpose of setting up of BSL-3 laboratory shall be provided and included in the scope of works.

Items/equipments like scientific laboratory instruments, bio safety cabinets, autoclaves and other equipments such as freezers, refrigerator, incubators, centrifuges etc. will be provided by FIND or available in the sites indicated.

However they are included in the scope of work. The contractor shall carry out planning for placement of all such scientific laboratory instruments and equipment and also link these to the services and utilities like power, water, duct, drain etc. required for such items/equipment and this activities are included in the scope of work of the contractor.

The scope of works shall also include:

a) Supply and laying of the required power supply cables from the existing electrical room (LT Panel room) up to the proposed BSL-3 Lab for its power supply.

b) Extension of existing LT panel by providing feeder panel with switchgears of required capacities to meet the power requirements of BSL-3 Lab.

c) **Power required for the BSL-3 Laboratory** shall be tapped from the existing feeder lines (through its expansion and laying of required power cablings) or panels All necessary arrangements like extension of existing feeder/bus bars, laying of power cables etc. for tapping of required power shall be made by the contractor. Supply should be three phase and with proper earthing and required capacity of 440V for AHU Unit for BSL 3 lab.

- Extension of existing water supply lines up to the BSL-3 Lab to meet its water supply requirements.
- Supply and erection of water tank 750-1000litres in case of inadequate or absence of water supply for emergency shower and eye wash stations.

d) **Water supply to the BSL-3 Laboratory** shall be provided through the existing Water distribution network in campus. All the necessary and required arrangements for tapping and extension of existing water line from the adjacent building shall be made by the contractor. All the water distribution piping's in the BSL-3 areas shall be exposed type and with chemical friendly materials suitable to withstand chemical fumigation of rooms. Supply and erection of water tank 750-1000litres in case of inadequate or absence of water supply for emergency shower and eye wash stations.

2. CRITICAL CONSIDERATIONS TO BE FOLLOWED IN DESIGNS

The proposed BSL-3 Laboratory shall be constructed in accordance with CDC,WHO and RNTCP guidelines as minimum. Some of the minimum essential critical considerations for construction of the proposed BSL-3 Laboratory facility shall be as under:

- Restricted and controlled access shall be provided for entry into the laboratory.
- Access control system for tracking & recording of entry / exits should be provided for record keeping.
- Emergency shower, Eyewash station facility with water supply.
- Appropriate negative differential pressures (for e.g. the negative pressure room where bio safety cabinets are placed shall be -12.5 Pa (-0.05" WC) relative to the anteroom, anteroom shall be -12.5 Pa (-0.05" WC) relative to change room if planned, and the change room shall be -12.5Pa (-0.05" WC) relative to the outside atmospheric pressure.
- Air from the laboratories, shall be exhausted only after appropriate filtration (HEPA filters) as per guidelines/standards.
- Leak proof dampers with provision to prevent backflow of air shall be provided in supply and exhaust air systems of laboratory rooms for isolation of rooms/zones.
- Pressure balancing system to maintain room/zone pressures within specified set limits shall be provided which should be done automatically through **Building Management System (BMS)** with a provision for manual control whenever required.
- Redundant exhaust systems shall be provided for BSL-3 laboratory room.
- The door interlocks, BMS, BSCs, and exhaust blowers of BSL-3 laboratory room shall be provided with un-interrupted power supply system with minimum 30 minutes power backup.
- **Modular wall:** The internal building finishes shall be monolithic, impervious, non-particle shredding, chemical resistant to specially Hypochlorite cleaning and suitable to withstand chemical use during decontamination /fumigation. Modular wall should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the outer walls, partitions and false ceiling to create an impervious shell which is fully sealed.
- **Modular false ceiling:** The internal building finishes shall be monolithic, impervious, non-particle shredding, chemical resistant to specially Hypochlorite cleaning and suitable to withstand chemical use during decontamination /fumigation. Modular false ceiling panels should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the ceiling, to create an impervious shell which is fully sealed. These panels must have pre-coated finish with guard film & good aesthetic appeal as well and have to be easily maintainable.
- **Flush Door finishes** shall be 45mm thick with chemical resistant, anti fungal and anti bacterial properties.1.2mm thick GPSP sheet suitable to fix on 60 mm thick wall panel with provisions for double glazing glass for all door and hardwares like push plate.PUF Panels will be with GPSP Sheets, powder coated on both sides and PUF insulation of minimum 38-40 kg/m3. Concealed hardware for fixing of door frames.Ts-71 door closure, SS hinges, SS Door handle, SS ball bearing butt hinges, automatic drop seal, concealed tower bolt for the double door, both sides lock and key arrangement. Suitable neoprene "Y seal" type gaskets are between the door jam and door stop
- Door interlocking systems complete with Controller module, Push button stations with message indication, emergency station, electromagnetic locks
- **Vision Glass** for doors shall be fixed type vaccumised and insulated type with 6 mm toughened glass and shall be installed for natural lightening flushed with surfaces of the door. fixed flush to both faces of the door / wall panels to provide ease of cleaning and maintenance. No crevices / joints / sloped profiles are used for fixing the glass to avoid particle contamination and dust accumulation
- **Covings:** Extruded aluminium anodized R75 clip-on type(Male & Female connectors) covings for entire wall to floor, wall to wall & wall to ceiling joints.
  Extruded aluminium double cove integrated with top track of the partition panels.
  Corner internal & external cove joining pieces in aluminium anodized finish. Having similar construction and finish as the walls and properly sealed with silicon sealant with wall & ceiling.

Following to be done for covings;

Wall to Wall Coving -R-75
Wall to Ceiling Coving-R-75
90 Deg Corner
3-D Corner
2-D Corner

- **Flooring** shall be of 5 mm (3 mm + 2mm) of industrial epoxy including screed compound for adhesion, 3 mm semisolid cladding of EPOXY will be applied over a uniform cemented flooring and 2 mm semi-liquid epoxy over 3 mm hardened surface with bubble free perfect smooth finishing completed into three steps: Cementing (Uniform Flooring), Hardening (3 mm epoxy) and smoothening (2mm epoxy). Epoxy used for this application will be self-levelling and cleanroom compatible.
- **Miscellaneous:** Vinyl Flooring for Passage/Corridor leading to or outside BSL 3 Lab
- Suitable Building Management System (BMS) shall be provided for operation, control and monitoring of various systems and critical laboratory operating parameters like room/zone pressure, temperature, humidity etc.
- Ventilation ducting shall be made out of minimum 24 gauge GI sheet, exhaust duct from the lab to the HEPA filters shall be welded stainless steel duct of minimum 18 gauge grade SS 304. After the HEPA filters the duct can be standard galvanized steel. All the ventilation ducting shall be leak proof.
- One emergency shower and one eye wash station for each site shall be provided at strategic location in compliance with ANSI / ISEA Z358.1. The water supply for emergency shower shall be sufficient to supply at least 3 GPM for 10 minutes. Shower shall be hands free and stay open valve type. The water supply for eye wash shall be sufficient to supply 0.4 GPM (1.5 litres) for 10 minutes in low velocity flow.
- Emergency Exit door with panic latch door from the BSL-3 Laboratory shall be provided wherever mentioned for personnel exit in case of an emergency and can also be used for equipment placement inside lab. Door should be equipped with hooter/audible alarm every time it is opened.
- Laboratory work stations shall be of non particle shredding material and shall be chemical resistant to allow chemical disinfection, preferably top/bench should be SS grade 304 and of thickness minimum 16 gauge and without any drawers or safe
- All electrical light fixtures, switch/sockets, controls, sensors etc. provided in the BSL-3 laboratory shall be flush with the surface, sealed with silicon sealant, chemical resistant construction and shall be able to withstand fumigation with disinfectant chemicals.
- **Fire detection and alarm system (FDA System) and fire extinguishers** shall be provided at strategic locations in each of the rooms.
- **Monitoring devices/camera** shall be installed inside laboratory for external monitoring.
- LAN wiring and connectivity with sockets to be provided at strategic locations throughout the BSL facility.
- UVGI system to be provided for disinfection during non-working hours and shall be synchronized with HVAC system or door opening or by any mechanism to prevent exposure of technical staff to UV.30W UV Lamp for every 200 sq ft. The UV should be 254 nm(short wavelength UV)
- All penetrations through walls, ceiling & floors will be sealed using a suitable caulking. Caulking shall be applied around pipes and conduit. The interior of electrical and cable conduit shall also be caulked.

3. GENERAL CONSTRUCTION

The shop drawings shall be submitted by the contractor for review and approval by the client/ Consultant. However some of the critical elements of the building and features are highlighted here under:

a) **Building Planning Concept**:

The proposed BSL-3 laboratory building shall be constructed on primary and secondary containment barrier system concept.

b) **The Primary Barriers**:
Bio-safety cabinets (Class-IIA2 or as available) with thimble or canopy ducting, autoclaves, pass box, etc. shall constitute the primary containment barrier and shall be placed suitably to contain the contamination.

c) **The Secondary Barriers**:
The laboratory building, air management and control system shall provide the secondary barrier system. Differential pressure shall be maintained in areas/zones to assure flow of air towards the potentially higher risk zones of the laboratory from low risk zone or clean zone.

d) **Building Construction and Finishing**:
The internal building finishing shall provide impervious and monolithic construction and all materials used for internal construction and finishing shall be non particle shredding type and chemical resistant. Joints like wall to wall, wall to floor and ceiling to wall shall be provided with covings for easy cleaning. All joints and penetrations in the building shall be sealed with silicon sealant. The drainage and effluent piping system from the BSL-3 areas shall be of chemical resistant materials.

4. HEATING VENTILATION & AIR-CONDITIONING (HVAC) SYSTEM

The entire laboratory shall be air-conditioned. The HVAC systems shall be provided to maintain the desired inside conditions in terms of temperatures, humidity conditions, air filtration requirements, room/zone pressure requirements and air change rate. HVAC should have Heat Recovery system, wrap around coil with its component.

AIR DISTRIBUTION SYSTEM:

Air distribution system shall comprise of AHU's and other items. Outside fresh air shall pass through the assembly of Pre filters, Fine filter, DX type cooling coil, Blower-Motor section, heater, Fine filter section and then conveyed through insulated supply air ducting. Air shall be filtered by terminal HEPA filter housings and further suitably exhausted through ducting, BIBO-HEPA filter and Blower section. All necessary precautions shall be taken so that the proposed Supply and Exhaust air system shall work continuously even during power failures.

a) Air Conditioning Plant:
The Air-Conditioning plant shall be with Direct Extension (DX system).The AHU shall comprise of Cooling Coil Section with 8 row deep DX coil, necessary component, 18 gauge SS 304 drain pan with 13 mm thick closed cell self-sticking polyethylene insulation, having slope at one side, Drain connection from side.

b) Air Handling System:
The conditioned air shall be supplied to the BSL-3 laboratory by the Air Handlers which shall contain cooling/heating components, filter sections, high static blowers with motors etc.
The air after filter plenums shall be supplied through ducting and volume control Dampers to room.
BSL 3 room/zone shall be provided with dedicated Air Handlers. The air change rates inside the laboratory rooms shall be maintained as per the guidelines/standards (minimum 12 ACH).

c) Design of Supply air system
There would be independent supply and exhaust system with unidirectional inward airflow and 100% exhaust.

- For the supply air, device would be with an integrated refrigeration to cool the outside air in summer time. The cooling unit will consist of a direct evaporator and a compressor unit. Two condensing units of required capacity should be supplied, installed and commissioned. In case of failure of one unit, the second unit is operational.(100% standby). Condensing unit should be of Hitachi / Daikin/ Bluestar / Carrier or equivalent reputed OEM.
- The laboratory rooms will be supplied with pre-conditioned (heating, cooling) fresh air by a mechanical ventilation system. Temperature should be maintained at 22°C±2
- The air will be cooled to 12ºC - 13ºC then reheated with an electric duct coil to maintain required space conditions. This is required to maintain proper humidity conditions in the lab and humidity level should be maintained at 60±10%
- To heat the air in the winter, an electrical heater unit (of adequate capacity) would be planned. This heater will be the same heater that will function as dehumidifier unit in summer

- Two variable speed supply fans of Gebhardt/Krugger/Nicotraor equivalent reputed OEM should be installed. Both fans are designed for the whole required supply air amount (100% Redundancy). In case of failure of one fan, the air supply is further guaranteed. Motor should be required capacity of Crompton Greaves/Siemens/ABB or equivalent of reputed OEM
- The distribution of air is planned via air inlets in the laboratory rooms. To control the air volume flow *variable volume boxes* in the supply air ducts are planned. The supply air needs to be constant to maintain the proper air change rate. A constant volume control damper valve controlled by an airflow measuring sensor will be installed for this purpose.

For Supply Air handling unit:

- The Air handling unit comprises of various sections such as outside fresh air pre-filter section- G4 washable filter (50 mm deep) class having average arrestance>90% as per EN779 2002, with Damper, Inclined Lovers along with Wire Mesh.
- Intermediate filter sections with F7 filter (300 mm deep) Average Efficiency 80-90% as per EN 779 2002., DX coil section, fan section with blowers.
- Final Filter section with F9 filter (300 mm deep) with average efficiency > 95% as per EN 779 2002 and Supply air damper.
- Filter maintenance from dust side only. All AHU Dampers to be of Extruded Aluminum Low Leakage Aerofoil design, volume control dampers suitable for manual & motorised operation.
- Fine Filter F-7 & F-9 to be provided with DOP ports. All Filters section (G4, F7, F9 filter) and Fan section to be provided with test port elbows, magnehelic gauges with tubing , mounting plate to measure differential pressure across it. Face velocity across filter 2.3 m/s approx.
- Further, Air shall be filtered by supply terminal HEPA filter H14. HEPA filter should have efficiency of H14 tested as per EN1822 at MPPS (Maximum Penetrating Particle Size). Housing and filter should have a liquid seal arrangement for leak free mounting of filter with housing. HEPA filter should be separator less having minimum 36 SqMtr media area. Housing must be certified for Tightness class B acc. EN 1886 and class 3 acc. ISO 10648-2 at ± 5000 Pa. HEPA Filters of 99.99% efficiency would be used in all supply terminal . All the HEPA filters should be with 0.3µm filtration.
- All fresh air ducts and their outer inlets should be installed with insect screen.
- System would be equipped with airtight dampers and audible alarm to detect any temperature or pressure failure.
- To avoid the allowed noise pressure level sound absorber will be installed on the outside air and the supply air side of the device.
- Two individual supply unit with two condensing units (Twin supply system(2 Motor, 2 Blower fan, Heating- Cooling coil and 2 condensing unit). Both the units will function with a change over time of 4 hours which will be automatically shifted by a timer control or more intelligent system. In this way the load on single unit will be reduce and if anyone unit of supply breakdowns other will continue to be functional without any interruption in lab work.

d) Design of Exhaust Air System

i. Exhaust Air Bio Safety Cabinets (BSC)

- Prior to planning for exhaust system for laboratory some of the important aspect has to be kept in mind and which depends upon the number and type of Bio safety Cabinets that are plan to be used in the laboratory.
- The ducting from BSC should be done with flexible material and dedicated damper of required capacity should be provided for controlling the variable volume flow for BSC ducting.
- The two, speed controlled roof exhaust fan for the exhaust air of BSC's are to be designed for 100% air exhaust value of total number of BSC's. In order to prevent the intake of outside air, each fan should be equipped with non return valve on the intake side. As the BSC's are recommended to be Class II A2 type cabinets with thimble connections. This means the room exhaust and BSC exhaust can be drawn through the same exhaust fans.

These redundant fans shall be variable speed controlled to maintain a negative pressurization in the lab. The fans will be sized to exhaust 12 air changes of supply air X 1.15.

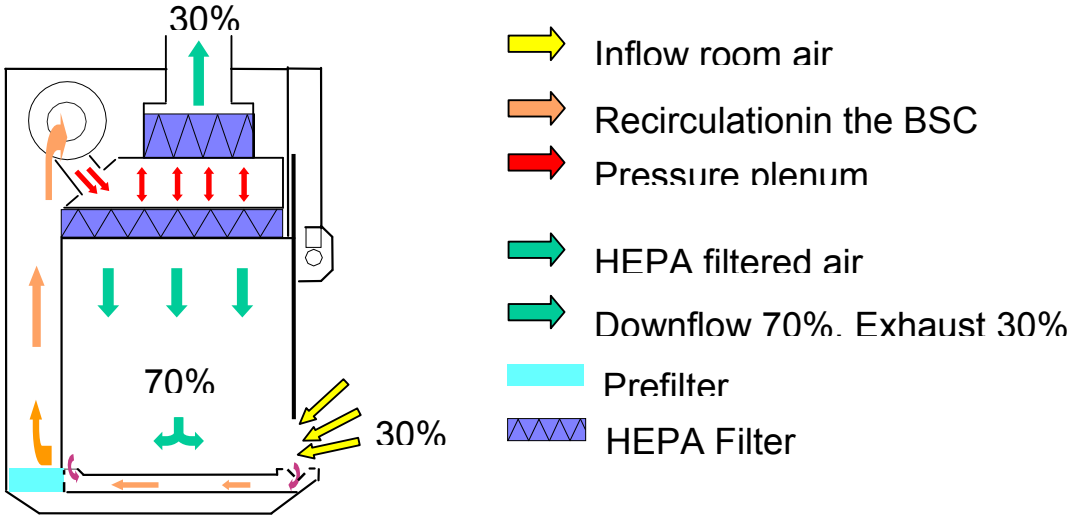
Please refer the requirements of Class II Type A2 BSC and schematic diagram for Thimble connection:

Class II Biological Safety Cabinets (EN12469, NSF49)
The class II BSC was designed to extend the protection features of class I, when it became necessary to protect the sensitive materials on the working surface from contaminated room air.
They differ from class I by design features allowing only HEPA filtered air to flow over the work surface. This air is sucked trough the front and back grid totally back to the system.

- Front access opening with carefully maintained inward airflow of room air
- This air is entering a front intake grill.
- The supply air passes through a HEPA filter before flowing downward as a vertical ideally laminar flow which is split just above the working surface so that about one half enters the entrance grill (together with the newly entering room air) and the other half passes through the rear exhaust grill. Any particles generated at the working surface are captured by the downward flow and eliminated this way.
- The total air is then discarded through the rear plenum into a space between supply and exhaust HEPA filters. The relative size of both filters determines the percentage of re-circulated air passing through the supply filter.
- The exhaust air from a class IIA BSC should be ducted out through a thimble connection to a dedicated duct with an extraction fan outside.
- **A separate extractor fan with sufficient capacity is needed, when the BSC is part of the ventilation system to create and maintain a lowered pressure in the laboratory.**

Class II A2 Biological Safety cabinet

Flow pattern



Class II:

EN 12469 does not differentiate between class A1 and A2, the inward flow should be at least ≥ 0,4 m/s and above this value according to manufacturers' specifications

NSF49

Class A1 Inward flow ≥ 0.38 m/s, should be discouraged because they may have positive pressure contaminated ducts and plenums positive to the room.

Class A2: Inward flow ≥ 0.5 m/s

Down flow for both types:

NSF49: requires the compliance to the manufacturers' set points or down flow velocity within a deviation of 0.025m/s from nominal set point.

EN 12469: air flow velocity should be > 0.25 - < 0.50 m/s and defined by the manufacturer according to the equipment design. Additionally no individual measurement should differ more than 20% of the value requested by the manufacturer

Certification of BSCs

A BSC must be checked and certified for Bio-safety and all other functions before delivery. The test results have to be documented and provided together with the BSC. The packing must have an indicator stating that it was kept in an upright position during the whole transportation. Certification and validation should comply to NSF 49 standards

In the laboratory

- Airflow smoke pattern tests
- Air inflow velocity test
- Air down-flow velocity profile test
- HEPA filter leak test
- Alarm function verification
- Exhaust system performance
- Cabinet integrity test
- Ultraviolet germicidal intensity (UVGI).
- In addition;
- Lighting intensity test
- Vibration test
- Noise level test
- Electrical tests (leakage, ground circuit resistance, and polarity)

When?

- At initial installation: on site, prior to initial use
- At least annually thereafter
- After replacing filter
- After repair work or moving the cabinet

Prerequisites for laboratory preparedness before installing a BSC

The following guidance and remarks are given to avoid major pitfalls in planning and designing TB-laboratories

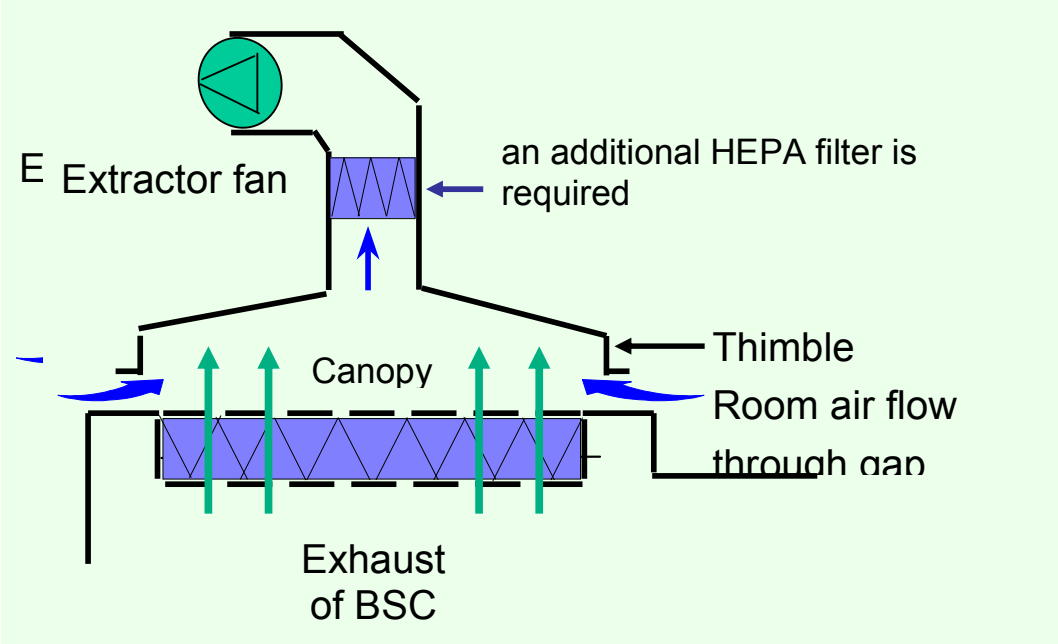
In general, BSCs have to be located away from main traffic areas, doors and air supply/exhaust diffusers that may disturb/interrupt air flow.

BSCs, including stand, usually reach heights between 215 cm to 230 cm. Because the exhaust air has to be ducted out (and in some BSCs exhaust filters will have to be changed from the top), enough space between the exhaust grid and the ceiling of the

laboratory is needed. The exhaust pipe with a cross section of about 400 cm² (20 cm x 20 cm) is commonly used to prevent remarkable resistance to the airflow. This means that the ceiling in the room chosen to install the BSC should be of sufficient height.

- Whenever possible, a 30 cm or greater clearance should be provided on each side (including back to wall) of the cabinet to allow for access
- Minimum clearance of 30 cm has to be provided between exhaust outlet on top of cabinet and any overhead obstructions (for recirculation, not recommended)
- For installation of an exhaust system with appropriate cross section and thimble construction a minimal clearance of 45 cm will be needed.
- For ducted cabinets, extractor fan on the exhaust system should be located at the terminal end of the ductwork
- Failure of exhaust air flow should signal an alarm to the user
- To prevent pressurization of or failure of exhaust flow the cabinet, when hard ducted out or by pass construction, an anti-backflow device to prevent reverse airflow through the HEPA filter may be required
  1) Connection via a **thimble construction**, valid for class II Type A2BSC.
  2) Connection via a **thimble construction**, an option not valid for class IIB BSC.
  3) Proper planning will be the work of an engineer for Heating Ventilation and Air Conditioning taking the local possibilities of maintenance into account. This planning should be done before tendering. The following professional associations may be usefully consulted

Schematic construction of a thimble



NOTE: this exhaust system is for class II Type A2 BSC

A thimble connection requires the installation of an external extractor fan, preferably located at the very end of the exhaust pipes. A slightly negative pressure maintained in the duct will prevent leakage of contaminated air into the laboratory.

- The external fan may be switched separately from the BSC. It alternatively can be coupled via relay circuit with caster in order that when the BSC is switched off, the external fan still runs for some time. Moreover, the BSC should be equipped with an interconnect in order the BSC cannot be switched on unless the external extractor fan is on.

- An additional HEPA filter, preferably located at the beginning of the exhaust pipe right after the influx of room air is required for environment protection to prevent exhaust of potentially contaminated air from the laboratory room. The external fan must be efficient enough to ensure negative pressure in the duct despite the presence of the additional HEPA and its expected loading over time.
- When the external fan is switched on, air will be extracted from the room according to the setting of the extractor fan which should be regulated according to air volume rate needed to establish the desired lowered pressure within the laboratory room. If the BSC is additionally switched on its exhaust air together with some additional room air will be expelled (as long as the total exhaust air rate of the BSCs is less than the adjusted volumetric flow rate of the extractor fan).
- Usually it is recommended to install anti blow back valves, fire flaps and depending on the climatic conditions it might be advisable to integrate heat exchanger, humidifier, and/or air conditioning.
- If more than one BSC is installed, precautions have to be taken to balance the exhaust air from the room depending on which BSC is switched on (compensation for the air flow resistance in the exhaust pipe) and how many are switched on at the same time. Some manufacturers offer thimbles with motorized flaps which can be regulated for this purpose.
- To balance needs and costs at the particular setting and to get a suitable solution, the aid of an engineer for Heating Ventilation and Air Conditioning will be required. An assured service for maintenance covering the installation as a whole will be essential.

ii. <u>Room Exhaust Air</u>

To ensure minimum 12-fold air change per hour and a negative pressure in the lab area, in addition to exhaust system for BSC, two additional variable speed roof fans with an upstream non return valve is planned. Each fan is designed for whole air volume. Exhaust air outlet will have integrated HEPA filters. The HEPA filters will be located on the suction side of the exhaust fan, as close to the lab as possible. This is because the duct from the lab to the HEPA filters should be welded stainless steel duct. After the HEPA filters the duct can be standard galvanized steel. There shall be bubble tight dampers on the inlet and outlet of the HEPA filters to assure total shut-off capability for scanning and decontamination of the filters prior to change out. Exhaust blower should be of Kruger/Nicotra or equivalent reputed OEM. Motor should be required capacity of Crompton Greaves or equivalent reputed OEM.

The speed of exhaust fan will vary to maintain the constant negative pressure inside.

A heating ventilation and air conditioning control system would be installed to prevent any positive pressurization of the laboratory and to maintain a constant standard parameters (pressure, temperature, air flow, humidity etc.)

Supply Air system to be interlocked (fans, dampers, electrical) with exhaust air system, to prevent sustained positive pressurization.

An emergency air exhaust of minimum 30 % efficiency with power back up system minimum up to 30 minutes to be installed, during power failure for room exhaust to be continued.

System would be designed as such that during the fire accidents, fire dampers get activated and both supply and exhaust systems get closed.

Visual pressure monitoring devices shall be installed at the entry of containment laboratory Installation of audible and clearly visible alarm system to notify HVAC system failure.

Visual alarm system with indicators should be provided inside the BSL 3 Lab to monitor pressure, temperature condition as the lab personnel working inside the lab is aware about the situation.

- **For BIBO in Exhaust (Safe Change Housing) –** The HEPA filter should have efficiency of H14 tested as per EN1822 at MPPS (Maximum Penetrating Particle Size). Housing and filter should have a liquid seal arrangement for leak free mounting of filter with housing. HEPA filter should be separator less having minimum 36 SqMtr media area. Housing must

be certified for Tightness class B acc. EN 1886 and class 3 acc. ISO 10648-2 at ± 5000 Pa.

- HEPA Filters of 99.99% efficiency would be used in all exhaust. All the HEPA filters should have 0.3µm filtration.

iii. Air Filtration:

The supply air to the laboratory and exhaust air from the laboratory areas shall be filtered through appropriate sets of filters and treated as per the guidelines/standards. The exhaust air filter handling systems shall be provided such that it protects the maintenance staff from acquiring any infections while handling/replacing the filters (i.e. Bag in Bag out system).

iv. Pressure Control:

Automatic pressure control system shall be provided for the laboratory rooms. On-line monitoring system of room pressures shall be provided. Laboratory alarm system shall be provided for warning in case any abnormality in maintenance of room pressure occurs during the operation of the laboratory. In addition to it manual differential pressure gauges shall be placed at Change Room, Ante room and main lab as back up support in case there is any fault in central monitoring computerized system.Magnehelic gauges of DYWER/ WAREE/ WIKA or equivalent reputed OEM (Range 0-50 Pascals)with supporting SS Hardware with Top plate & suitable Box SS 304 including tubing & suitable fitting & accessories in wall panel

v. Standby Exhaust System:

A separate dedicated exhaust systems for BSL-3 Laboratory shall be provided so that in case of failure of main Exhaust the standby blower shall take over automatically to maintain the required pressure inside the laboratory/zone. Exhaust blower should be of Kruger/Nicotra or equivalent reputed OEM. Motor should be required capacity of Crompton Greaves or equivalent reputed OEM.

vi. Fire Dampers for supply and exhaust air

As a safety feature, fire dampers shall be provided in each of the supply. Fire dampers are required in ductwork that penetrates fire rated walls. The architect determines which walls are to be fire rated. Smoke detectors in the exhaust duct or in the lab send a signal to shut down the air handler in case of a fire.

Fire damper with connecting flanges, 90 min fire resistance, Sheet steel casing, made of stainless steel. Shut-off damper blade made of special insulating material, air-tight. Suited for installation into, in front of, and outside of massive walls in ceilings, as well as in wall construction panels made of plaster, lightweight partition walls, or shaft walls with strut frame. Direct connection of ducts made of flammable or non-flammable building materials. Thermal release mechanism, 72°C or 95°C, and with spring return actuator 24V AC/DC and two integrated limit switches, even in explosion-proof constructions. Integration into the centralized building management system possible.MOC: Wall and drive frame in galvanized steel, butterfly valve of asbestos-free insulating materials. Accessories: Spring return actuator 24V AC/DC 2x Electric limit switch, Locking device and integrated acid-resistant Fusible link mechanism locking device

The fire dampers shall prevent spread of fire and smoke to other areas of the lab / building. The fire dampers shall be interlocked with the AHU blower motors such that in case of fire, the AHU blower motor should get switched off automatically with exhaust system remain operational, as the BSC's are recommended to be Class II A2 type cabinets with thimble connections.

This means the room exhaust and BSC exhaust shall be drawn through the same exhaust fans. These redundant fans shall be variable speed controlled to maintain a differential negative pressurization of 0.05" WC in the lab with respect to ante room. The fans will be sized to exhaust 12 air changes of supply air X 1.15 minimum for room air. An appropriate supporting pressure shall be developed in BSC exhaust by using volume control dampers or other appropriate means, as thimble ducts over BSC exhaust never feels suction force.

e) AHU SHED

AHU shed with provision for fencing, door with lock-key arrangement.

1. M S Square Pipe: 2 Inches X 2 Inches, 16 Gauge, supported with PVC
2. Supporting Structure M S Angle: 50 X 5 mm
3. GI pre-coated corrugated profile roof sheet: 0.5 mm thick duly supported with J Hook.
4. M S Fencing with wire mesh: 1 inch X1 inch
5. 10 SWG with provision of door with lock and key

AHU Shed with fencing should be duly enamel painted and with anti rust coating from both sides. The height covered shall be upto 8 feet. In case, the gap between roof sheet and wire mesh is more than gap should be covered with iron bars.

AHU Shed sketch for the labs quoted should be submitted along with the ITB.

5. ELECTRICALS

The electrical power requirement (power matrix) for the proposed BSL-3 laboratory facility shall be calculated and submitted with details by the contractor.

Supply should be three phase supply with proper earthing and required 440 V capacity to support the functioning of AHU Unit. All the required panels, cabling, switchgears, surge and spike protection system and arrangements etc. for the purpose of energizing the BSL-3 Laboratory facility shall be carried out by the contractor. All the electrical fittings and fixtures in the laboratories areas shall be suitable for clean room application and shall be sealed (all conduits, outlets shall be sealed with silicon sealant), leak proof and capable to withstand chemical exposures during fumigation.

The electrical power distribution scheme shall be provided to provide back up power supply to the critical components and equipments through a UPS and Diesel power generator set. Light fixtures inside shall be with gasket or otherwise sealed with silicon. There shall be two outlets one for direct line and one for UPS backups planned for each lab equipment inside.

Power sockets with lid (15-20 in each room) should be provided for equipments.

Modular type, power sockets with lid of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for lab equipments. The Sockets meant for UPS should be screen printed as (UPS) for ease of operation and identification marked wires and cables used shall be copper wire of standard make (ISI Marked) and manufacturer.

6. BUILDING MANAGEMENT SYSTEM (BMS)

A customized BMS shall be provided to enable operation, monitoring and control the critical laboratory HAVC system and equipments. The BMS shall allow monitoring and controlling the following minimum parameters:

- Individual Room/Zone Pressures (BSL 3 Lab, Ante room, Change room)
- Air Handlers ON/OFF and RUN status
- Exhaust Blowers ON/OFF and Run status
- Individual Room/Zone temperature and relative humidity
- Isolation Damper OPEN/CLOSE status
- Pressure drop across each HEPA filter
- VFD status for each Air Handler and exhaust blower
- Biological Safety cabinets ON/OFF and RUN status

The BMS shall have sensors and DDC controllers, fully wired to a central computer with display and printout facility, zone monitoring & control functions and related software/s. Parallel display of pressures and other critical lab operating parameters shall be provided in the individual labs. The BMS shall have the facility to give alarm in case of deviations during the operation from the set operating ranges. The BMS sensors for indoor installations inside the laboratory rooms shall be chemical resistant and suitable to withstand fumigation. The Building Management System shall have 'Manual' mode to allow operation and monitoring in case of failure or disruptions in the system.

BMS Workstation should be provided with PC configuration including processor, DVD RW Driver, RAM, FDD, TBHDD, MS Window License, Color Monitor, Keyboard, Mouse etc. Software integration equipment: Providing all necessary Hardware & Software for the interface of the following system equipment including providing of necessary integrator / modules.(RS-232/ Modbus/ Bacnet output to be provided by vendor)

7. FIREDETECTION & ALARM SYSTEM

Fire Detection and Alarm System shall be provided for the entire BSL-3 Laboratory Facility to detect any eventual case of fire in the building. The Fire Detection and Alarm system shall give an audible alarm in case of fire in any of the room/zones.

ANALOGUE ADDRESABLE FIRE ALARM SYSTEM:

Loop networkable Analog Addressable Fire Alarm Panel with necessary interface hardware and necessary relays for interfacing with P.A, Make : Apollo or Equivalent, Analog Addressable Optical Multi (Smoke + Heat) Detector, Addressable Manual Call Point / Pull Station , Addressable Hooter (Loop sounders), Short Circuit Isolators, Supply & Laying of 2 Core, 1.5 sq.mm, FRLS, armoured copper multi strand, cable for fire loops and other components . System Design, Engineering & Documentation, Development & Testing of Application Software, Testing & Commissioning to be done.

Portable fire extinguishers shall be provided inside the BSL-3 Laboratory and outside change& ante room. The fire extinguishers shall be Chemical Extinguisher (CO_2) type /Gas expelled (ABC) Type / Dry powder type, depending upon the application. The capacity of Fire Extinguisher should not be minimum 2 kg.

8. UNINTERRUPTED POWER SUPPLY SYSTEM

A central UPS console shall be provided to cater to the extreme essential power requirement of the laboratory. All critical components like Door Interlocks, BMS, Operation of Isolation Valves, exhaust blowers of BSL-3 Laboratory and critical equipments shall be provided with uninterrupted power supply.UPS for adequate load to support the AHU for 30 minute shall be provided by BSL 3 agency. Cabling and installation shall be done by contractors end.

9. ENTRY / EXIT PROTOCOLS

Access control systems shall be provided for restricted and controlled access/entry to the Laboratory. All the entries/exits into the Lab shall be monitored and log data to be made accessible in printable format as and when required by the competent authorities. 20 numbers of card to be provided to each lab.

10. SPECIALIZED LABORATORY SUPPORT EQUIPMENTS AND SYSTEMS

a) Split AC for MGIT(Supply, Installation and Commissioning)

Split air conditioner, according to the area of the BSL 3 Lab should be installed of Hitachi/Bluestar/Carrier/Lloyd/Godrej or equivalent OEM

Split air conditioner should be wall mounted of adequate cooling capacity with a rotary compressor, indoor unit, bio filter and electrostatic filter for superior cooling in to laboratory to provide a good working environment for machine specially MGIT 960 and laboratory personal. Capacity may be 30 % more than air volume calculation to maintain desired temperature condition inside

Split ACs should have provision of alternator(Timer Control cutoff) for changeover of 4 hours so that load is distributed between two/ three/four Split ACs as per the capacity required as per area

The split AC should have reliable and accurate electronic thermostat, logic control that adjusts performance automatically, timer, sleep mode, inner grooved condenser and a low energy consuming compressor.

AC should have four way air distribution (right, left, up, down) to distribute cool air evenly in every corner of the room.

Energy rating: 3 star or higher rating

Proper sealing to be done after the commissioning of Split ACs.

Please refer area detail sheet as an **Annexure 2** (for capacity of Split AC)

b) Pass Box:

Pass Box (Static type) SS 304/316 with inbuilt UVGI system, interlocking, buzzer, shall be provided at strategic / required locations for transfer of samples, chemicals and materials to and from the Laboratories. One is to receive the sample within and second is for sample discard to autoclave room or for disinfected waste collection. Such pass-boxes must have gasket sealed doors which are (preferable) interlocked in such a way that both doors cannot be opened simultaneously. A SOP must be developed for pass-box decontamination.

c) Biological Safety Cabinet

Biological Safety Cabinets (BSC) will be installed(procured separately), commissioned and validated inside the BSL-3 Laboratories at the required locations as per the plan. BSCs should be placed away from doors, air supply vents or other things which may disrupt the cabinet airflow. The Biological Safety Cabinets that are being procured shall be Class II A2 type. The exhaust from the Biological Safety Cabinets shall be thimble connected to the building exhaust system. BSC shall be provided by FIND/SAMS or other agency whereas planning and installation shall be in the scope of work to the contractor.

d) CCTV Monitoring Devices

Camera to continuously monitor the activities inside and outside the BSL 3 Labby providing Central CCTV Monitor. Five/Six Camera unit should be installed(one/two outside the BSL 3 lab covering the entry and corridor area, one in ante room and two inside BSL 3 Lab and One covering AHU Area).

Supply, installation, testing and commissioning of the following

- Color Camera 1/3" ccd IR Dome 480 TV lines even it work in low light.
- 6 Channel stand alone / Network version DVR Make : DAHUA /equivalent reputed OEM
- Hard Disk with 1TERA byte Capacity Make : Seagate / equivalent reputed OEM
- 6 Channel Power Supply Make : Reputed Make
- Supply Laying of Co-axial Cable with necessary Accessories

e) Garment Storage Cabinet, coat hangers and with shoe rack

A garment storage cabinet that can be locked shall be provided in the Change room/Ante Room for each lab worker, 10 number along with a separate shoe rack and coat hanger. The garment storage cabinets shall be in SS304 construction

f) Internal / External Communication Facility

The BSL-3 Laboratory facility shall be provided with all the provisions for Intercom, Telephone and internet facility LAN Cable. External communication lines from the state telecom department shall be obtained by the client, if required

A suitable EPABX System shall be provided for the laboratory. All the rooms of the laboratory shall be provided with intercom connections and hands free telephone instrument with speaker facility.

g) Laboratory Workstations

Laboratory work bench shall be planned and provided by the contractor. The work stations shall be constructed in SS 304 minimum 16 gauges and shall be chemical friendly. The workstations shall be without any storage space or drawers. In addition, work bench should have full length platform of SS 304 for placing the UPS below the work bench.

h) SS Wash Basin: Modular Hand washing sinks with elbow or foot operated mechanism shall be provided integrated with the work station or standalone type as required inside lab and change/ante room. All hand washing basin shall have elbow or foot operated system. Soap dispenser to be provided along with each wash basin unit. Water lines that penetrate the BSL-3 space shall be equipped with back-flow prevention devices.

i) Laboratory Stools: 5-6 laboratory grade hydraulic SS stools with back support shall be provided by contractor.

j) Bio-Hazard Trolleys:

Two tier Trolleys made of SS 304 with top shelf having top opening and closing provision to load and unload the sample and second shelf to carry items should be provided for each lab. Two numbers of trolleys for each lab.

- **Working Size:** 3 feet (Width) x 2 feet (Depth) x 1.5 feet (Height)
- **Total Overall Size:** 3 feet (Width) x 2feet (Depth) x 4 feet (Height)
- **Storage cabinet:** SS 304 grade, 1.25mm thick with covering lid SS, handle and latch
- **Stand:** SS Tubular Section, 2inch x 2inch, with castor wheels and handle to push/pull or cart the trolley.

k) Drain

All the liquid drain coming out from the laboratory shall be connected to a single drain with back flow prevention, which would be further connected if required to an efficient local ETP plant or central ETP Plant of the hospital campus if available. All drains shall be equipped with “p traps”.

Service window should be provided from outside the BSL 3 Lab for carrying out Service-Maintenance work not from inside of BSL 3 lab from Ceiling lights.

11. Labeling to be done as per following details:

- Biohazard label should be placed outside the laboratory.
- Instructions sheet on switches including the room labeling mentioning about respective switch refers to respective rooms.
- Labeling of the BSL 3 Lab and Ante Room/ Change room.
- BSL 3 laboratory layout should be provided at the entrance of Lab

12. VALIDATION

a) There will be mid-term assessment of the project by SAMS/FIND to assess the timely and proper execution of the project.
b) After completion of the construction and installations, the entire laboratory facility, all the equipment, systems and services shall be validated by the contractor under supervision of a committee of the consultants / client.
c) Prior to validation, the contractor shall prepare and submit a detailed ‘Validation Document’ for approval. The Validation Document shall provide the detailed procedure for validation, parameters for validation, validation schemes and formats for recording the validation details.
d) The contractor shall arrange to do a mandatory third party validation
e) The contractor shall arrange for all the instruments, tools, manpower etc. required for the validation.
f) The validation results shall be recorded and documented and shared with the site and FIND/ SAMS.

13. FINAL PERFORMANCE AND CAPACITY TEST AND VALIDATION

All the validation parameters should be validated as per ISO 14644 standard for BSL 3 lab and BSC should be validated as per NSF49

- The installation as a whole shall be balanced and tested upon completion, and all relevant information, including the following shall be submitted to the Institution.

- Air volume passing through each unit, duct, grilles, apertures.
- Pressure in each room/zone as per the design and Differential pressure readings across each filter, fan and coil, and through each pump.
- Static pressure in each air duct.
- Electrical current readings, in amperes of full and average load running, and starting, together with name plate current of each electrical motor.
- Continuous recording over a specified period, of ambient wet and dry bulb temperatures under varying degrees of internal heat loads and use and occupation, in each zone of each part of the Lab
- Performance testing of the equipments/systems and complete A/C plant and HVAC system to check the following parameters with respect to design as minimum.
- Performance and Capacities of Air Conditioners
- Performance and Capacities of Air Handling Units
- Performance and capacities of Exhaust Blowers
- Room inside temperatures and RH
- Air quantity at each outlet
- Air Changes in each room/zone with respect to the designed condition
- Pressure in each room/zone with respect to designed conditions
- Operation of electrical panels and its switchgears
- Testing of power cabling, earthling etc.
- Operation of Volume Control Dampers, Fire Dampers, Isolation Dampers etc.
- Filter Integrity / DOP test for all HEPA and Fine Filters
- Lighting intensity test
- Vibration test
- Noise level test
- Operation of all valves and controls
- Operation of Control Desk/Panel
- BSCs must be certified before use (acceptance) and subsequently thereafter at least annually, or whenever the BSC is moved.
- Any other test deemed required by the Engineer to check the performance of the HVAC equipments and system

Testing and Certification of BSL-3 Containment Rooms

The purpose of testing the containment room or envelope is to determine if the walls, floors, ceilings, penetrations, and other containment barrier features have adequate integrity to prevent leakage of air from the containment space. Testing will be completed by subjecting the containment area to negative air pressure in excess of the anticipated operating conditions, and monitoring the containment air pressure over a test period.

In addition to the above testing, final performance and capacity tests of the HVAC System shall also be carried out during the maintenance / defects liability period as follows:

- Peak summer/ monsoon test during the period from 15th May to 31st July. The installations should be able to maintain the specified inside conditions within the tolerance limits permitted in the contract.
- Peak winter test during the period from 1st December to 15th January.

14. The following documents as may be required by SAMS/FIND are to be submitted after Final assessment and validation of BSL 3 Lab for verification and approval to SAMS-FIND within 15 days of completion of successful validation.

a. The drawings and layout of each final commissioned BSL-3 laboratory should be shared with FIND and SAMS (both in soft and hard copy) for verification.
b. All Test Certificates / Maintenance manuals / As Built drawings / Spare Part List should be submitted to FIND/SAMS after validation within one week.
c. Detailed document on Laboratory Validation Procedures and to include as per table;

Submission of validation documents as per followings.
Design Qualification
Installation Qualification
Performance Qualification
Operational Qualification
All Test Certificates / Maintenance manuals/ As Built drawings / Spare Part List.

15. TRAINING OF PERSONNEL: DURATION 1-2 DAYS

The contractor shall arrange to train the Institution personnel on the following aspects of the HVAC System and other specialized equipments and systems:

- Operation of HVAC Plant and all other equipments and systems.
- Adjustments of settings for controls and protective devices
- Servicing and Preventive maintenance.

16. DOCUMENTS TO BE SUBMITTED BY THE BIDDER ALONG WITH THEIR BIDS FOR TECHNICAL QUALIFICATION AND EVALUATION

i. Architectural layout plans:

Concept layout plans of the proposed BSL-3 laboratory in compliance with CDC guidelines clearly indicating sizes of various rooms' areas, corridors and other associated services & movement areas etc. as per the requirements stated under (DESCRIPTION & SCOPE OF WORK).

ii. Men & Materials movement layout plans:

Conceptual layout plans showing movement of men & materials into and within the Laboratory areas clearly highlighting the measures/ preventions for control of spread of infection/contamination into and within the Laboratory.

iii. Zoning plans:

Plans indicating details of zoning and separation/isolation of different classified, non-classified and contaminated areas/zones, relative pressurization, Air change rates, air re-circulation rates and sterility requirements, decontamination control, services etc. for different areas/zones.

iv. Specialized Systems and Services Layout schemes:

Conceptual layout plans and schematic drawings of various specialized services and utilities showing tentative locations of equipments and furniture such as to be submitted before initiating work at site for approval to SAMS-FIND

- HVAC system
- Air filtration system
- Pressure control system
- Fire Detection and Alarm system
- Air distribution System
- Building Management System
- Fire fighting system
- Un-interrupted Power Supply system
- Specialized laboratory support equipments/ primary containment barriers such as
  - Pass boxes
  - Entry exit protocols

v. Services & Utilities schemes

- Power supply and distribution system
- Water supply and distribution system
- Internal/external communication system

- Disinfection/decontamination system
- Power load calculation for BSL -3 Lab
- Heat load calculation for BSL 3 Lab
- AHU Calculation for BSL 3- Lab with required capacity of Air Handling to be installed

vi. Laboratory Validation Procedures and Details

Submission of validation documents should also follow as mentioned below;
Design Qualification
Installation Qualification
Performance Qualification
Operational Qualification
All Test Certificates / Maintenance manuals/ As Built drawings / Spare Part List.

vii. Project Implementation Methodology

Note: Above mentioned documents also required to be submitted after Final assessment and validation of BSL 3 Lab for verification to SAMS-FIND

Guidelines & Standards for reference:

- *Bio safety in Microbiological and Biomedical Laboratories, 4th edition, May 1999 and 5th edition, 2007 (CDC/NIH BMBSL).*This guideline recommends minimum facility and operational requirements for laboratories working with biological hazards. Primary Containment for Biohazards: Selection, Installation and Use of Biological Safety Cabinets,
- WHO Laboratory Bio safety Manual , Third Edition 2004
- Canadian Tuberculosis Standards 6th Edition
- ISO 14644 Clean Rooms and associated controlled environments.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.*Laboratory Design Guide - 2001*
- NIH Design Policy and Guidelines,
- American National Standards Institute (ANSI)

Annexures:-

The following annexes provide the details of sites, the type and the approximate number of equipments to be placed and installed in BSL 3 area and floor plans of number of sites.

- **Annexure I** : Technical Compliance sheet alongwith proposed specifications / make / manufacturer to be submitted by Bidder
- **Annexure II:** Details of sites for BSL 3 Infrastructure establishment and list of equipments to be placed in BSL 3 area
- **Annexure III:** Technical Specifications of HVAC **for reference of bidders**
- **Annexure IV:** Floor Plan Standard Design Ventilation and Schematic Diagram Standard design Ventilation
- **Annexure V:** Detailed AHU component specifications **for reference of bidders**.
- **Annexure VI:** List of ventilation components and a detailed specifications of ventilation components **for reference of bidders**

Note: Schedule wise existing layout with demarcation of Proposed plans, Proposed floor plans for number of sites are enclosed at sub section 5. under Section VI.

Annexure –I

Technical Compliance sheet alongwith proposed specifications / make / manufacturer to be submitted by Bidder

- List of Construction Material and Equipment Proposed for Construction of the Laboratory along with specifications including manufacturers (OEM) along with warranty period (as specified by Manufacturer) should be clearly mentioned and submitted with ITB as per table given below. Any additional material proposed for construction by bidder may also be specified in the same table.
- Certificates complying to refer standard for filters and HEPA filters should be mentioned and submitted along with ITB.
- Total Power requirement and head load including buffer of 20-25% for each lab should be mentioned and submitted in ITB for the labs quoted
- AHU Calculation for each lab should be mentioned and submitted in ITB for the labs quoted
- Schematic Diagram of HVAC system for each lab should be mentioned and submitted in ITB
- Detail specification of HVAC components lab should be mentioned and submitted in ITB
- **All the above mentioned requirements will be used by SAMS-FIND for technical evaluation of the bidders.**

S.N	Item description	OEM	Specifications with capacity (wherever applicable) and warranty as specified by Manufacturer	Proposed Makes / Manufactures
1	Thermal Insulation	TROCELLEN / THERMOBREAK SUPREME or equivalent reputed OEM		
2	HEPA Filter H14	FREUDENBERG/AAF/CAMFIL/ YIT or equivalent reputed OEM		
3	Diffusers , Grilles	SYSTEM AIR, COSMOS, MK PRECISION/ CARRYAIRE or equivalent reputed OEM		
4	Airtight and Gastight Isolation Dampers	TROX/ CAMFIL/ YIT/FLANDERS or equivalent reputed OEM		
5	VAV , Dampers (VCDs, LOW Leakage dampers)	TROX/ GRADA /SOLID AIR INTERNATIONAL/ ALDES/ HIDRIA, SCHAKO/ PHOENIX CONTROLS or equivalent reputed OEM		
6	Fire Damper	TROX, GRADA, SOLID AIR INTERNATIONAL, ALDES, HIDRIA, SCHAKO or equivalent reputed OEM		
7	Magnehelic Gauge	DYWER/ WAREE/ WIKA or equivalent reputed OEM		
8	Heat Recovery + Wrap Around Coil	SPC/ COLMAC / COIL or equivalent reputed OEM		
9	Containment HEPA filter housing with Filter	Camfil/ YIT or equivalent or equivalent reputed OEM		
10	BIBO Indigenous	PYRAMID / DYNAFILTER / AAF equivalent reputed OEM		
11	AHU and Ventilation units	FLAKTWOOD/ TRANE/ SYSTEMAIR, ZECO or equivalent reputed OEM		

12	AHU Plenum Filters G4 , F5 , F9	FREUDENBERG/AAF/CAMFIL, THERMADYNE/ DYNAFILTER or equivalent reputed OEM		
13	AHU Fan	KRUGER/ NICOTRA/ GEBHARDT or equivalent reputed OEM		
14	Motor	CROMPTON/ BHARAT BIJLIEE/ SIEMENS/ ABB or equivalent reputed OEM		
15	Condensing unit	CARRIER/ BLUE STAR/ HITACHI/ DIAKIN or equivalent reputed OEM		
16	HVAC Control valves	HONEYWELL/ JOHNSON/ DEMBLA/ DANFOSS/ SAMSUNG or equivalent reputed OEM		
17	Modular Material for Ceiling and Walls	ICLEAN/ NICOMAC/ FABTECH/CLESTRA or equivalent reputed OEM		
18	Sheets-GI and SS	JINDAL/ TATA/ BHUSHAN or equivalent reputed OEM		
19	Epoxy Flooring Material	ARDEX/EPOXY/SIKA or equivalent reputed OEM		
20	Distribution Boards	HAVELLS/ LEGRAND/ L&T/ ABB/ SCHNEIDER or equivalent reputed OEM		
21	LT Switchgear (ACB, MCCB, MCB,ELCB, RCCB, Contactors, SFUs)	ABB/ L&T/ SIEMENS/ SCHNEIDER or equivalent reputed OEM		
22	FUSE	SCHNEIDER/ BUSMAN/ SEIMENS/ L&T/ ABB or equivalent reputed OEM		
23	VFD	ABB/ SEIMENS/ DANFOSS/ ALLENBRADLEY/ SCHNEIDER/ CG or equivalent reputed OEM		
24	Timers	ABB/ L&T/SIEMENS/ SCHNEIDER or equivalent reputed OEM		
25	Protection Relays	ABB/ L&T/ SIEMENS/ SCHNEIDER or equivalent reputed OEM		
26	Selector Switches	L&T/SALZER/ ABB/ SIEMENS or equivalent reputed OEM		
27	Change Over Switch	L&T/ SIEMENS/ ABB/ HPL/ SCHNEIDER or equivalent reputed OEM		
28	Ammeters, Voltmeters,	RISHABH/ SCHNEIDER/ L&T or equivalent reputed OEM		

29	Indication Lamps (LED Type)	L&T/ ABB/ SIEMENS/ PRESCITECH & TECHNIC or equivalent reputed OEM		
30	Push Buttons	L&T/ SIEMENS/ABB/PRESCITECH & TECHNIC or equivalent reputed OEM		
31	PF Meters	SCHNEIDER/ L&T/ SEIMENS/EPCOS or equivalent reputed OEM		
32	Energy Meter	L&T/ABB / SCHNEIDER/ HPL/SOKOMAC or equivalent reputed OEM		
33	Electrical Multifunction Meters	Reputed OEM		
34	Load Managers	L&T/ ABB/ SCHNEIDER/ HPL/ SOKOMAC or equivalent reputed OEM		
35	Current Transformers (Cast Resin)	KALPA/ KAPPA/ GILBERT/ IMP or equivalent reputed OEM		
36	Telephone Tag Box	KRONE or equivalent reputed OEM		
37	Industrial type Metallic plug sockets	LEGRAND/CG/ABB/ SIEMENS or equivalent reputed OEM		
38	Modular switches, socket outlets,	CRABTREE/ NORTH WEST/ HAVELLS/ ABB/ LEGRAND or equivalent reputed OEM		
39	PVC Conduits ,Accessories	PRECISION/POLYCAB/ SUPREME/CLIPSAL/ AKGor ISI EQUIVALENT		
40	MS structural's	TATA/JINDAL/ VIZAG/SAIL /ESSAR or equivalent reputed OEM		
41	Copper wires	FINOLEX/L&T/LAP/ RR KABEL, HAVELLS or equivalent reputed OEM (ISI equivalent)		
42	XLPE insulated, armoured,	FINOLEX/ NICCO/GLOSTER/ RPG or equivalent reputed OEM (ISI equivalent)		
43	Aluminium conductor cables	POLYCAB/ HAVELLS or equivalent reputed OEM (ISI equivalent)		
44	Telephone, Co-axial wires & Cables	DIGILINK/ FINOLEX/ LAPP KABEL or equivalent reputed OEM		
45	Data Cables (CAT 5e,6)	LUCENT/ AT&T/ LAPP KABEL/ NETLINK or equivalent reputed OEM		

46	CONTROL JUNCTION BOXES	HANSEL/ L&T/ LEGRAND/ ABB/SCHNEIDER or equivalent reputed OEM		
47	BMS system (CPU, IO Modules and Software)	ROCKWELL/SIEMENS/ SCHNEIDER or equivalent reputed OEM		
48	Network Switches	Reputed OEM		
49	CCTV & CAMERAS	HONEYWELL/ BOSCH or equivalent reputed OEM		
50	UPS	TATA /EMERSON/ APC or equivalent reputed OEM		
51	LED Monitor	SAMSUNG/ PANASONIC/ LG, SONY or equivalent reputed OEM		
52	COMPUTER SET including Keyboard, Mouse etc.	HP/ DELL or equivalent reputed OEM		
53	Door Interlock and Access control System	TECHNOCRATS/ AVON CONTROL or equivalent reputed OEM		
54	Smoke Detectors	SIEMENS/ JOHNSON CONTROL/ HONEYWELL or equivalent reputed OEM		
55	Addressable analogue main panel	HONEYWELL/GE or equivalent reputed OEM		
56	FIRE ALARM SYSTEM	HONEY WELL / SYSTEM SENSOR or equivalent reputed OEM		
57	Differential Pressure Switch	JOHNSON CONTROL/ HONEYWELL/ E&H or equivalent reputed OEM		
58	Temperature sensor	ROSEMOUNT/ E&H or equivalent reputed OEM		
59	Temperature transmitter	ROSEMOUNT/ E&H or equivalent reputed OEM		
60	Temperature display	ROSEMOUNT/ E&H/ RADIX or equivalent reputed OEM		
61	Humidity sensor	HONEYWELL/JOHNSON CONTROL or equivalent reputed OEM		
62	Humidity transmitter	HONEYWELL/ JOHNSON CONTROL or equivalent reputed OEM		
63	Humidity display	HONEYWELL/ JOHNSON CONTROL or equivalent reputed OEM		
64	Pressure sensor	ROSEMOUNT/ JOHNSON CONTROL/ E&H/ DANFOSS or equivalent reputed OEM		

65	Pressure transmitter	ROSEMOUNT/ JOHNSON CONTROL/ E&H/ DANFOSS or equivalent reputed OEM		
66	Pressure display	ROSEMOUNT/ JOHNSON CONTROL/ E&H/ DANFOSS or equivalent reputed OEM		
67	Vinyl Flooring for Passage/Corridor	Forbot /Tarkett/Responsive or equivalent reputed OEM		

Note:

i. Attach separate sheets for specifications and manufacturers catalogues/brochures for construction materials and equipments proposed.
ii. Use separate table as above for each Schedule, if required.

Annexure II

Details of the Sites for BSL 3 Laboratory Infrastructure Establishment and list of equipment to be placed in BSL 3 Lab*

Sl.No.	Name of the Site	Total Area	Area of BSL 3 Lab	Area of Ante room	Area of Change room	No. of BSC to be installed	Capacity of split AC *
1	BMHRC Bhopal	30'4"X17'	22'X17'+8'X4'	8'X5'	8'X8'	3	4 ton
2	RMRC Bhubaneswar	23'5"X18'	18'X18'5"	8'X4'	10'X5'	2	4 ton
3	JLNMC Bhagalpur	19'3"X19'3"+10'X9'	19'3"X19'3"	10'X5'	10'X4'	2	4 ton
4	Madurai Medical College	19'6"X16'6"	14'6"X16'6"	7'X5'	9'6"X5'	2	3 ton
5	RIMS Raichur	20'4"X18'9"+15'X5'	20'4"X18'9"	5'X5'	10'X5'	2	4 ton

* Back up split AC for after work hours support for MGIT

Power Load for Equipments

Sl. No.	Equipments	Quantity	Dimension (cm) W X H X D	Weight (Kg)	Power Requirement (Watts)	Remarks	Placement
1	Biosafety Cabinet	2/3/4	138x212x77	668	750-2100	Thimble ducting	Floor Standing
2	UPS for BSC	2/3/4	15x23x42	20	2100		Floor Standing
3	Centrifuge Refrigerated	1/2/3	46x36x74	88	2000		Table top
4	UPS for Refrigerated Centrifuge	1/2/3	15x23x42	20	2100		Floor Standing
5	Centrifuge Non- Refrigerated	0/1/2	46x36x74	58	800		Table top
6	Oven	1	55x60x40	50	2000		Table top
7	Autoclave (Horizontal)	1	65x50x82	35	400	Piping for water inlet and steam outlet	Table top
8	Microcentrifuge	1/2	28x25x34	12	250		Table top
9	UPS for Microliter Centrifuge	1/2	15x23x42	20	2100		Floor Standing
10	Balance	1	15x38x15	10	NR		Table top
11	Vortex Mixer	2/3/4	13x13x19	5	100		Table top
12	Incubator	1	101x88x64	66	350		Floor Standing
13	UPS	3	15x23x42	20	2100		Floor Standing
14	MGIT	1	91x134x69	1000	1600-2500		Floor Standing
15	Printer for MGIT	1	36x24x38	5	50		Floor Standing
16	UPS for MGIT	1	22x30x50	20	2100		Floor Standing

Note: Dimensions and Power requirements are approximate values and may vary Power requirements mentioned here are standby loads, the peak values may be 200% the stand by load.

All UPS should be placed in a common electrical panel room with connections for the various equipment.

Annexure III

Technical Specifications of HVAC (for reference of bidders)

This is an example of HVAC system for a TB lab for better understanding of the bidders as provided by WHO. *Kindly treat this as reference.*

Design Planning (standard design) for air conditioning and ventilation of a TB Containment Laboratory (High TB risk precaution)

1 Generally

This document covers the preliminary design of the HVAC equipment for the standard design of a High TB risk Laboratory. The ventilation system, necessary for the laboratory areas are shown and explained.

Basics
The following considerations, calculations, explanations and the total processing are based on the following documents.

- floor plan laboratory 1:50 (Annex 2)
- WHO guidelines :
  - Laboratory Biosafety Manual, Third Edition
  - Use of Liquid Culture and Drug Susceptibility Testing (DST) in Low and Middle Income Settings“ Summery report of Expert Group Meeting, Geneva, 26th of March 2007
- European standards (American Standards):
  - EN 12128 laboratories for research development and analysis
  - EN 12469 performance criteria for microbiological safety cabinets (BSC) (or American Standard NSF 49:2002)
  - Environmental Controls: Ventilation, negative pressure isolation room, tents and booths, air filtration and UVGI; Interdepartmental working group on tuberculosis in United Kingdom

  - Draft edition of TB Laboratory Biosafety manual to be published in 2012 describes minimal requirements based on individual risk assessment. Documents given in the annex are suited to meet the maximal requirements.

  - This implies that following documents will have to be adjusted for each laboratory accordingly to the findings of the risk assessment and climatic conditions of the countries:

    - Floor Plan Standard Design Ventilation and Schematic Diagram Standard Design Ventilation (Annexure IV)
    - Detailed AHU component specifications for reference (Annexure V)
    - List of ventilation components and detailed specifications of ventilation components (Annexure VI)

1.1 Ventilation and Air Conditioning

1.1.1 Basics
The laboratory rooms will be supplied with pre-conditioned (heating, cooling) fresh air by a mechanical ventilation system. An additional air conditioning via a secondary cooling system, additional heat gains from laboratory technology, people and humidification are not considered here. The calculations are based on the following temperatures:

- room temperature (winter): ca. 20°C
- room temperature (summer): ca. 24°C
- supply air temperature (winter): ca. 22°C
- supply air temperature (summer): ca. 18°C – 20°C

In the design of ventilation and air conditioning are the nationally applicable standards, rules and regulations to comply. The outside air conditions are determined according to each country and region.

The boundaries of fire protection sections, such as walls and ceiling, will be protected by fire dampers. All fire dampers are considered with a 90-minute fire rating.

1.1.2 Design of supply air device

The dimensioning of supply air devices for the laboratory areas are based on estimates of the designer and the current guidelines and standards.

It is considered that the volume of supplied rooms is approximately 189 m³ (laboratory: 45m^2, Anteroom: 7.52m^2 and Autoclave room: 10.38 m^2; Height: 3m). It is required 12-fold air change per hour. It gives total air volume of 2265 m³/h.

Supplier in the tender document will be requested to submit 4 standard designs with adapted components for laboratories of different size:

Name	Floor [m^2]	Anteroom [m^2]	Autoclave room* [m^2]	Height [m]	Total Volume [m^3]
1 - 40' Container laboratory	28			2.4m	
2 - Small laboratory	25 to 30	5 to 7.5		3m	90 to 113
3 - Medium laboratory	40 to 45	5 to 7.5		3m	135 to 158
4 - Large laboratory	60 to 65	5 to 7.5	10	3m	225 to 248

*Autoclave room will not be included frequently. It is the reason that is only mentioned in the fourth option

To ensure 100% redundancy of all equipment components of the supply air system two supply air devices are planned. They are installed above the other. Both supply air devices are planned with following treatment steps:

- air filtration (F7 outside air side ; F9 supply air side)
- air cooling
- air heating
- humidification (steam humidifier)

All components (filter; fan; cooling coil and electrical heater unit; steam humidifier) are redundant. If one device fails the other one takes 100% of the supply air provision for the laboratory areas.

Redundancy of main parts of the ventilation system according to European standard will not be applied everywhere. Local condition and budget will influence the solution.

For the installation of the supply air device and for additional components, such as duct silencers and flow controllers, a technique area and a clear ceiling height have to be specified.

In the standard design in annex this area is about 75m² and a clear ceiling height of 3.0 meters is required.

The required outside air is drawn through a weather resistant louver in the façade and will provide the supply air devices over the outside air duct. To avoid the allowed noise pressure level sound absorber will be installed on the outside air and the supply air side of the devices. The filtering of the supply air takes place in two stages, firstly a F7 on outdoor air side and an F9 on the supply air side of the devices.

For each supply air device integrated refrigeration is planned to cool the outside air in summer case. The cooling units consist of a direct evaporator and a compressor unit. The required re-cooling is occurred by a common outside unit (condenser). For the cooling cycle, a refrigerant is used.

To heat the air in the winter, an electrical heater unit on each supply air device is planned. This unit is also used to dehumidify the air during cooling case.

The distribution of air is planned via air inlets in the laboratory rooms. To control the air volume flow variable volume boxes in the supply air ducts are planned.

1.1.3 Design of exhaust air system

Exhaust Air Bio Safety Cabinets (BSC)

According to the current design, two BSC are in the laboratory rooms used.
Above each of BSC 550 m³/h (in operation) will be extracted through a hood. The amount of exhaust air is controlled by a downstream variable volume box. Under full load (all BSC are running) it is totally 1100 m³/h of exhaust air.

Downstream for each BSC there will be a non-return valve and a H14 filter.

The two speed-controlled roof exhaust fans for the exhaust air of the BSC´s are each designed for 100% of the air volume (2 x 1100 m³/h; 100 % redundancy). In order to prevent the intake of outside air each fan is equipped with a non-return valve on the intake side.

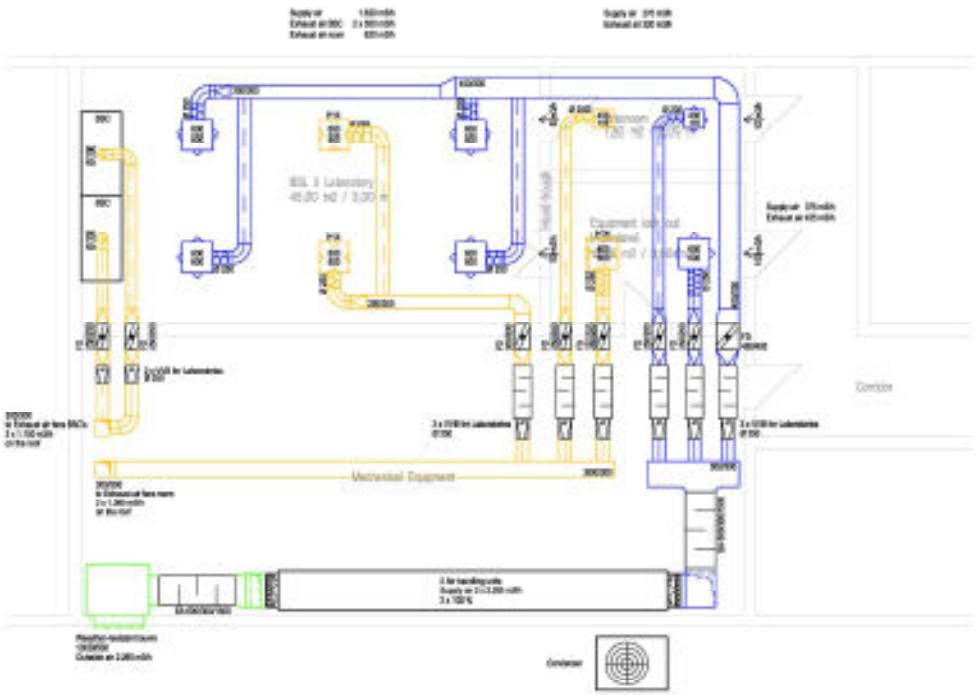
Room exhaust air

To ensure of 12-fold air change per hour and an over pressure in the laboratory area, in addition 1365 m³/h have to be extracted via room exhaust air system. For this purpose, two additional variable speed roof fans with an upstream non-return valve are planned. Each fan is designed for the whole air volume of 1365 m³/h (100% redundancy)

The air extracting of the room exhaust air is planned via air outlets with integrated H14 filter and a down streamed variable volume box.

Annexure IV

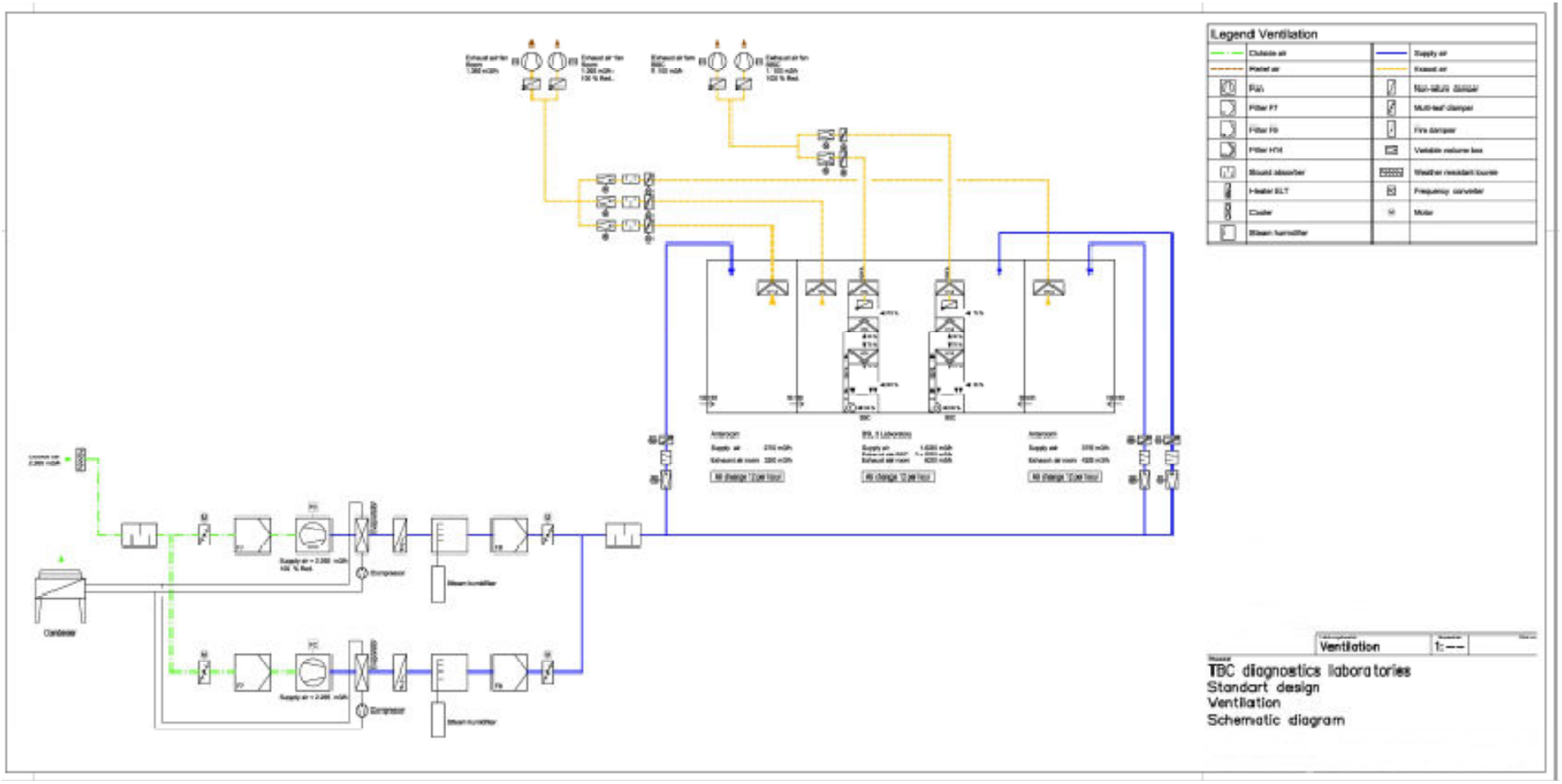
Floor Plan Standard Design Ventilation and Schematic Diagram Standard design Ventilation



Legend Ventilation			
	Outside air		Supply air
	Relief air		Exhaust air
	Sound absorber		Fire-damper
	Shut-off flap		Variable volume box
	Multi-leaf damper		Weather resistant louvre

	Ventilation	1:50

TBC diagnostics laboratories
Standard design
Ventilation
Floor plan


Legend Ventilation
Ventilation
TBC diagnostics laboratories
Standart design
Ventilation
Schematic diagram

Annexure V

Detailed AHU component specifications for reference of Bidders.

(Downloadable PDF file Attached separately)

Annexure VI

List of ventilation components and a detailed specification of ventilation components
(**for reference of bidders)**

Item Number	Family	Sub Family	Item Name	Standard design			1 - 40' Container laboratory		2 - Small laboratory		3 - Medium laboratory		4 - Large laboratory with redundancy	
				Ventilation Components Standard Design Specification	Qty.	unit	Supplier Specification	Qty	Supplier Specification	Qty	Supplier Specification	Qty	Supplier Specification	Qty
1.1.10.	Air Handling Units	Air Handling Units equipment	Supply air Unit	Supply air Unit with following components: (Airflow about 2265 cbm/h in standard design to be adjusted to laboratory sizes) - multi leaf damper with motor (outside air) - pre-filter F7 - ventilator speed controled, ext. Pressure about 700 Pa - cooler, consist of a direct evaporater and a compressor unit (design according to the outside air conditions of each country and region) - reheaterelectr. (design according to the outside air conditions of each country and region) - steam humidifier (optional, design according to the outside air conditions of each country and region) - filter F9 - multi leaf damper with motor (supply air)	2	piece								
1.1.20.	Air Handling Units	Air Handling Units equipment	Air cooled condenser placed outside	re-cooling unit (codenser) as an outside unit (design according to the outside air conditions of each country and region)	1	piece								
1.1.30.	Air Handling Units	Air Handling Units Fan	Radial roof fan BSC	roof exhaust fan for BSC about 1,100 cbm/h; speed controlled; made of plastic (especially for laboratories) with an non-return valve on the intake side.	2	piece								
1.1.40.	Air Handling Units	Air Handling Units Fan	Radial roof fan room exhaust air	roof exhaust fan for room air about 1,365 cbmh;speedcontrolled;made of plastic (especially for laboratories) with an non-return valve on the intake side.	2	piece								
1.2.10.	Built-in Units Ventilation	Grille	Weather protection grille	weather protection grille grille for outside air about 2,265 cbm/h (design for free cross section 2 m/s)	1	piece								

1.2. 20.	Built-in Units Ventilation	Sound attenuator	Splitter sound attenuator outside - supply air	sound absorber for outside air about 2,265 cbm/h; (600 mm / 300 mm/ 1500 mm)	1	piece								
1.2. 20.	Built-in Units Ventilation	Sound attenuator	Splitter sound attenuator outside - supply air	sound absorber for supply air about 2,265 cbm/h; (600 mm / 300 mm/ 1500 mm)	1	piece								
1.2. 30.	Built-in Units Ventilation	Flow Controller	Variable Volume Boxes supply air / Variable volume flow controller	variable volume flow controller with additional sound absorber for supply air (Ø 250 mm) for different airflows about : 270 cbm/h - 375 cbm/h - 1620 cbm/h	3	piece								
1.2. 40.	Built-in Units Ventilation	Flow Controller	Variable Volume Boxes exhaust air / Variable volume flow controller for exhaust air BSC Ø250 mm	variable volume flow controller for exhaust air BSC; made of plastic (especially for laboratories) for about 550 cbm/h (Ø 250 mm)	2	piece								
1.2. 50.	Built-in Units Ventilation	Flow Controller	Variable Volume Boxes exhaust air / Variable volume flow controller room exhaust air Ø250 mm	variable volume flow controller room exhaust air; made of plastic especially for laboratories(Ø 250 mm) for different airflows about 320 cbm/h - 425 cbm/h - 620 cbm/h (Ø 250 mm)	3	piece								
1.2. 60.	Built-in Units Ventilation	Fire Damper	Fire damper supply air - Size 1	fire damper for supply air for about 270 cbm/h (250 mm / 200 mm).	1	piece								
1.2. 70.	Built-in Units Ventilation	Fire Damper	Fire damper supply air - Size 2	fire damper for supply air for about 375 cbm/h (250 mm / 250 mm).	1	piece								
1.2. 80.	Built-in Units Ventilation	Fire Damper	Fire damper supply air - Size 3	fire damper for supply air for about 1,620 cbm/h (450 mm / 400 mm).	1	piece								
1.2. 90.	Built-in Units Ventilation	Fire Damper	Fire damper coated for exhaust air - Size 1	fire damper coated for exhaust air for about 425 and 550 cbm/h (250 mm / 250 mm).	3	piece								
1.2. 100.	Built-in Units Ventilation	Fire Damper	Fire damper coated for exhaust air - Size 2	fire damper coated for exhaust air for about 320 cbm/h (250 mm / 200 mm).	1	piece								

1.2. 110.	Built-in Units Ventilation	Fire Damper	Fire damper coated for exhaust air - Size 3	fire damper coated for exhaust air for about 620 cbm/h (300 mm / 300 mm).	1	piece								
1.2. 120.	Built-in Units Ventilation	Supply air outlets	Supply air outlets - Size 1	supply-air outlet for about 270 cbm/h (400 mm / 400 mm).	1	piece								
1.2. 130.	Built-in Units Ventilation	Supply air outlets	Supply air outlets - Size 2	supply-air outlet for about 375 cbm/h and 405 cbm/h (600 mm / 600 mm).	3	piece								
1.2. 140.	Built-in Units Ventilation	Exhaust air outlets	BTS exhaust air outlet with HEPA-filter (H14)	exhaust air hood for BSC with HEPA-filter (H14) and non-return valve for about 550 cbm/h.	2	piece								
1.2. 150.	Built-in Units Ventilation	Exhaust air outlets	Room exhaust air outlet with HEPA-filter (H14) - Size 1	exhaust air outlet with HEPA-filter (H14) for about 320 cbm/h (400 mm / 400 mm).	1	piece								
1.2. 160.	Built-in Units Ventilation	Exhaust air outlets	Room exhaust air outlet with HEPA-filter (H14) - Size 2	exhaust air outlet with HEPA-filter (H14) for about 310 cbm/h and 425 cbm/h (600 mm / 600 mm).	3	piece								
1.3. 10.	Ventilation ducts and pipes	Ducts for supply air	Galvanized air duct	galvanized air duct for main strands (air speed about 5-6 m/s)	as needed	m²								
1.3. 20.	Ventilation ducts and pipes	Ducts for supply air	Galvanized air duct-fittings	galvanized air duct-moulding for main strands (air speed about 5-6 m/s)	as needed	m²								
1.3. 30.	Ventilation ducts and pipes	Pipes for supply air	Galvanized ventilation pipe	galvanized ventilation pipe for branch duct to the supply air outlets (air speed about 4 m/s)	as needed	m								
1.3. 40. 1	Ventilation ducts and pipes	Pipes for supply air	Galvanized ventilation pipe bend	galvanized ventilation pipe bend for branch duct to the supply air outlets (air speed about 4 m/s)	as needed	piece								
1.3. 40. 2	Ventilation ducts and pipes	Pipes for supply air	Galvanized ventilation pipe-T-piece	galvanized ventilation pipe-T-piece for connecting line from main line to the supply air outlets (air speed about 4 m/s)	as needed	piece								
1.3. 40. 3	Ventilation ducts and pipes	Pipes for supply air	Galvanized ventilation pipe-reduction	galvanized ventilation pipe-reduction for connecting line from main line to the supply air outlets (air speed about 4 m/s)	as needed	piece								

1.3.50.	Ventilation ducts and pipes	Pipes for supply air	Alu-flexible tube	alu-flexible tube for connecting to the supply air outlets (air speed about 4 m/s)	as needed	m								
1.3.60.	Ventilation ducts and pipes	Ventilation ducts for exhaust air made of plastic (PP-FR)	Air duct made of plastic	air duct made of plastic (especially for laboratories) for main strands (air speed about 5-6 m/s)	as needed	m²								
1.3.70.	Ventilation ducts and pipes	Ventilation ducts for exhaust air made of plastic (PP-FR)	Air duct fittings made of plastic	air duct-moulding made of plastic (especially for laboratories) for main strands (air speed about 5-6 m/s)	as needed	m²								
1.3.80.	Ventilation ducts and pipes	Pipes for exhaust air	Ventilation plastic pipe (PP-FR), welded design.	ventilation pipe made of plastic (especially for laboratories) for branch duct to the supply air outlets (air speed about 4 m/s)	as needed	m								
1.3.90. 1	Ventilation ducts and pipes	Pipes for exhaust air	Plastic ventilation pipe bend	ventilation pipe bend made of plastic (especially for laboratories) for branch duct to the supply air outlets (air speed about 4 m/s)	as needed	piece								
1.3.90. 2	Ventilation ducts and pipes	Pipes for exhaust air	Plastic ventilation pipe-T-piece	ventilation pipe-T-piece made of plastic (especially for laboratories) for connecting line from main line to the supply air outlets (air speed about 4 m/s)	as needed	piece								
1.3.90. 3	Ventilation ducts and pipes	Pipes for exhaust air	Plastic ventilation pipe-reduction	ventilation pipe-reduction made of plastic (especially for laboratories) for connecting line from main line to the supply air outlets (air speed about 4 m/s)	as needed	piece								
1.3.100	Ventilation ducts and pipes	Pipes for exhaust air	flexible tube made of plastic	flexible tube made of plastic (especially for laboratories) for connecting to the supply air outlets (air speed about 4 m/s)	as needed	m								
1.4.10.	Control components ventilation	Control accessories	Differential pressure gauge	differential pressure display for any adjacent room with a connecting door to the lab.	as needed number of doors/rooms	piece								
1.4.20.	Control components ventilation	Control accessories	Flashing lights	differential pressure display for (connection to zero pressure line) with alarmhorn an connection of outlet volume flow controller.	8	piece								
1.4.30.	Control components ventilation	UPS	Uninterrupted power supply	UPS to power the DDC with field devices and a part of the exhaust fans. Is used to ensure controlled shutdown of the plant, e.g. in case of power failure. Failure of the UPS must be displayed.	1	piece								

1.4.40.	Control components ventilation	Control system	DDC system including cabling	measuring and control equipment inclusive cabling for all positions ahead with room pressure control via outlet air, constant supply air volume flow, temperature control via room temperature or outlet air temperature.	1	piece								
1.4.50.	Control components ventilation	Control system	Remote control	Remote control to monitor system by supplier through internet or phone	1	piece								

PART-B: SPECIFICATION FOR THE DEVELOPMENT OF LPA CLEAN ROOM INFRASTRUCTURE

Description of work

Creation of Four clean area rooms (Master Mix, Amplification and Hybridization rooms) for Line Probe Assay with two ante rooms) to be developed as per approved layout and in consultation with Institute and FIND.

The required area for the above mentioned rooms and their respective ante-rooms for each site is provided in Annex 2.

1. **Specification for Modular wall and Modular false ceilings:**
   a. The walls and ceiling for three proposed clean area rooms and their ante-rooms have to be Puff panel claded complete with covings, flushed clean room lights.
   b. Modular wall: The internal building finishes shall be monolithic, impervious, non-particle shredding, chemical resistant to specially Hypochlorite cleaning and suitable to withstand chemical use during decontamination /fumigation. Modular wall should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the outer walls, partitions and false ceiling to create an impervious shell which is fully sealed. These panels must have pre-coated finish with guard film & good aesthetic appeal as well and have to be easily maintainable.
   c. Modular false ceiling: The internal building finishes shall be monolithic, impervious, non-particle shredding, chemical resistant to specially Hypochlorite cleaning and suitable to withstand chemical use during decontamination /fumigation. Modular false ceiling panels should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the ceiling, to create an impervious shell which is fully sealed. These panels must have pre-coated finish with guard film & good aesthetic appeal as well and have to be easily maintainable.
   d. Wherever possible, access to roof should be made from ante-rooms or from outside ante-rooms.
   e. The sharp ends should be not visible, should be properly sealed on the roof and all the wirings on the roof should be properly fitted and ends should be sealed.

2. **Covings:** Extruded aluminium anodized R75 clip-on type(Male & Female connectors) covings for entire wall to floor, wall to wall & wall to ceiling joints.
   Extruded aluminium double cove integrated with top track of the partition panels.
   Corner internal & external cove joining pieces in aluminium anodized finish. Having similar construction and finish as the walls and properly sealed with silicon sealant with wall & ceiling.

   Following to be done for covings;

Wall to Wall Coving -R-75
Wall to Ceiling Coving-R-75
90 Deg Corner
3-D Corner
2-D Corner

3. **Creation of ante rooms:**
   a. Partitioning to create ante rooms for Master Mix, Amplification and Hybridization rooms.
   b. A common ante room for Amplification and Hybridization rooms and separate ante room for Master Mix room.

c. The specifications for walls and ceiling for ante rooms are same as given in (1) above.

4. Sealing in clean area rooms:

All wall air leakage spaces, and penetrations into the clean area rooms, are sealed with materials such as silicon sealant with smooth, continuous finish, impermeable to liquids, disinfectant hypochlorite and decontamination gases (such as formaldehyde).

5. Flooring:

a. Industrial epoxy flooring, 3mm thickness, water and chemical resistant type, in ante room, corridor and three clean area rooms.
b. The epoxy is laid over a water proof, even surface without any cracks, using appropriate base. If the floor is not water proof and of even surface, necessary civil work has to be undertaken to ensure that the floor is water proof, even surface without any cracks before epoxy is laid.

6. Electricals:

a. The electrical power requirement for the proposed LPA laboratory facility shall be calculated and submitted with details by the contractor.
b. All the required panels, cabling, switchgears, surge and spike protection system and arrangements etc. for the purpose of energizing the LPA Laboratory facility shall be carried out by the contractor. All the electrical fittings and fixtures in the laboratories areas shall be suitable for clean room application and shall be sealed (all conduits, outlets shall be sealed with silicon sealant), leak proof and capable to withstand chemical exposures during fumigation.
c. Wiring and power points:
    i. Necessary wiring and power points (ten in each room) should be provided for equipments.
    ii. Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for lab equipments.
d. The electrical power distribution scheme shall be provided
    i. provision should be made for backup power supply to the critical components and equipments through a UPS and Diesel power generator set.
    ii. There shall be two outlets one for direct line and one for UPS backups planned for each lab equipment inside.
    iii. The sockets meant for UPS should be screen printed as (UPS) for ease of operation and identification marked wires and cables used shall be copper wire of standard make (ISI Marked) and manufacturer.
e. Light fixtures should be placed flush with roof, shall be with gasket or otherwise sealed with silicon sealant.
f. Accessibility for replacement of light fixtures should be provided from the roof side.

7. EPABX System:

A suitable EPABX System for Master Mix room, Amplification room and Hybridization room of the laboratory should be provided with intercom connections and hands-free telephone instrument (speaker facility) to Microbiologist room/ Staff room.

8. Access Control System:

Access control systems shall be provided for restricted and controlled access/entry to the Laboratory. All the entries/exits into the Lab shall be monitored and log data to be made accessible in printable format as and when required by the competent authorities.

9. **CCTV Monitoring System with Computer Set**
   Camera should be installed inside the lab in each clean room and outside the anteroom to monitor and record the activities in and out of lab. One unit at the entrance of LPA clean room capturing the passage leading to LPA clean room and personnel entering the clean room

10. **Supply, installation of Split AC with piping gas charging, commissioning etc. including stabilizer**.

    Total tonnage 1.0/1.5 TR (Hitachi/Lloyd/Carrier/Bluestar or equivalent reputed OEM)
    Energy efficiency: 3 star.

11. **Others:**
    Clean room doors, view panels, clean room lighting, Industrial epoxy flooring, concealed wiring, plumbing, fire alarm, have to be arranged.

- **Flush Door finishes** shall be 45mm thick with chemical resistant, anti fungal and anti bacterial properties. 1.2mm thick GPSP sheet suitable to fix on 60 mm thick wall panel with provisions for double glazing glass for all door and hardwares like push plate. PUF Panels will be with GPSP Sheets, powder coated on both sides and PUF insulation of minimum 38-40 kg/m^3.Concealed hardware for fixing of door frames.Ts-71 door closure, SS hinges, SS Door handle, SS ball bearing butt hinges, automatic drop seal, concealed tower bolt for the double door, both sides lock and key arrangement. Suitable neoprene "Y seal" type gaskets are between the door jam and door stop
- Door interlocking systems complete with Controller module, Push button stations with message indication, emergency station, electromagnetic locks
- **Vision Glass** for doors shall be fixed type vaccumised and insulated type with 6 mm toughened glass and shall be installed for natural lightening flushed with surfaces of the door. fixed flush to both faces of the door / wall panels to provide ease of cleaning and maintenance. No crevices / joints / sloped profiles are used for fixing the glass to avoid particle contamination and dust accumulation

- Wherever windows exit, view panels should be provided for allowing maximum natural light into the rooms including ante room.
- Wherever, the LPA clean rooms are adjacent to each other, view panel should be placed in the puff panel separating the rooms.
- For e.g. if each of LPA clean rooms have a window and are adjacent to each other, the total number of view panels will be ten;
  - three view panels in front of existing windows,
  - two for puff panels separating three rooms,
  - three for doors leading to each of the clean rooms,
  - one for door leading to ante room and
  - one for the main door.

a. Work benches: SS 304 work benches with no storage racks or drawers.
b. Storage cabinets: SS 304 storage cabinet to be placed as per layout.
c. The air conditioning units(Split AC) in the three LPA clean room should be placed such that the flow of air is neither facing the door nor the equipments placed in the LPA rooms.
d. Labeling:
   i. Biohazard label should be placed outside the laboratory.
   ii. Instructions sheet on switches including the room labeling mentioning about respective switch refers to respective rooms.
   iii. Labeling of the three LPA clean rooms.
   iv. LPA laboratory layout should be provided outside the lab door.

12. **The Drawings and Layout of each final commissioned LPA Clean Rooms of each site should be provided to FIND and SAMS (both in soft and hard copy) for verification and approval. Based on that Final Works Completion Certificate will be issued by Laboratory concern/ FIND.**

Annexures:

- **Annexure VII:** Common Quantification for LPA Clean rooms development.
- **Annexure VIII** : Technical Compliance sheet along with proposed specifications / make / manufacturer to be submitted by Bidder
- **Annexure IX:** Details of the site for LPA clean room infrastructure establishment.

Note: Schedule wise existing layout with demarcation of Proposed plans, Proposed floor plans for number of sites are enclosed at sub section 5. under Section III.

Annexure- VII

Common Quantification for LPA Clean rooms development

Annex 1: Common Quantification for LPA Clean rooms development		
1	**Modular False Ceiling:** Modular false ceiling panels should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the ceiling, to create an impervious shell which is fully sealed and strong enough to take the load of 2 persons.	As per area See Annexure No.
2	**Modular Wall Panels:** Modular wall should be made for Clean Room application, pre-engineered 60 mm thick PUF panels with GPSP Sheets with PUF insulation of minimum 38-40 kg/m^3. Both surfaces should be power coated 0.8 mm thick GPSP sheet and has to be installed along the outer walls, partitions and false ceiling to create an impervious shell which is fully sealed.	As per area See Annexure No.
3	**Covings:** Extruded aluminium anodized R75 clip-on type(Male & Female connectors) covings for entire wall to floor, wall to wall & wall to ceiling joints. Extruded aluminium double cove integrated with top track of the partition panels. Corner internal & external cove joining pieces in aluminium anodized finish	As per area See Annexure No.
4	**Flush Door** finishes shall be 45mm thick with chemical resistant, anti fungal and anti bacterial properties. 1.2mm thick GPSP sheet suitable to fix on 60 mm thick wall panel with provisions for double glazing glass for all door and hardwares like push plate. PUF Panels will be with GPSP Sheets, powder coated on both sides and PUF insulation of minimum 38-40 kg/m3. Concealed hardware for fixing of door frames.Ts-71 door closure, SS hinges, SS Door handle, SS ball bearing butt hinges, automatic drop seal, concealed tower bolt for the double door, both sides lock and key arrangement. Suitable neoprene “Y seal” type gaskets are between the door jam and door stop **Size:** 1000 x 2100 mm, Door size for entry may vary and shall be site specific. **Vision Glass for doors:** 1'X2' with 6 mm glass flush on both sides of door.	5/6 Nos. See Annexure No.
5	**Lighting:** Clean Room Light Fitting with fluorescent lamps including wiring & switches; The wattage should range from 36 W-40W and the light fixture should be placed directly over the work bench so that there is sufficient light for clear visibility for the person while working in the laboratory. Two each in Master mix, Amplification and Hybridization Rooms **Size:** 1)500mm X 500mm: 6 Nos. 2) 500mm X 250mm: 2/3Nos.	9 Nos.
6	Industrial epoxy flooring, 3mm thickness, water and chemical resistant type, in ante room, corridor and three clean area rooms. The epoxy is laid over a water proof, even surface without any cracks, using appropriate base. If the floor is not water proof and of even surface, necessary civil work has to be undertaken to ensure that the floor is water proof, surface to be made even with cementing layer without any cracks before epoxy is laid	As per area See Annex
7	**Supply, Installation of Split AC** with piping gas charging, commissioning etc. including stabilizer. Total tonnage 1.0/1.5 TR (Hitachi/Lloyd/Carrier/Bluestar or equivalent reputed OEM) Energy efficiency: 3 star.(Depending upon the area of each LPA room)	3 Nos.
8	**UV Lamps** on ceiling panels with Mechanical Timer & switch control from outside the rooms and visually marked connected in series with UV switch control. UV Lamp should be provided by covered. 30W UV Lamp for every 200 sq ft. The UV should be of 254 nm(short wavelength UV)	3 Sets

9	**SS Wash Basin:** Dimension: 2' x 2'X3' Sink made of SS-304 with foot / elbow operated tap. Not to be fixed on wall, should have wheels with lock to move for cleaning purposes. Soap dispenser to be provided along with each Sink Unit	3 Nos.
10	**Furniture:** Work bench made up of SS 304 top with minimum 16 gauges thickness and 2'6" width to accommodate equipments without any storage space or drawers. Length of the table preferably fitted along with the width of the room. The height of the work bench should be 2'6" In addition, work bench should have full length platform of SS 304 for placement of UPS below the work bench. Laboratory grade hydraulic SS stools with back support.	3 Nos. 5 Nos.
11	**Storage racks:** Supply, Installation and Commissioning of Garment cubicle of SS 304 coated of size: 3' x 1'6' x 4'6' for Gowns, PPE, shoe covers, and other miscellaneous items (for three LPA rooms to be placed in respective anterooms). Each rack to have a separate door with lock and key. Small Storage Cabinet to be provided for all three rooms for keeping daily use lab items	3 Nos. 3 Nos.
	Shoe Racks: Shoe Racks in SS with separate racks for used and unused shoes for three LPA rooms to be placed in respective anterooms. Size of two shelves rack is 750mm x 600 mm x 300 mm (L x H x W)	3 Nos.
	Coat hangers: The coat hangers should be placed in ante rooms having the capacity to hold six coats in each room.	2-3 set.
12	**Fire extinguishers 2 kg at strategic location**	3 Nos.
13	**Vision Glass**	
13.1	**In front of existing windows:** 2'6"X3' with 6mm glass flush on both sides (for natural light)	3Nos.
13.2	**In puff panels separating three clean rooms:** 2'X2' with 6mm glass flush on both sides	2 Nos.
13.3	**For doors:** 1'X2' with 6 mm glass flush on both sides of door.	5/6 Nos.
14	**Miscellaneous Site Work** such as minor plumbing & electrical Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements/ provisions for lab equipments. Power points, UPS engraved, to be provided in each clean rooms Provision to connect with Central UPS system. Vinyl Flooring to be done in nearby corridor or corridor leading to LPA lab for aesthetic look **Plumbing:** The pipe from the sink to outlet should be of PVC and space should be created for accessing the plumbing points whenever required. The space should be sealed or closed with SS plate.	Lot At least 6 Nos. in each room 6
15.	**EPABX System(Intercom facility):** Telephone instrument with speaker facility to be provided between Microbiologist/Staff room from each LPA clean room	4-5 numbers of intercom
16.	**CCTV Monitoring System with computer set** Three Camera to be installed inside the LPA clean room and two/three inside the ante rooms and one at the entrance of LPA clean room capturing the passage and personnel entering LPA clean room	6/7 units of Camera units, 1 Computer set
17.	**Access Control System:** On main entrance	1 Nos.

Note: - Quantification may vary for different locations and space requirement.

Annexure- VIII

List of Construction Material and Equipment Proposed for Construction of the LPA Clean Room along with specifications including manufacturers (OEM) along with warranty period (as specified by Manufacturer) should be clearly mentioned and submitted with ITB as per table given below. Any additional material proposed for construction by bidder may also be specified in the same table.

Sl. No.	Construction material	Make	Compliance as per tender Specifications or proposed specifications of Bidder with capacity (wherever applicable) and warranty as specified by Manufacturer	Proposed Makes / Manufactures
1	**Modular False Ceiling**	IClean/Nicomac/Fab tech/Clestra or equivalent reputed OEM		
2	**Modular Wall Panels**	IClean/Nicomac /Fabtech/Clestra or equivalent reputed OEM		
3	**Covings**	To be specified by Vendor		
4	**PUF Panel Doors&Vision Glass for doors, Windows**	To be specified by Vendor		
5	**Lighting**	Philips or equivalent reputed OEM		
6	**Industrial epoxy flooring**	Ardex/Epoxy/SIKA or equivalent reputed OEM		
7	**Supply, Installation of Split AC**	Hitachi/Lloyd/Carrier /Bluestar or equivalent reputed OEM)		
8	**UV Lamps**	Philips/Havells or equivalent reputed OEM		
9	**SS Wash Basin**	-		
10	**Furniture**	-		
11	**Storage racks**	-		
	Shoe Racks	-		
	Coat hangers	-		

12	**Fire extinguishers 2 kg at strategic location**	Reputed Make		
13	**View Panel:**	**-**		
13.1	**In front of existing windows**	**-**		
13.2	**In puff panels separating three clean rooms**	**-**		
13.3	**For doors**	**-**		
14	**Miscellaneous Site Work such as minor Plumbing & Electrical, Vinyl flooring**	Forbot/Tarkett/Responsive or equivalent reputed OEM		
15.	**EPABX System(Intercom facility)**	-		
16.	**CCTV Monitoring System with computer set**	Honeywell/ Bosch or equivalent reputed OEM		
17.	**Access Control System**	Technocrats/Avon or equivalent reputed OEM		

Note:

i) Attach separate sheets for specifications and manufacturers catalogues/brochures for construction materials and equipments proposed.

ii) Use separate table as above for each Schedule, if required.

Annexure IX

Details of the site for LPA clean room infrastructure establishment.

Sl. No.	Name of the Site	Area of LPA Lab	Area of Master Mix Room	Area of Ante Room	Area of Amplification Room	Area of Ante Room	Area of Hybridization Room	Area of Ante Room	Quantity of AC		Remarks
									1.5 ton	1 ton	
1	RMRC Bhubaneswer	19'6"X13'6"	9'6"X5'	5'X4'	9'6"X7'	Common(14'6"X4')	9'6"X7'6"	-	1	2	Common Ante Room for AMP & HYB Room
2	JLNMC Bhagalpur	19'3"+19'3"X8'6"	8'6"X6'	8'6"X4'	9'X8'6"	Common(8'6"X6')	13'X8'6"	-	2	1	Common Ante Room for AMP & HYB Room
3	Madurai Medical College	17'6"X16'4"	11'X5'	5'X5'	11'X6'	Common(12'6"X5')	11'X6'6"	-	1	2	Common Ante Room for AMP & HYB Room
4	RIMS Raichur	20'4"X18'9"	13'4"X5'	5'6"X5'	13'4"X7'	Common(14'8"X5')	13'4"X8'4"	-	1	2	Common Ante Room for AMP & HYB Room

Note: Dimensions and Power requirements are approximate values and may vary
Power requirements mentioned here are standby loads, the peak values may be 200% the stand by load

List of Equipment to be placed inside LPA Lab

Sl. No.	Equipments	Quantity	Power Requirement (Watts)	Placement	Remarks if any
	Master Mix Room				
1	PCR Workstation	1	0.2	Bench Top	
2	Deep Freezer	1	0.4	Floor Standing	
	Amplification Room				
3	PCR Workstation	1	0.2	Bench Top	
4	Thermocycler	1	0.7	Bench Top	
5	Deep Freezer	1	0.4	Floor Standing	
6	UPS	1	2.1	Floor Standing	
7	Refrigerator	1	0.4	Floor Standing	
	Hybridization Room				
8	GT Blot 48	1-2	1.5	Bench Top	
9	Twincubator	2	0.2	Bench Top	
10	UPS	3-4	2.1	Floor Standing	
11	Refrigerator	2	0.4	Floor Standing	

Note: Dimensions and Power requirements are approximate values and may vary
Power requirements mentioned here are standby loads, the peak values may be 200% the stand by load

PART-C : SPECIFICATION FOR DEVELOPMENT OF C&DST LAB, JLNMC BHAGALPUR

Main Lab unit: Main lab unit should be in a "Restricted entry" area.
Aluminum glass partition door should be provided at four places in corridor as per the proposed layout and main lab area should have restricted entry with Signage's.
Labeling for each room should be provided
Complete lab layout should be provided at the Entrance to the Main Lab.

Media Preparation and Inspissation Room: Dimension(9'X8'6")

Media Preparation room:

- Work Platform: Work Platform should be of enamel topped or granite topped cement as per proposed layout
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for lab equipments.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W and the light fixture should be placed so that there is sufficient light for clear visibility for the person while working in the laboratory.
  Size: 500mm X 500mm: four-five in number
- All wash basins should have either foot or elbow operated taps. Soap dispenser to be provided along with each sink unit
- Flooring: Flooring should be of Vinyl, anti-static and anti-dust flooring
- Laminar flow cabinet should be installed as per proposed layout
- The media preparation room should have an ante-room to limit external air flow and should be sealable for fumigation. Ante Room should be aluminum glass partition door as per the proposed layout.
- **Storage racks:** Supply, Installation and Commissioning of Storage rack of SS 304 coated
  Size: 3' x 1'6' x 4'6' for Gowns, PPE, shoe covers, and other miscellaneous items, two-three numbers
- Shoe Racks in SS with separate racks for used and unused shoes(750mm x 600 mm x 300 mm)
- **Coat hangers:** The coat hangers should be placed in ante rooms having the capacity to hold six coats in each room
- Laboratory grade hydraulic SS stools with back support: three-four in number

Inspissation room:

- Work Platform should be of RCC enforced as per proposed layout
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for lab equipments.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W and the light fixture should be placed so that there is sufficient light for clear visibility for the person while working in the laboratory.

Washing room and Sterilization Room: Dimension: 9'X8'6"

- Door should be of aluminium glass partition with lock-key facility
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for lab equipments.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W and the light fixture

should be placed so that there is sufficient light for clear visibility for the person while working in the laboratory.

Size: 500mm X 500mm: four-five in number

Washing Area:

- Work Platforms: RCC re-inforced platforms on two sides with 2-3 large sinks, taps and drying platforms as per proposed layout.
- Above the sinks and on the third wall preferably have a layer of cement shelves for holding trays of McCartney bottles.
- The washing area should have vitreous tiles on walls and floor with appropriate drainage, so
  as to facilitate washing.
- All wash basins should have provided with taps and proper drainage should be
- Washing area should have a Geyser of 25 Litres, bottle/flask dryers and acid trough.

Sterilization Area

- In the sterilization room, three three-phase electricity points with 15 amp plug points are needed to install autoclaves and hot-air oven.
- This room preferably should have large windows with ventilator fans as lot of steam and foul smell would be generated here.
- Sterilization section should preferably use separate autoclaves for sterilization and disinfection of media and glassware

Store Room as per proposed layout:

- Cement shelves along the walls,
- Door should be of aluminium glass partition with lock-key facility
- Flooring should have vitreous tiles and wall should be water proof enamel painted.
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for office equipment.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W.

  Size: 500mm X 500mm: four-five in number
- Sliding window should be of Aluminium glass partition as per the Proposed Layout

MICROBIOLOGIST ROOM: Dimension: 9'X7'

- Flooring should have vitreous tiles and wall should be water proof enamel painted.
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for office equipment.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W.
  - Size: 500mm X 500mm: four-five in number
- All wash basins should have either foot or elbow operated taps. Soap dispenser to be provided along with each sink unit.
- Office Table of with shelf; lock and key: Two numbers and office chair of SS: 10 numbers including one Executive Chair for In-charge of the Lab
- Almirahs with shelves and lock and key facility: Two Number
- Sliding window should be of Aluminium glass partition as per the Proposed Layout
- Door should be of aluminium glass partition with lock-key facility

MICROSCOPY & STAINING ROOM: Dimension: 9'3"X7'

- Flooring should have vitreous tiles and wall should be water proof enamel painted.
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for Lab equipment.

- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W.
    - Size: 500mm X 500mm: four-five in number
- All wash basins should have either foot or elbow operated taps. Soap dispenser to be provided along with each sink unit.
- Work Platform: RCC reinforced platforms for placing Microscope
- Work Platform RCC reinforced platforms with wash basin(two number) and shelves for staining purpose
- Laboratory grade hydraulic SS stools with back support : Two-three in number
- Door should be of aluminium glass partition with lock-key facility
- Sliding window should be of Aluminium glass partition as per the Proposed Layout

CULTURE READING ROOM: Dimension: 9'X7'

- Flooring should have vitreous tiles and wall should be water proof enamel painted.
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions for Lab equipment.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W.
    - Size: 500mm X 500mm: four-five in number
- Door should be of aluminium glass partition with lock-key facility
- Work Platform: RCC reinforced platforms
- Laboratory grade hydraulic SS stools with back support : Two-three in number
- Work Platform: RCC reinforced platforms as per proposed layout
- Sliding window should be of Aluminium glass partition as per the Proposed Layout

REGISTRATION ROOM with Glass window: Dimension: 7'X5'

- Flooring should have vitreous tiles and wall should be water proof enamel painted.
- Electrical Points: Modular type, power points of 6A/16A are to be provided at various locations on the wall as per discretion and strategic arrangements /provisions.
- Light fixtures should be placed flush with roof. Fitting with fluorescent lamps including wiring & switches; the wattage should range from 36 W-40W.
    Size: 500mm X 500mm: four-five in number
- Laboratory grade hydraulic SS stools with back support : Two in number
- Door should be of aluminium glass partition with lock-key facility
- Work Platform: RCC reinforced platforms as per proposed layout
- Sliding window should be of Aluminium glass partition as per the Proposed Layout

CCTV Monitoring System with computer set: Two Camera units in each above room for continuous monitoring

EPABX System(Intercom facility): Telephone instrument should be provided between Microbiologist/Staff room and in each of lab rooms with speaker facility.

Fire extinguishers: 2 kg at strategic location in the corridor of main lab: five number

Supply, Installation of Split AC with piping gas charging, commissioning etc.Including stabilizer for each room as specified under;

Total tonnage 1.0/1.5/2.0 TR (Reputed Make)
Energy efficiency minimum 3 star.

Room Name	Capacity of Split AC
Microbiologist Room	2 ton
Microscopy and Staining Room	1 ton
Culture Reading Room	1 ton
Media Preparation Room	2 ton

Minor Civil work:

- Construction of brick wall with upper portion of closed glass panel as per proposed layout
- Collapsible gate with Rain Shed of PVC and lock-key facility as per proposed layout

Bio-Hazard Trolleys:

Two tier Trolleys made of SS 304 with top shelf having top opening and closing provision to load and unload the sample and second shelf to carry items should be provided for each lab.

Two numbers of trolleys for each lab.
Working Size: 3 feet (Width) x 2 feet (Depth) x 1.5 feet (Height)
Total Overall Size: 3 feet (Width) x 2feet (Depth) x 4 feet (Height)
Storage cabinet: SS 304 grade, 1.25mm thick with covering lid SS, handle and latchStand:SS Tubular Section, 2inch x 2inch, with castor wheels and handle to push/pull or cart the trolley

13. **The Drawings and Layout of final commissioned C&DST laboratory should be provided to FIND and SAMS (both in soft and hard copy) for verification and approval. Based on that Final Works Completion Certificate will be issued by Laboratory concern/ FIND.**

Annexure- X

i) An **undertaking or statement of compliance** with the technical specifications as mentioned above along with proposed specification of bidder, if any for the construction of C&DST Laboratory to be submitted along with bid.

i. List of Equipment to be installed in the C&DST Laboratory with specifications including manufacturers (OEM) along with warranty period (as specified by Manufacturer) should be clearly mentioned and submitted with ITB as per table given below. Any additional material proposed for construction by bidder may also be specified in the same table.

Sl. No.	Name of Equipment	Proposed specifications of Bidder with capacity (wherever applicable) and warranty as specified by Manufacturer	Proposed Makes / Manufactures
1	**CCTV Monitoring System with computer set**		
2	**EPABX System (Intercom facility)**		
3	**Fire extinguishers**		
4	**Supply, Installation of Split AC with piping gas charging**		

Note:

i) Attach separate sheets for specifications and manufacturers catalogues/brochures for construction materials and equipments proposed.

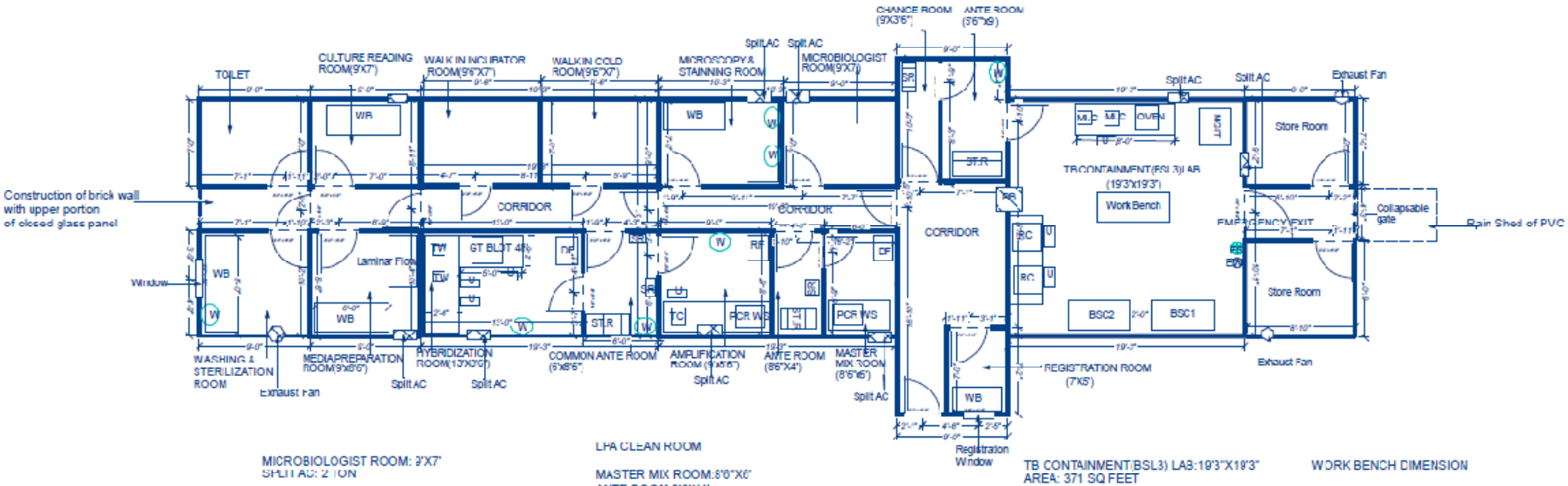
ii) Use separate table as above for each Schedule, if required.

v. Schedule Wise existing and proposed Drawings/ Layout of BSL 3 Lab, LPA clean room and C&DST Lab

(Downloadable PDF files of drawings are also attached separately)

Schedule I :-JLNMC Bhagalpur

PROPOSED LAYOUT_C&DST LAB_BHAGALPUR



MICROBIOLOGIST ROOM: 9'X7'
SPLIT AC: 2 TON

MICROSCOPY & STAINING ROOM: 9'3"X7'
SPLIT AC:1 TON

WALK IN COLD ROOM: 8'X7'

WALK IN INCUBATOR ROOM:8'X7'
CULTURE READING ROOM:9'X7';
SPLIT AC: 1 TON

MEDIA PREPARATION ROOM: 9'X8'6"
LAMINAR FLOW
SPLIT AC: 2 TON

WASHING & STERILIZATION ROOM:10'X9'

LHA CLEAN ROOM

MASTER MIX ROOM:8'6"X6'
ANTE ROOM:8'6"X4'
PCRWS: PCR WORKSTATION
DF: DEEP FREEZER
SPLIT AC: 1TON

AMPLIFICATION ROOM:8'6"X9'
PCRWS: PCR WORKSTATION
TC:THERMOCYCLER
RF: REFRIGERATOR
SPLIT AC: 1.5 TON

COMMON ANTE ROOM:8'6"X6'

HYBRIDIZATION ROOM:13'X8'6"
GT BLOT: GT BLOT 48
TW:TWINCUBATOR
U: UPS
DF: DEEP FREEZER
SPLIT AC: 1.5 TON

TB CONTAINMENT(BSL3) LAB:19'3"X19'3"
AREA: 371 SQ FEET

ANTE ROOM :9'X5'8"
CHANGE ROOM:9'X3'6"

BSC: BIOSAFETY CABINET: 5'X2'6"
RC: REFRIGERATED CENTRIFUGE
MLC: MICROLITER CENTRIFUGE
OVEN
U:UPS
MGIT
SPLIT AC: 4 TON
EW: EYE WASH
ES: EMERGENCY SHOWER
PB: PASSBOX: 2'X2'

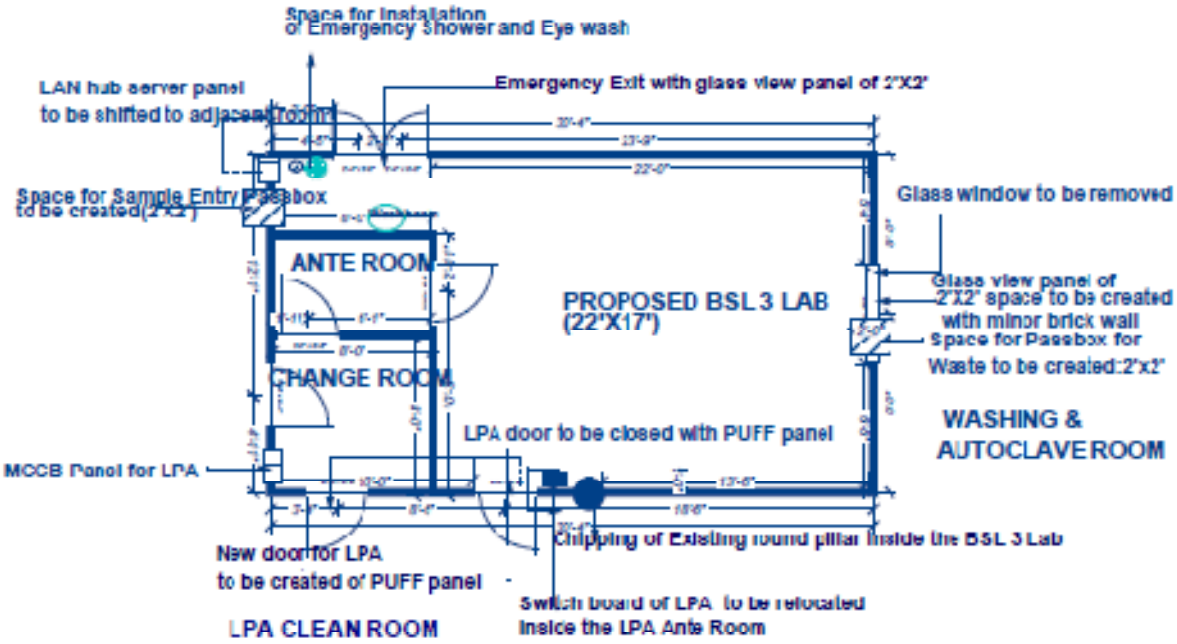
ST.R: STORAGE RACK
SR: SHOE RACK
W: WASH BASIN
WB: WORK BENCH
EXHAUST FAN FOR STORE ROOM, WASHING ROOM

WORK BENCH DIMENSION

BSL3 LAB: 6'x2'6"; 7'X2'6"; 6'X2'6"
WASHING & STERILIZATION ROOM:8'x2'6"
REGISTRATION ROOM:4'x2'6"
MASTER MIX ROOM: 5'x2'6"
AMPLIFICATION ROOM:8'X2'6"
HYBRIDIZATION ROOM:8'X2'6"; 5'x2'6"
CULTURE READING ROOM:6'X2'6"
MICROSCOPY &STAINING ROOM:8'X2'6"; 6'X2'6"
MEDIA PREPARATION ROOM: 6'x2'6"

Schedule II:- BMHRC Bhopal

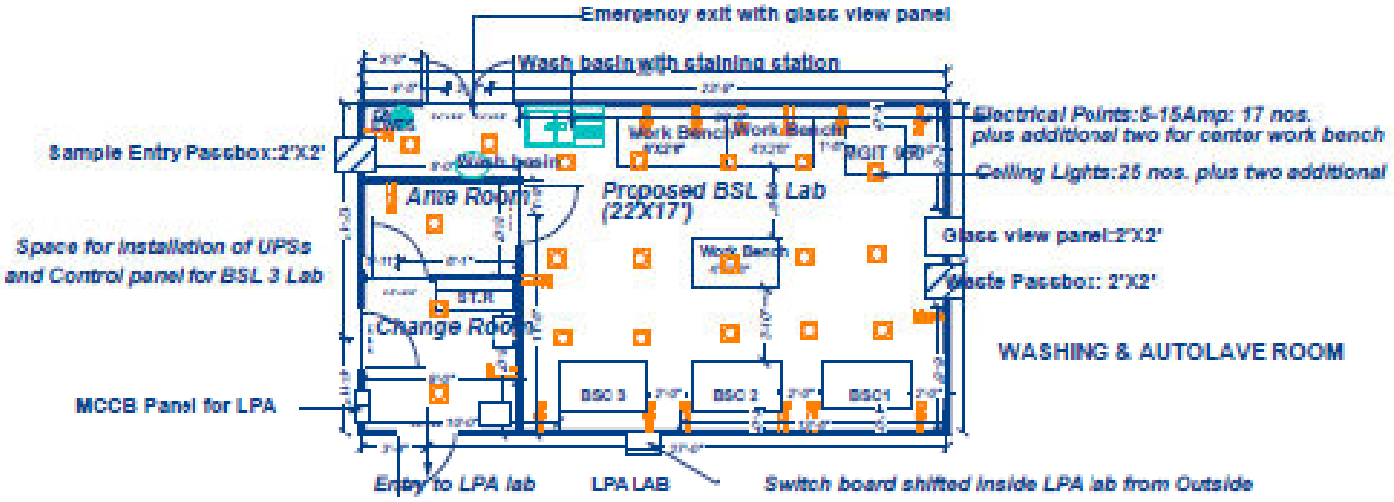
Existing Layout demarcating BSL 3 Lab, BMHRC Bhopal



Activities to be undertaken by BSL 3 Agency appointed by FIND

1.LPA door to be closed with PUFF panel
2.New door for LPA to be created of PUFF panel
3.Switch board of LPA to be relocated inside the LPA Ante Room
4.Chipping of Existing round pillar inside the BSL 3 Lab
5. Emergency Exit with glass view panel of 2'X2'

Proposed Layout of BSL 3 Lab, BMHRC Bhopal



Dimension:

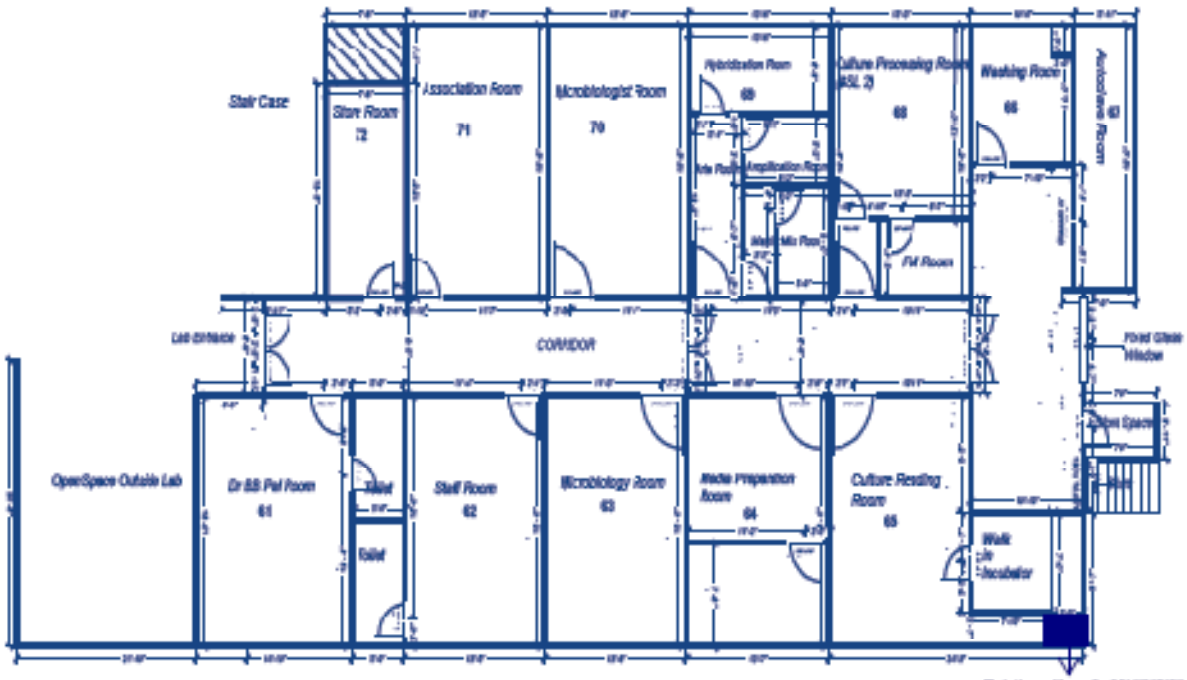
Area of BSL 3 Lab: 22'X17'+8'X4'
Area of Ante Room:8'X6'
Area of Change Room:8'X8'

Equipments and other details:

BSC: Biocafety Cabinet
MGIT 960
ES:Emergency shower
EW: Eye wash
Two Passbox:2'X2' as per layout
Glass view panel of 2'X2' as per layout
Wash basin with staining station
ST.R: Storage Rack
SR: Shoe Rack
Work Bench: 4'X2'6"(Two Nos)
Work Bench: 6'X2'6"(One No.)

Schedule III:- RMRC Bhubaneswar

Existing Lab Layout RMRC BHUBANESWAR



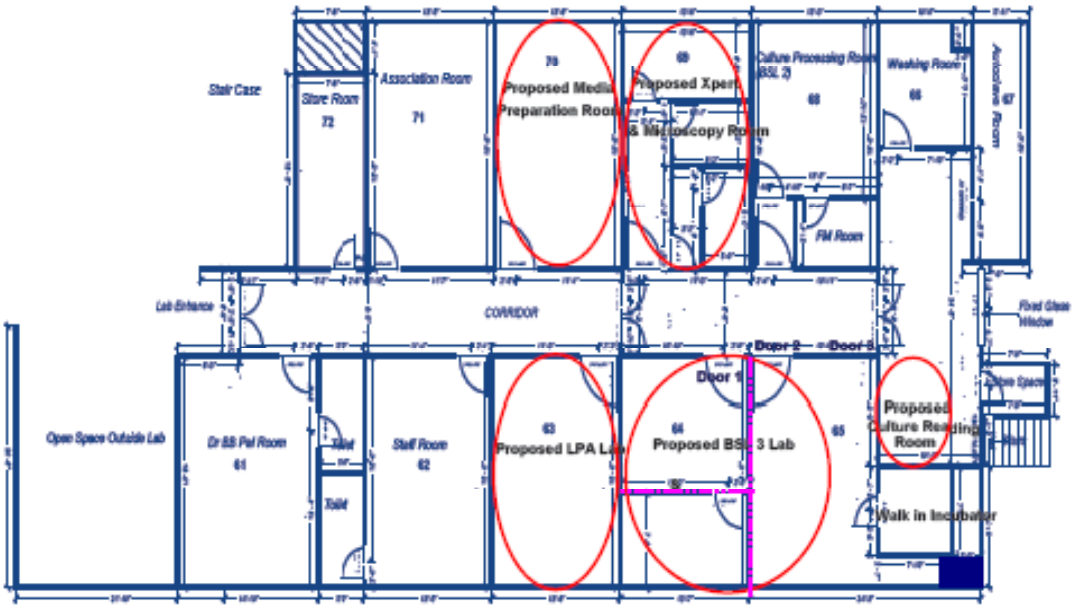
Room Description;

61: Dr. BB Pal's Room: 18'X14'10"
62: Staff Room:18'X13'5"
63: Microbiology Room:18'X11'6"
64: Media Preparation Room:18'X13'7"
65: Culture Reading Room& Walk in Incubator: 24'3"X9'7"+13'5"X8'5"

66: Washing Room:10'X10'
67: Autoclave Room:19'X5'11"
68: Culture Processing Room:13'10"X13'3"X13'3"X5'4"
69: LPA Clean Room:19'6"X13'6"
70: Microbiologist Room: 19'6"X13'6"
71: Association Room: 19'6"X13'5"
72: Store Room: 15'6"X7'8"

Note: EXISTING WINDOW THROUGHOUT THE LENGTH ON BOTH SIDE OF THE BUILDING
WINDOW SIZE: 5'5"X7'

Existing Lab Layout demarcating Proposed LPA and BSL 3 Lab_RMRC BHUBANESWAR



Room Description:

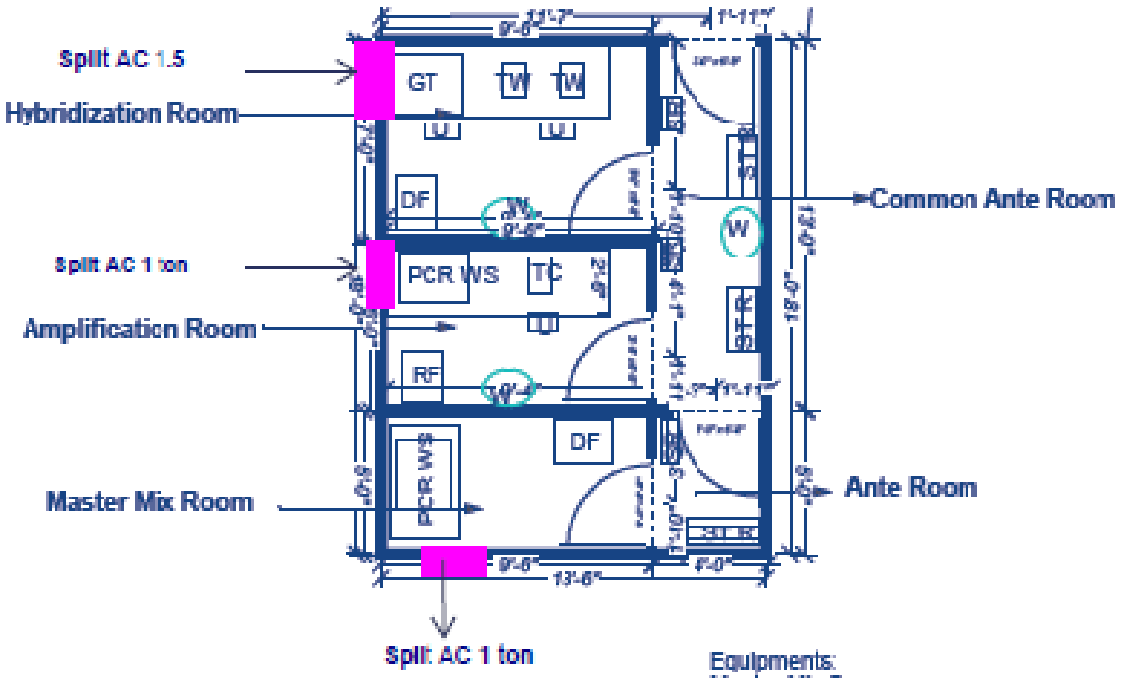
61: Dr. BB Pal's Room: 18'X14'10"
62: Staff Room:18'X13'5"
63: Proposed Microbiology Room:18'X13'6"
64: Proposed BSL 3 Lab:18'3"X18'
65: Proposed BSL 3 Lab: 24'3"X9'7"+13'5"X8'5"
66: Washing Room:10'X10'
67: Autoclave Room:19'X5'11"
68: Culture Processing Room:13'10"X13'3"X10'3"X5'4"
69: Proposed Xpert & Microscopy Room:19'6"X13'6"
70: Proposed Media Preparation Room: 19'6"X13'6"
71: Association Room: 19'6"X13'5"
72: Store Room: 15'5"X7'8"

Activities to be undertaken by BSL 3 Agency appointed by FIND, refer Annex 2 and 4

1.Removal of intervening wall between Room No.64 & 65 .....
2.Removal of false ceiling and false wall in Room no. 64 .....
3.Closing of Door 1 with brick wall in Room No. 64
4.Extending the dimension of door 2 in Room No. 65 to 4'X7'
5.Creation and fixing of Aluminum Glass partition door for Door 3 in Room no. 65
6.Culture Reading Room: Dimension: 8'6"X8'":
a.Creation of Culture reading room with Aluminum Glass partition including door
b.Providing work bench of 7'X2'6".
c.Fixing of Light fixture,power outlets and Fan for Culture Reading Room
7.Fixing of view panel of 2'6"X2' in Proposed BSL 3 Lab for Natural light
8.Minor civil work with enamel paint to be done for passage between Proposed BSL 3 lab and Walk in Incubator Room, area of passage: 18'X4'
9. View panel for natural light in Proposed BSL 3 Lab

Note: EXISTING WINDOW THROUGHOUT THE LENGTH ON BOTH SIDE OF THE BUILD
WINDOW SIZE: 5'5"X7'

Proposed LPA Layout, RMRC Bhubaneswar



Dimension:
Total Area of LPA Lab: 18'X13'6"
Area of Master Mix Room:9'6"X5'
Area of Ante Room for MM Room:5'X4'
Area of Amplification Room: 9'6"X6'
Area of Hybridization Room:9'6"X7'
Area of Common Ante Room:13'X4'

Dimension of Work Bench:

Master Mix Room: 4'X2'6"
Amplification Room: 8'X2'6"
Hybridization Room: 8'X2'6"

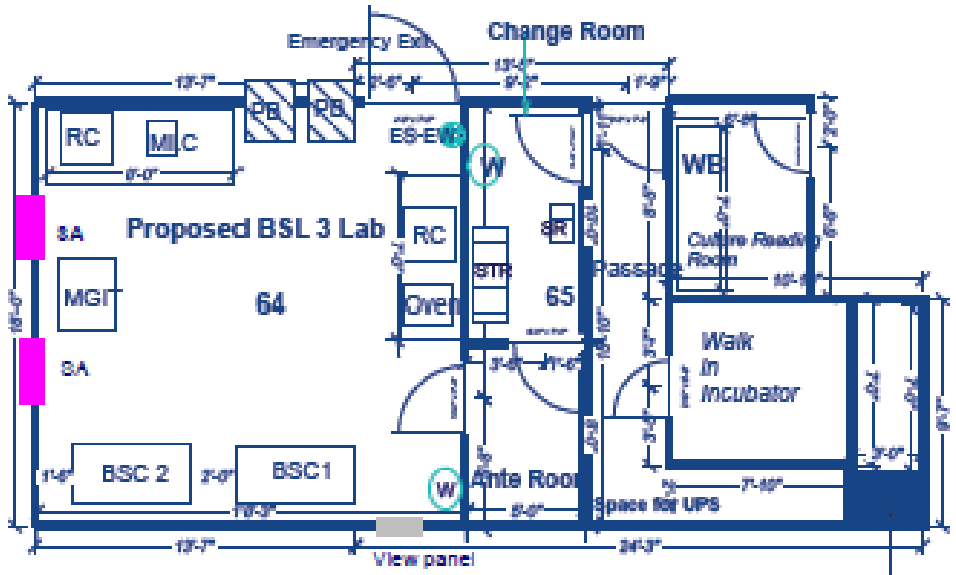
Equipments:
Master Mix Room
PCRWS: PCR workstation
DF: Deep Freezer

Amplification Room:
PCR WS: PCR workstation
RF: Refrigerator
TC: Thermocycler

Hybridization Room:
GT: GT Blot 48
TW: Twincubator

Other details:
U: UPS
ST R: Storage Rack
SH: Shoe Rack
W: Wash Basin

PROPOSED BSL 3 LAB LAYOUT_RMRC BHUBANESWAR



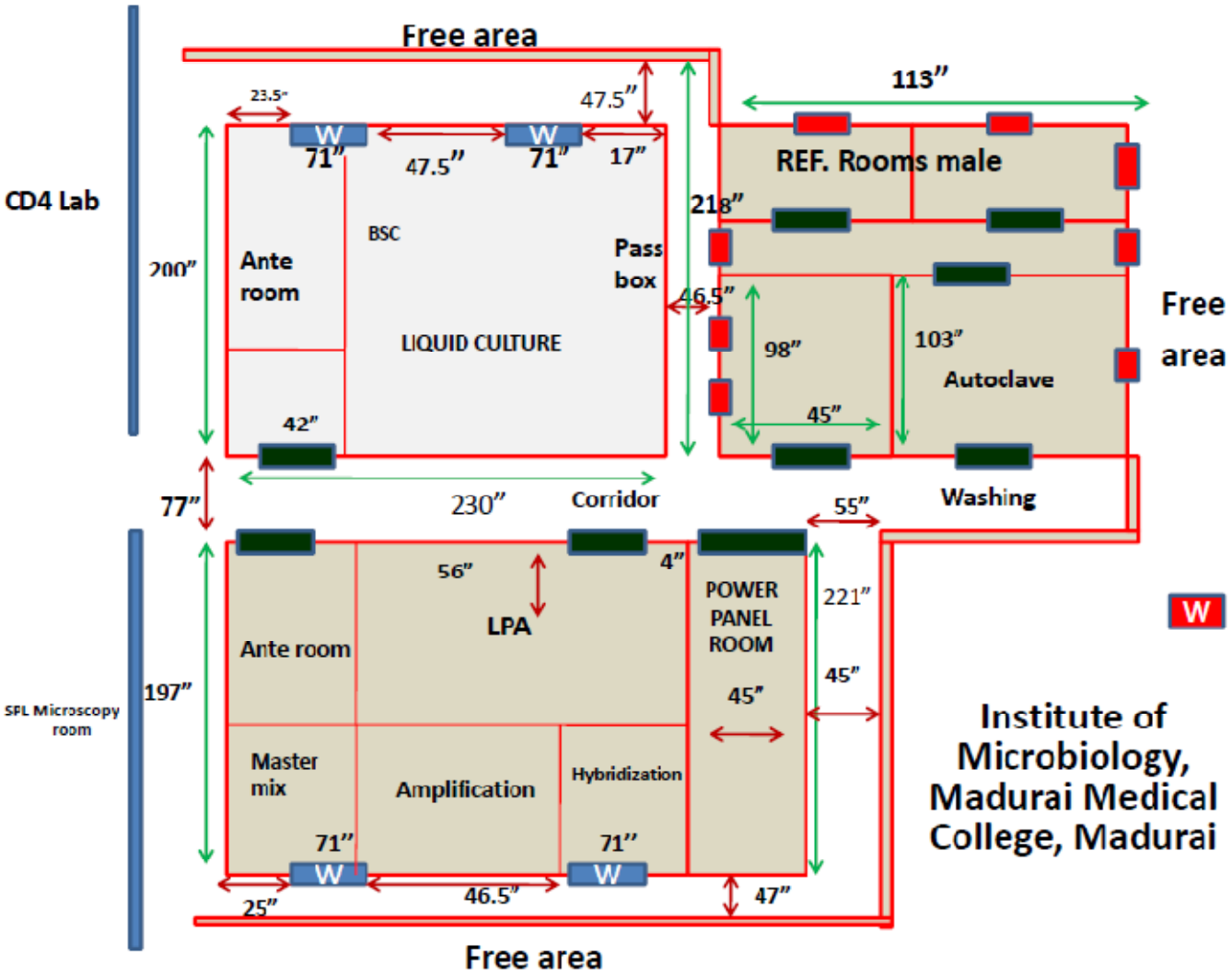
Dimension:
Area of BSL 3 Lab: 18'X18'5"
Area of Change Room: 10'X5'
Area of Ante Room: 8'X5'

Workbench Dimension:
1. 8'X2'6"
2. 7'X2'6"

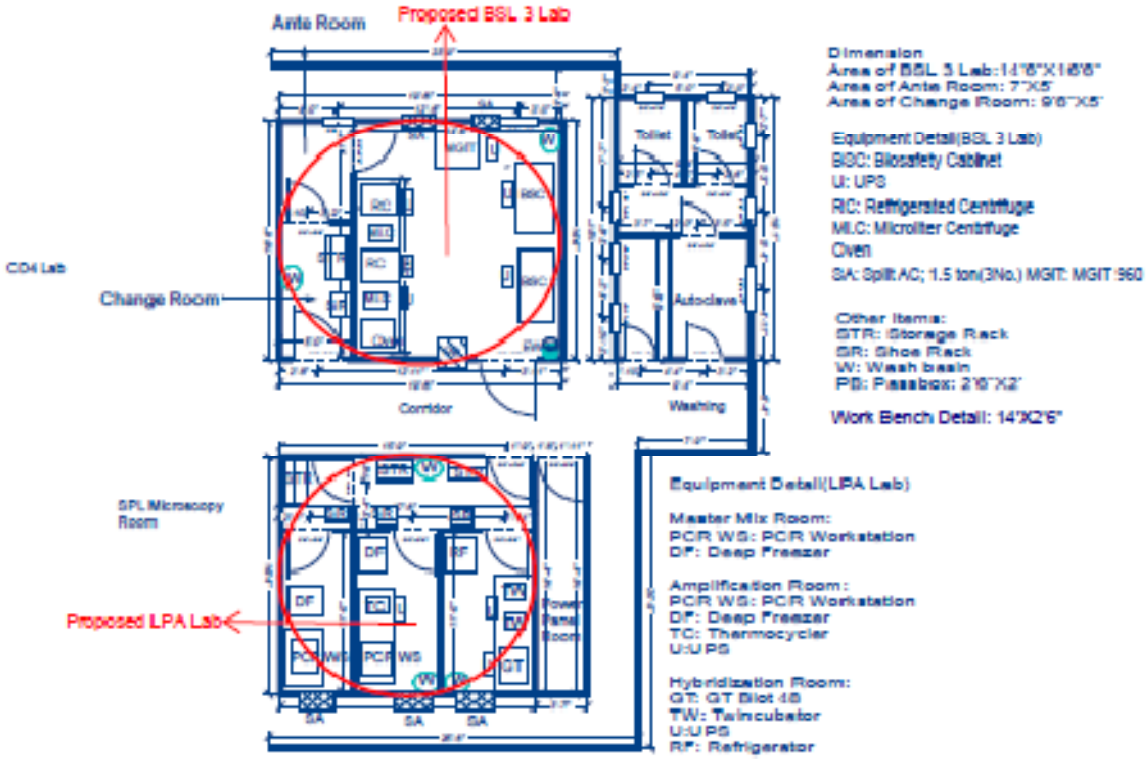
SA:Split ACs: 3.5 ton(2 ton and 1.5 ton each)

Equipment
BSC: Biosafety cabinet
MGIT:MGIT 960
RC: Refrigerated Centrifuge
MI.C: Microliter Centrifuge
Oven
ES: Emerency Shower
EW:Eye wash
PB: Passbox: 2'6"X2'(2 Nos.)
U:UPS
STR: Storage Rack
SR:Shoe Rack
W:Wash Basin
WB: Work Bench

Schedule IV:- Madurai Medical Collage



Proposed Layout of LPA and BSL 3 Lab,
Institute of Microbiology, Madurai Medical College



Dimension
Area of BSL 3 Lab:14'6"X16'6"
Area of Ante Room: 7'X5'
Area of Change Room: 9'6"X5'

Equipment Detail(BSL 3 Lab)
BSC: Biosafety Cabinet
UI: UPS
RC: Refrigerated Centrifuge
MLC: Microliter Centrifuge
Oven
SA: Split AC; 1.5 ton(3No.) MGIT: MGIT 960

Other Items:
STR: Storage Rack
SR: Shoe Rack
W: Wash basin
PB: Passbox: 2'6"X2'

Work Bench Detail: 14'X2'6"

Equipment Detail(LPA Lab)

Master Mix Room:
PCR WS: PCR Workstation
DF: Deep Freezer

Amplification Room :
PCR WS: PCR Workstation
DF: Deep Freezer
TC: Thermocycler
U:U PS

Hybridization Room:
GT: GT Blot 48
TW: Twincubator
U:U PS
RF: Refrigerator

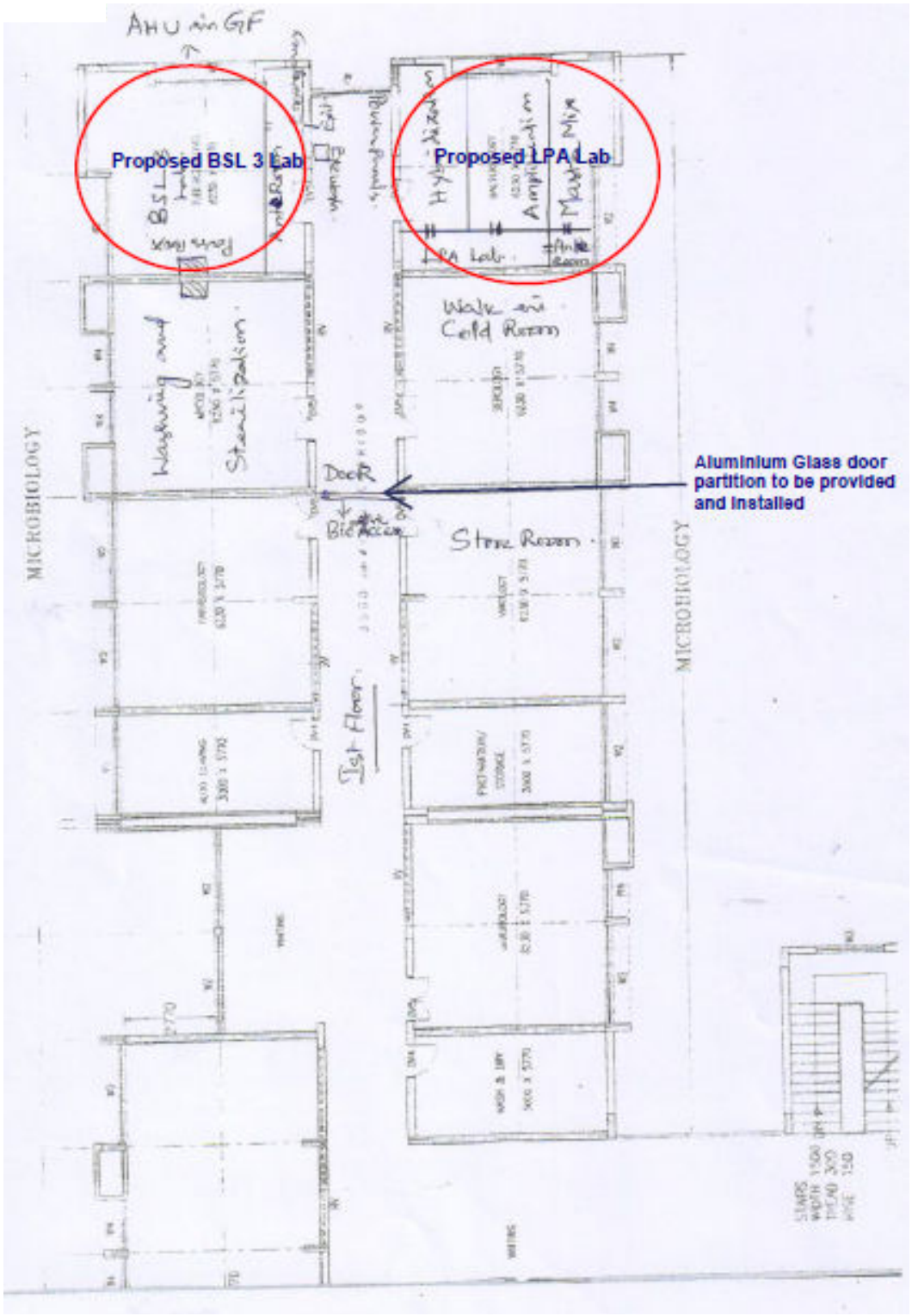
SA:Split AC:
Master Mix Room: 1 ton
Amplification Room: 1 ton
Hybridization Room: 1.5 ton

Other Items
STR: Storage Rack(3 Nos.)
SR: Shoe Rack(5 Nos.)
W: Wash basin

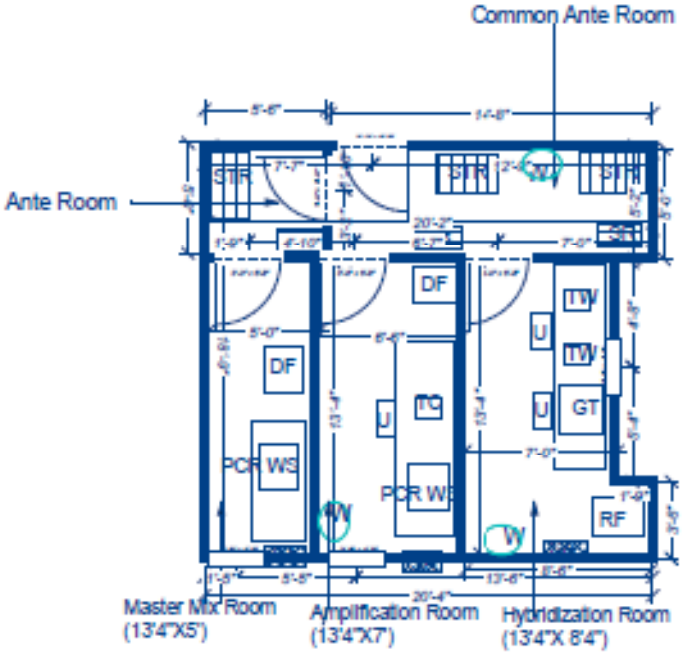
Dimension:
Area of LPA Lab: 17'6"X16'4"
Area of Master Mix Room:11'X5'
Area of Ante Room:5'X5'
Area of Amplification Room:11'X6'
Area of Hybridization Room:11'X6'6"
Area of Common Ante Room for Amp& Hyb:12'6X5'

Work bench dimension:
MM Room: 5'X2'6"
Amplification Room: 7'X2'6"
Hybridization Room: 8'X2'6"

Schedule V:- RIMS Raichur



Proposed LPA Lab Layout, RIMS, Raichur



Dimension:
Total Area of LPA Lab:20'4"X18'9"
Area of Master Mix Room: 13'4"X5'
Area of Ante Room MM Room: 5'6"X5'
Area of Amplification Room: 13'4"X7'
Area of Hybridization Room: 13'4"X8'4"
Area of Common Ante Room: 14'8"X5'

Work Bench Dimension

Master Mix Room: 6'X2'6"
Amplification Room: 8'X2'6"
Hybridization Room: 8'X2'6"

Activity to be undertaken by LPA agency appointed by FIND

Window to made of 2'6"X2'6" of glass view panel as per Annex 1 and 2

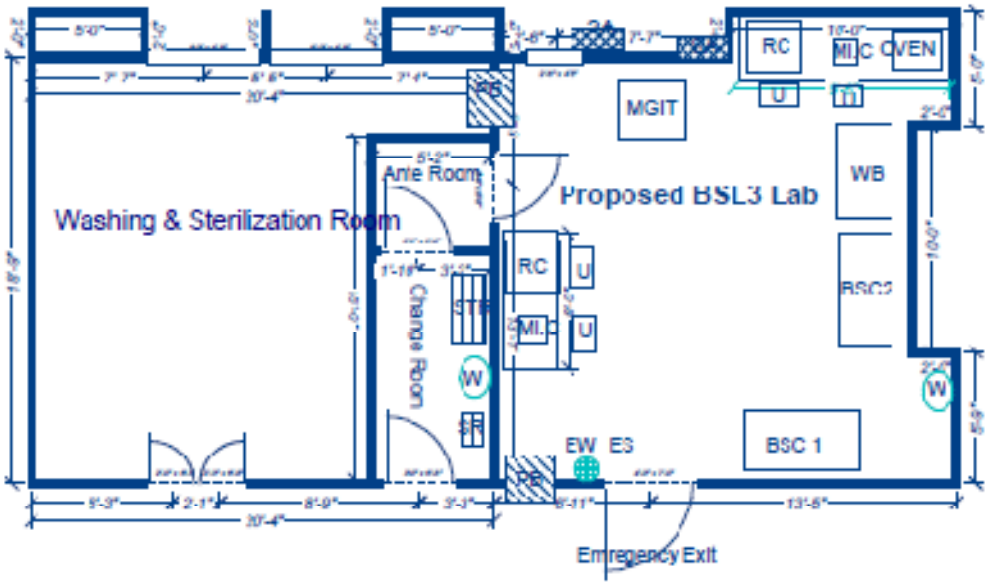
Equipment Details
Master Mix Room:
PCR WS: PCR Workstation
DF: Deep Freezer
SA:Split AC: 1 ton

Amplification Room:
PCR WS:PCR Workstation
TC: Thermocycler
U:UPS
SA: Split AC: 1 ton

Hybridization Room
TW: Twincubator
GT: GT Blot 48
U:UPS
SA: Split AC:1.5ton

Other Items:
STR: Storage Rack
SR: Shoe Rack
W:Wash Basin

Proposed BSL 3 Lab Layout, RIMS, Raichur(1st Floor)



Dimension: BSL 3 Lab
Area of BSL 3 Lab:20'4"X16'9"
Area of Ante Room: 5'X5'
Area of Change Room: 10'X5'

Work bench details:
9'6"X2'6": 1 Nc.
6'X2'6": 1 No.
4'X2'6": 1 No.

Equipment Detail;
BSC: Biosafety Cabinet
U:UPS
RC: Refrigerated Centrifuge
MI.C: Microliter Centrifuge
Oven
MGIT: MGIT 960
SA: Split AC: 2 ton(2 No)

Other Item:
PB: Passbox: 1 Nos.(2'6"X2'): 1 No(2'6"X2')
WB: Work Bench
EW-ES: Eye wash and Emergency Shower
W: Wash basin
STR:Storage Rack
SR: Shoe Rack

Activity to be undertaken by BSL3 Agency appointed by FIND

1. Window to be replaced by 2'6"X2'6" with glass view panel as per Annex 1 and 3
2. Door to be created for Emergency Exit :4'X7'
3. Door to be created for Change Room of BSL 3 Lab: 3'X7'
4. Aluminium glass door to be provided and installed in the Corridor as per Annex 1
5. Please refer Annex 1 for place identified for installing control panel

vi. Inspections and Validation

1. There will be mid-term assessment of project works for each laboratory under Schedules by FIND to assess the timely and proper execution of the project. The approximate timelines for Mid Term Assessment would be as mentioned below:-

Schedule No.	Name of Laboratory	Description of Works			Timelines for completion of whole of the Works	Timelines for Mid Term assessment
		BSL-3	LPA Clean Room	Upgradation of C&DST lab including Civil Works		
I	JLNMC, Bhagalpur Medical College	Yes	Yes	Yes	Four (4) months from the commencement Date	Within 2 months of commencement of works
II	BMHRC, Bhopal	Yes	-	-	Three (3) months from commencement Date	Within 1.5 months of commencement of works
III	RMRC, Bhubaneswar	Yes	Yes	-	Three (3) months from commencement Date	Within 1.5months of commencement of works
IV	Madurai Medical College	Yes	Yes	-	Three (3) months from commencement Date	Within 1.5months of commencement of works
V	RIMS Raichur	Yes	Yes	-	Three (3) months from commencement Date	Within 1.5 months of commencement of works

2. After completion of the construction and installations, the entire laboratory facility, all the equipments, systems and services shall be inspected and validated by the contractor under supervision of a committee of the consultants / client (SAMS/FIND).

3. The contractor shall arrange for all the instruments, tools, manpower etc, if required for the validation and inspection.

4. The inspection and validation results, if applicable shall be recorded and documented.

5. The validation of BSL-3 lab will be as per **clause 12 (Validation)** under detailed specifications of construction works of BSL-3 Lab.

vii. Schedule of Payment for Contract under ITB

Applications for Interim Payments

Sl. No.	Suggested milestones for BSL3 lab/ LPA clean room/C&DST lab establishment	Broad Reference in Scope of work of BSL-3 establishment	Suggested percent costs
1	On submission of Inception Report of whole of project (as per Contract) along-with related documents	Ref. 1, 16 & Annex – I, VII, VIII, X	10%
2	On completion of Electrical Cabling, communication network, Plumbing, Minor civil works	1(c) & (d), 5, 8 and 10(f),	10%
3	On completion of Ventilation Unit (HVAC) ducting, Filters, Air conditioning Unit and AHU installation, Transducers and control systems, Fire dampers.	4, 7 & 10(a)	20%
4	On completion of Interiors, Modular Monolithic Panelling, Pass box, Doors, Glass windows, Coving, BSC Placement and ducting, UVGI system, Electrical fixtures and outlets.	3 & 10	20%
5	On completion of Flooring, Epoxy, Monolithic Finishing (Silicon sealing), Furniture, Transducers, Telecom, monitoring and access control devices.	2 & 9	20%
6	On completion of Laboratory system integration with BMS, Deep cleansing, Final commissioning and validation, labeling, Laboratory documents handover and handover of BSL-3, LPA room and C&DST room **(handover of whole of completed Works under Schedule awarded).**	6, 11, 12, 13, 14 & 15	10%
7	After two months from the successful operation of the laboratory.	-	10%
Total			**100%**

Note-

i. Above Payment Schedule covers completion of Works as per broad milestones given above for each Schedule including BSL-3, LPA & C&DST lab, as applicable.

ii. Retention money **@ 5%** shall be deducted from each of the interim payment disbursement.

VIII. Reporting Requirements - Contractor

REPORT OF THE PROJECT PROGRESSION TO BE SUBMITTED TO THE CHIEF OF PROCUREMENT, SAMS IN THE FORMAT SPECIFIED AT THE TIME OF CONTRACT EXECUTION.

DURATION :- FORTNIGHTLY (15TH& 30TH OF EVERY MONTH)

Section VII- SAMS SHORT FORM CONSTRUCTION CONTRACT

Up-gradation, Commissioning, Testing, and Validation of five (05) Bio-safety Level 3 (BSL-3) Laboratories, four (04) LPA Clean Rooms and Works for One (01) C & DST Laboratory under RNTCP across India

(1) Strategic Alliance Management Services Pvt. Ltd. ("SAMS")

- and –

(2) [*insert the Contractor's name*]

Contract No.: [*insert*]

[*insert month*] **20**14

CONTENTS

INSTRUMENT OF AGREEMENT

THIS CONTRACT is made on the _____ day of _____ 20[***insert***].

BETWEEN

1) **Strategic Alliance Management Services Pvt. Ltd. ("SAMS")**, having its postal address at Strategic Alliance Management Services Pvt. Ltd. (SAMS) 1/1B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110 025 ("**Employer"**); and

2) [***insert name***], a [***insert type of company i.e. limited liability***] company incorporated under the laws of [***insert***] and having its registered address at [***insert address***], [***insert name of city and country***] (**"Contractor"**).

BACKGROUND

a) The Employer intends to undertake the Project. The Works are an integral part of the Project.

b) The Contractor has represented to the Employer that it has the appropriate experience, expertise, licences and resources to undertake the Works and has agreed to undertake the Works in accordance with the Contract

c) In reliance on the Contractor's representations, the Employer has entered into the Contract.

d) The Contract sets out the terms and conditions upon which the Contractor will undertake the Works.

THIS CONTRACT:

1) The Employer agrees to pay the Contractor the Contract Price, at the times and in the manner prescribed by the Contract, in consideration for the Contractor executing and completing the Works and remedying all defects in accordance with the Contract and otherwise performing all of its obligations in accordance with the Contract.

2) In the Contract words and expressions will have the same meanings as are respectively assigned to them in the General Conditions.

3) The following documents, listed in the order of priority, are deemed to form and be read and construed as part of the Contract:

3.1 this Instrument of Agreement;
3.2 the Schedule of Details;
3.3 the Particular Conditions;
3.4 the General Conditions;
3.5 the Specification;
3.6 the Drawings; and
3.7 the remaining Schedules.

SIGNING PAGE

IN WITNESS WHEREOF, the Parties have caused this Contract to be executed by their respective duly authorised representatives as of the date first written above:

SIGNED BY _____

[***insert name of authorised signatory of SAMS***]

Duly authorised to sign this Contract for and on behalf of the Employer, SAMS:

In the presence of:

Signature _____ (witness)

Address _____

Occupation _____

SIGNED BY _____

[***insert name of authorised signatory of the Contractor***]

Duly authorised to sign this Contract for and on behalf of the Contractor, [***insert***]:

In the presence of:

Signature _____(witness)

Address _____

Occupation _____

1. GENERAL PROVISIONS

1.1 Definitions

In the Contract as defined below, the words and expressions defined have the following meanings assigned to them, except where the context requires otherwise:

"Bank Guarantee for advance payment" means the security (or securities) to be provided under Sub-Clause 11.3 [*Advance Payment*].

"Bank Guarantee for performance" means the security (or securities) to be provided under Sub-Clause 4.4 [*Bank Guarantee for Performance*].

"Bill of Quantities" means the document, if any, entitled Bill of Quantities set out in the Schedule of Contract Price.

"Commencement Date" means the date stated in the Schedule of Details.

"Contract" means the Instrument of Agreement, these General and Particular Conditions, the Schedules and the further documents (if any) which are listed in the Instrument of Agreement.

"Contract Price" means the price specified in the Schedule of Details, subject to any increases or decreases as may be made in accordance with this Contract.

"Contractor" means the entity named as the "Contractor" in the Instrument of Agreement and the legal successors in title and assigns to this entity.

"Contractor's Equipment" means all apparatus, machinery, vehicles, facilities and other things required for the execution of the Works but does not include Materials or Plant.

"Contractor's Personnel" means the Contractor's Representative and all personnel the Contractor utilises on the Site, which may include the staff, labour, agents and other employees of the Contractor and of each subcontractor and any other personnel assisting the Contractor in the execution of the Works.

"Contractor's Representative" means the person named as such in the Schedule of Details or appointed from time to time by the Contractor under Sub-Clause 4.2, who acts on behalf of the Contractor.

"Cost" means all direct and reasonable expenditure properly incurred in connection with the execution of the Works by the Contractor but does not include non-project specific overheads, profit or loss of profit.

"Country" means the country in which the Site is located.

"Date of Substantial Completion" means the date when the Works have reached Substantial Completion as stated in the Taking-Over Certificate.

"day" means a calendar day, unless provided otherwise.

"Defects Notification Period" means the period for notifying defects in the Works under Sub-Clause 9.1, as stated in the Schedule of Details (with any extension under Sub-Clause 9.1),

calculated from the Date of Substantial Completion as stated in the Taking-Over Certificate issued under Sub-Clause 8.2.

"Drawings" means the drawings of the Works as listed in the Schedule of Works, and any additional or modified drawings issued by (or on behalf of) the Employer.

"Employer" means the entity named as the "Employer" in the Instrument of Agreement, and the legal successors in title and assigns and novatees to this entity.

"Employer's Representative" means the person named as such in the Schedule of Details or as otherwise notified by the Employer to the Contractor, who acts on behalf of the Employer.

"Employer's Risks" means those matters listed in Sub-Clause 6.1.

"Final Completion Certificate" means the certificate issued under Sub-Clause 9.3.

"Force Majeure" means an event or circumstance which is beyond the control and without the fault or negligence of the Party affected and which by the exercise of reasonable diligence the Party affected was unable to prevent provided that event or circumstance is limited to the following:

a) war, (whether war be declared or not), invasion, act of foreign enemies within the Country;
b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil0020war within the Country;
c) munitions of war, ionising radiation or contamination by radio-activity within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and
d) earthquake, hurricane, typhoon, tsunami or fire emanating from outside the Site within the Country that are outside the normal range for that place at that time of year, but excluding any other weather conditions regardless of the severity.

"General Conditions" means these general conditions of Contract.

"Instrument of Agreement" means the document signed by the Parties and forming part of the Contract.

"Materials" means things of all kinds (other than Plant) intended to form or forming part of the permanent work.

"Particular Conditions" means the particular conditions (if any) set out immediately before the Schedules to the Contract.

"Party" means either the Employer or the Contractor.

"Plant" means the machinery, vehicles and apparatus intended to form or forming part of the permanent work.

"Project" means the project described in the Schedule of Details.

"Schedule of Contract Price" is Schedule 4.

"Schedule of Details" is Schedule 1.

"Schedule of Payment" is Schedule 5.

"Schedule of Security" is Schedule 6.

"Schedule of Site" is Schedule 3.

"Schedule of Works" is Schedule 2.

"Schedules" means Schedules 1 to 5 to this Contract, including any further documents which are annexed or attached to, or incorporated by reference into Schedules 1 to 6.

"Site" means the places provided by the Employer where the Works are to be executed and to which Plant and Materials are to be delivered as shown in the Schedule of Site, and any other places specified in the Contract as forming part of the Site.

"Specification" means the requirements or documents as listed in the Schedule of Works, including Employer's requirements in respect of design to be carried out by the Contractor, if any, and any Variation to such document.

"Substantial Completion" means that stage in the execution of the Works when the following has occurred:

(a) the Works are performed and completed in accordance with this Contract except for minor defects which would not affect the performance or operation of the Works;
(b) all tests required by this Contract have been undertaken and successfully passed;
(c) all documents, technical and other information, including plans, designs, drawings, as-built drawings, engineering information, data, specifications, reports and any other information required under this Contract have been supplied to the Employer's Representative in accordance with this Contract or as directed by the Employer's Representative from time to time;
(d) all third party warranties and certificates and local authority approvals have been issued and provided to the Employer's Representative; and
(e) any other preconditions to Substantial Completion set out in the Schedule of Details have been met.

"Taking-Over Certificate" means a certificate issued under Clause 8 certifying that the Works have reached Substantial Completion and stating the Date of Substantial Completion.

"Time for Completion" means the time for completing the Works as stated in the Schedule of Details (or as extended under Sub-Clause 7.3), calculated from the Commencement Date.

"Variation" means a change, alterations, addition or omission to the Works which is instructed by the Employer's Representative under Sub-Clause 10.1

"Works" means all the work and design (if any) to be performed by the Contractor in accordance with this Contract as specified in the Schedule of Works, including temporary work and any Variation.

1.2 Interpretation

Words importing persons or parties include firms and organisations. Words importing singular or one gender include plural or the other gender where the context requires.

1.3 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found in the documents, the Employer's Representative will issue any necessary instructions to the Contractor, and the priority of the documents is in accordance with the order as listed in the Instrument of Agreement.

1.4 Language

The language for communications is English.

1.5 Communications

Any notice, approval, consent or other communication in relation to this Contract must be in writing, signed, dated and marked to the relevant representative of the Parties and sent to the address for service of notices and communications set out in the Schedule of Details.

1.6 Statutory Obligations

The Contractor must comply with the laws of the countries where activities are performed. The Contractor must give all notices and pay all fees and other charges in respect of the Works.

1.7 Assignment

The Contractor must not assign or novate any of its rights or obligations under this Contract without prior written consent of the Employer.

The Employer has the right to assign or novate any or all of its rights or obligations under this Contract after giving written notice to the Contractor.

1.8 Confidential Details

The Contractor must keep confidential and must not, without the written consent of the Employer, disclose to any third party the terms and conditions of the Contract, or any documents or other information furnished directly or indirectly by either Party in connection with the Contract or the Works, except if disclosure is required by law or for outside consultants engaged to act in connection with the Works (including insurance and legal advisers). In addition, the Contractor must not (without the prior written consent of the Employer) take, or authorise the taking of, any photograph of the Works or the Site for use in any publicity or advertising.

2. THE EMPLOYER

2.1 Provision of Site

The Employer will provide non-exclusive possession of the Site and non-exclusive right of access to the Site at the times stated in the Schedule of Details. The Contractor must comply with any conditions relating to the Site as stated in the Schedule of Site.

2.2 Permits and Licences

The Contractor must obtain and comply with all relevant permits, licences, authorisations and approvals necessary to carry out the Works in accordance with the Contract. The Employer must, if requested, assist the Contractor in applying for such permits, licences, authorisations or approvals which are required for the Works.

2.3 Employer's Instructions

The Contractor must comply with all instructions given by the Employer or the Employer's Representative in respect of Works. The Employer or the Employer's Representative is entitled to suspend progress of part or all of the Works at any time and for any reason by giving the Contractor written notice. During such suspension, the Contractor must protect, store and secure such part of the Works against any deterioration, loss or damage.

If the Contractor receives a notice of suspension under this Sub-Clause 2.3, the Contractor must suspend progress of the relevant parts of the Works until such time as the Employer's Representative directs the Contractor to resume progress of those parts of the Works by notice in writing.

If a suspension under this Sub-Clause 2.3 has continued for more than 180 consecutive days, the Contractor may request the Employer's Representative's permission to proceed with the Works. If the Employer's Representative does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Employer's Representative, treat the suspension as an omission under Sub-Clause 10.1 of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give a notice in accordance with Sub-Clause 12.2.

2.4 Approvals

No approval or consent or absence of comment by the Employer or the Employer's Representative will affect the Contractor's obligations.

3. EMPLOYER'S REPRESENTATIVE

3.1 Employer's Representative

The Employer's Representative is authorised to carry out the duties assigned to it in the Contract. The Employer's Representative has no authority to amend the terms of the Contract unless an amendment is authorised and approved in writing by the Employer. The Employer's Representative may instruct Variations in accordance with Clause 10.

3.2 Employer's Representative's Assistant

The Employer's Representative may from time to time assign duties and delegate authority to an individual to carry out certain duties. The appointee may be notified by the Employer to the Contractor from time to time. The Employer must notify the Contractor of the delegated duties and authority of this Employer's Representative's assistant.

4. THE CONTRACTOR & PERFORMANCE OF THE WORKS

4.1 General Obligations

The Contractor must carry out the Works properly and in accordance with the Contract, including all works which are necessary to satisfy the Specifications and the Drawings and all other works which (although not expressly mentioned in the Contract) are necessary for the stability and/or for the completion, and/or safe and proper operation of the Works. The Contractor must provide all supervision, labour, Materials, Plant and Contractor's Equipment which may be required. All Materials and Plant on Site are deemed to be the property of the Employer.

The Contractor must comply with all applicable occupational health and safety and environmental laws, guidelines, rules, procedures, quality control requirements and codes of practice including those stated in the Schedule of Works and any provided to the Contractor by the Employer's Representative.

The Contractor is deemed to have inspected and examined the Site, its surroundings, and access to the Site and to have satisfied itself that the Site and access to the Site, including security, is suitable for the Works and is deemed to have obtained all necessary information as to risks which may affect execution of the Works including climatic, hydrological and natural conditions and is not entitled to an increase to the Contract Price or to an extension to the Time for Completion based upon such conditions encountered during the execution of the Works that could have been reasonably foreseen by an experienced contractor acting in accordance with industry best practice.

The Contractor must, in a form acceptable to the Employer's Representative, provide the Employer's Representative with monthly, or more frequently on request by the Employer's Representative, reports in relation to the Works and any occupational, health and safety issues in relation to the Works. The report must comply with any requirements stated in the Schedule of Works.

4.2 Contractor's Representative

The Contractor's Representative is named in the Schedule of Details. The Contractor must not replace the Contractor's Representative without the prior written consent of the Employer's Representative and must submit to the Employer's Representative for approval the name and particulars of the person the Contractor proposes to replace the Contractor's Representative. The Contractor is responsible for all acts and omissions of the Contractor's Representative.

The Contractor gives the Contractor's Representative all authority necessary to act on the Contractor's behalf under the Contract.

4.3 Subcontracting

The Contractor must not subcontract the whole of the Works. The Contractor must not subcontract any part of the Works without the prior written consent of the Employer's Representative.

4.4 Bank Guarantee for Performance

Unless otherwise stated in the Schedule of Details, the Contractor must deliver to the Employer, within 14 days of the Commencement Date, an unconditional and irrevocable on-demand bank guarantee in the form provided in the Schedule of Security, from a bank approved by the Employer, for the amount stated in the Schedule of Details.

Any Bank Guarantee for performance provided to the Employer under Sub-Clause 4.4 must be valid for three months beyond Defects Notification Period under Contract.

The Employer may withhold, retain or set off from any payment due to the Contractor under this Contract amounts to protect the Employer against any costs, charges, expenses and damages for which the Contractor is liable to the Employer under or in connection with this Contract. This right to withhold, retain or set off does not limit the Employer's right to recover those amounts in any other way.

4.5 Contractor's Personnel

The Contractor's Personnel must be appropriately qualified, skilled and experienced in their respective trades or occupations. The Employer's Representative may require the Contractor to remove (or cause to be removed) any person employed on the Site or in the execution of the Works, including the Contractor's Representative who in the opinion of the Employer's Representative:

a) persists in any misconduct or lack of care;
b) carries out duties incompetently or negligently;
c) fails to conform with any provisions of the Contract; or
d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

Where this Sub-Clause 4.5 applies, the Contractor must then appoint (or cause to be appointed) a suitable replacement person for each person so removed.

The Contractor must provide and maintain all necessary sanitary and welfare facilities for the Contractor's personnel and must at all times take all reasonable precautions to maintain the health and safety of the Contractor's personnel and comply with all relevant labour laws.

The parties agree that if the Employer's Representative becomes aware that the Contractor has failed to pay any subcontractor's or the Contractor's Personnel in accordance with this Contract, and the Employer's Representative gives the Contractor written notice 48 hours before the Employer intends to pay, the Employer may, in its absolute discretion, pay those staff, labour or subcontractors the amount the Employer's Representative determines is, or may be owing and the Employer may recover any such amount paid as a debt due from the Contractor to the Employer.

The Employer will not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any of the Contractor's Personnel, unless resulting from any act or default of the Employer, its agents or servants. The Contractor must defend, hold and save harmless and indemnify the Employer against all claims and

proceedings, as well as damages and compensation in relation to any accident or injury to any of the Contractor's Personnel, unless resulting from any act or default of the Employer, its agents or servants. The Contractor is responsible for all costs, including legal costs, charges and expenses whatsoever associated with the defence of the Employer. In defending the Employer, the Contractor shall not enter into a settlement agreement without the prior written approval of the Employer.

4.6 Publicity and Use of the Name, Emblem or official Seal of the Employer

The Contractor must not advertise or otherwise make public for purposes of commercial advantage or goodwill that it has a contractual relationship with the Employer, nor must the Contractor, in any manner whatsoever use the name, emblem or official seal of the Employer, or any abbreviation of their name in connection with its business or otherwise without the written permission of the Employer. This Sub-Clause 4.6 survives the completion, expiry or termination of the Contract.

4.7 Mines

a) The Contractor warrants and represents that neither it, its parent entities (if any), nor any of the Contractor's subsidiaries or affiliated entities (if any) is engaged in the sale or manufacture of anti-personnel mines or components utilised in the manufacture of anti-personnel mines.
b) The Contractor acknowledges and agrees that any breach of this Sub-Clause 4.7 entitles the Employer to terminate the Contract immediately in accordance with Sub-Clause 12.1, without any liability for termination charges or any other liability of any kind.

4.8 Official-Not-To-Benefit, Corruption and Fraud

a) The Contractor warrants that it has not engaged, or attempted to engage, in any way whatsoever, in any corruption or fraud in connection with the selection process or the execution of this Contract or any other activities of the Employer, involving, in any way whatsoever, any Employer's personnel or representative, official, or other agent of the Employer.

b) In this Sub-Clause 4.8, "corruption" means the offering, giving, receiving or soliciting from or to any person, directly or indirectly, anything of value as an inducement or reward:
    i. for doing or forbearing to do any action in relation to the Contract, the selection process or any other activities of the Employer; or
    ii. for showing or forbearing to show favour or disfavour to any person in relation to the Contract, or any other activities of the Employer.

c) In this Sub-Clause 4.8, "fraud" means a misrepresentation or omission of fact(s) in order to influence, or to attempt to influence, the selection process or the execution of this Contract or any other activities of the Employer.

d) Contractor acknowledges and agrees that any breach of this Sub-Clause 4.8 entitles the Employer to terminate the Contract immediately by written notice in accordance with Sub-Clause 12.1, without any liability for termination charges or any other liability of any kind.

4.9 Supply of Water

The Contractor must provide on the Site, for the duration of the Works, an adequate supply of drinking and other water for the use of its staff and labour.

4.10 Alcoholic Liquor or Drugs

The Contractor must not bring onto or store on the Site, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by its subcontractors, agents, staff or labour.

4.11 Arms, Ammunition & Explosives

Unless otherwise stated in the Schedule of Works or instructed or permitted by the Employer in writing, the Contractor must not bring onto or store on the Site, give, barter or otherwise dispose of to any person or persons, any arms, ammunition or explosives of any kind or permit or suffer the same.

4.12 Festivals and Religious Customs

The Contractor must in all dealings with its staff and labour have due regard to all recognised festivals, days of rest and religious or other customs.

4.13 Epidemics

In the event of any outbreak of illness of an epidemic nature, the Contractor must comply with and carry out such regulations, orders and requirements as may be made by the relevant authorities or local medical or sanitary authorities for the purpose of dealing with or overcoming the epidemic.

4.14 Fundamental Principles and Rights at Work:

a) The Contractor warrants that it will comply with, and ensure the Contractor's Personnel will comply with, the 1998 International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work. These universal rights, as applied in the context of ILO, are freedom of association and the effective recognition of the right to collective bargaining, the elimination of forced or compulsory labour, the abolition of child labour and the elimination of discrimination in respect of employment and occupation.

b) The Contractor must provide a safe and secure working environment, and provide separate amenities on the Site, for women employed in the execution of the Works.

c) The Contractor acknowledges and agrees that any breach of this Sub-Clause 4.14 entitles the Employer to terminate the Contract immediately in accordance with sub-

Clause 12.1, without any liability for termination charges or any other liability of any kind.

4.15 Child Labour

a) The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor's subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, *inter alia,* requires that a child must be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

b) The Contractor acknowledges and agrees that any breach of this Sub-Clause 4.15 entitles the Employer to terminate the Contract immediately in accordance with Sub-Clause 12.1, without any liability for termination charges or any other liability of any kind.

4.16 Sexual Exploitation

a) The Contractor must take all appropriate measures to prevent sexual exploitation or abuse of anyone by the Contractor's Personnel. For these purposes, sexual exploitation and abuse includes sexual activity with any person less than eighteen years of age, regardless of any laws relating to consent, unless such sexual activity is consensual between two persons who are married and such marriage is recognized as valid under the laws of the country of citizenship of such Contractor's personnel.

b) In addition, the Contractor must refrain from, and must take all reasonable and appropriate measures to prohibit its employees or other persons engaged and controlled by it from exchanging any money, goods, services, or other things of value, for sexual favours or activities, or from engaging any sexual activities that are exploitive or degrading to any person.

c) The Contractor acknowledges and agrees that any breach of this Sub-Clause 4.16 entitles the Employer to terminate the Contract immediately in accordance with Sub-Clause 12.1, without any liability for termination charges or any other liability of any kind.

4.17 Security of the Site

Unless otherwise stated in the Contract, the Contractor must keep unauthorised persons from entering the Site. Authorised persons are limited to the Contractor's Personnel and the Employer's personnel and any other personnel notified to the Contractor, by the Employer or the Employer's Representative, as authorised personnel of the Employer or the Employer's other contractors on the Site. The security and safety of the Site, the Contractor's Equipment, the Employer's equipment, Plant, Materials and all other property or personnel on the Site is the sole responsibility of the Contractor. The Contractor must comply with any other security requirements set out in the Schedule of Site.

4.18 Unexploded Ordinances

If at any time during the carrying out of the Works the Contractor discovers an unexploded ordinance or land mine, the Contractor must immediately stop work, notify the Employer's Representative, take all necessary steps to ensure the safety of all persons and property and secure the Site. The Contractor must immediately resume the Works when instructed by the Employer's Representative that is it safe to do so.

5. DESIGN BY CONTRACTOR

5.1 Contractor's Design

The Contractor must carry out design to the extent specified in accordance with the Contract, including the Schedule of Works. The Contractor must promptly submit to the Employer's Representative all designs prepared by the Contractor. Within 14 days of receipt the Employer's Representative may notify any comments or, if the design submitted is not in accordance with the Contract, may reject it stating the reasons. The Contractor must not construct any element of the permanent work designed by the Contractor without the approval and prior written consent of the Employer's Representative or where the design for that element has been rejected. Design that has been rejected must be promptly amended and resubmitted. The Contractor must resubmit all designs commented on, taking these comments into account as necessary.

5.2 Design by Contractor

The Contractor is responsible for any design it has prepared and such design must be fit for the intended purposes defined in the Contract. The Contractor is also responsible for any infringement of any patent or copyright in respect of the same.

6. EMPLOYER'S RISKS

6.1 Employer's Risks

In this Contract, Employer's Risks mean:

a) a Force Majeure event,
b) a suspension under Sub-Clause 2.3 unless it is attributable to the Contractor's failure, act, omission or breach,
c) any delay or disruption caused by any Variation, except where that Variation is caused by the Contractor's failure, act, omission or breach,
d) any act, omission or breach by the Employer or its agents, and
e) the occurrence of any event specified in the Schedule of Details.

7. TIME FOR COMPLETION

7.1 Execution of the Works

The Contractor must commence the Works on the Commencement Date and must proceed expeditiously and without delay and must complete the Works within the Time for Completion.

7.2 Programme

Within the time stated in the Schedule of Details, the Contractor must submit to the Employer's Representative for approval, a programme for the Works in accordance with and in the form stated in the Schedule of Works. The programme will be used to monitor the progress of the Works under the Contract. The Employer's Representative may request the Contractor to submit an amended programme at any time for approval.

7.3 Extension of Time

Subject to Sub-Clause 10.3, the Contractor may be entitled to an extension to the Time for Completion if it is or will be delayed by any of the Employer's Risks.

Despite any other provision in this Contract, the Employer's Representative may, in its absolute discretion and at any time, grant an extension to the Time for Completion. Such an extension must be granted in writing.

7.4 Late Completion

If the Contractor fails to complete the Works within the Time for Completion, the Contractor must pay delay damages for such failure in the amount stated in the Schedule of Details for each day for which the Contractor fails to complete the Works up to and including the Date of Substantial Completion as stated in the Taking-Over Certificate.

If the cumulative amount of delay damages reaches the amount stated in the Schedule of Details, the Employer may terminate the Contract at any time in accordance with Sub-Clause 12.1.

8. TAKING OVER

8.1 Completion

The Contractor must notify the Employer's Representative in writing as soon as it considers that the Works have reached the stage of Substantial Completion.

8.2 Taking-Over Certificate

After receiving the notice under Sub-Clause 8.1, the Employer's Representative must either issue a Taking-Over Certificate stating the Date of Substantial Completion or notify the Contractor that there are defects or deficiencies in the Works that prevent Substantial Completion being reached.

If the Employer's Representative notifies the Contractor that there are defects or deficiencies in the Works, the Contractor must correct the defects or deficiencies and the procedures in this Clause 8 must be repeated until the Employer's Representative issues a Taking-Over Certificate.

The Contractor acknowledges and agrees that it takes full responsibility for the care of the Works until the Date of Substantial Completion and that no partial or entire use or occupancy of the Site or the Works by the Employer in any way constitutes an acknowledgement by the Employer that Substantial Completion has occurred, nor does it release the Contractor from any of its warranties, obligations or liabilities under or in connection with this Contract.

The Employer must take over the Works upon the Date of Substantial Completion.

After issuance of the Taking-Over Certificate the Contractor must promptly complete any outstanding work, submit a statement in accordance with Sub-Clause 11.2 and, subject to Clause 9, clear the Site.

8.3 Testing

The Contractor must undertake all tests in accordance with the requirements set out in the Schedule of Works, and must agree, with the Employer's Representative, 4 days prior written notice of the time and place for the specified testing of any Plant, Materials and other parts of the Works.

9. REMEDYING DEFECTS

9.1 Remedying Defects

The Employer's Representative may at any time prior to the expiry of the relevant Defects Notification Period, notify the Contractor of any defects or outstanding work. The Contractor must remedy at no cost to the Employer any defects due to the Contractor's design, Materials, Plant or workmanship not being in accordance with the Contract. The timing of remedying a defect must be agreed between the Parties, or failing agreement, be reasonably specified by the Employer's Representative.

If the Contractor fails to rectify the defect within the time agreed or specified, the Employer's Representative may do so or engage another party to do so at the Contractor's risk and expense and any cost will be a debt due from the Contractor to the Employer.

The Defects Notification Period will be extended to the extent that the Works, part of the Works or a major item of Plant (as the case may be) cannot be used for the purposes for which they are intended by reason of a defect or damage or failure by the Contractor to comply with any other obligation of the Contract and such extension will be equal to the period for which the Works, part of the Works or major item of Plant cannot be so used for the purpose intended or, if instructed in writing by the Employer's Representative, the Defects Notification Period will recommence (and restart from the beginning) from the date of the repair, replacement or making good of such defect or damage, but only in respect of that part of the Works repaired, replaced or made good.

9.2 Uncovering and Testing

The Employer's Representative may give instruction as to the uncovering and/or testing of any work. Unless as a result of any uncovering and/or testing it is established that the Contractor's design, Materials, Plant or workmanship are defective or not in accordance with the Contract or the Contractor did not give sufficient notice in accordance with Sub-Clause 8.3 before covering the relevant parts of the Works, the Contractor will be paid for such uncovering and/or testing as a Variation in accordance with Sub-Clause 10.2. If the Contractor did not give sufficient notice in accordance with Sub-Clause 8.3 before covering the relevant parts of the Works or if the Employer's Representative establishes that the Contractor's design, Materials, Plant or workmanship are defective or not in accordance with the Contract, the Contractor must (at its cost) then promptly make good the defect and ensure that the rejected item complies with the Contract and bears the cost of uncovering and testing.

9.3 Final Completion Certificate

Performance of the Contractor's obligations will not be considered to have been completed until the Employer's Representative has issued the Final Completion Certificate to the

Contractor, stating the date on which the Contractor completed its obligations under the Contract.

The Employer's Representative must issue the Final Completion Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods or as soon thereafter as the Contractor has supplied all relevant documents and completed and tested all of the Works, including remedying defects notified under Sub-Clause 9.1. A copy of the Final Completion Certificate must be issued to the Employer. Notwithstanding this the Employer may issue the Final Completion Certificate at any time after the Employer's Representative has issued the Taking-Over Certificate.

9.4 Unfulfilled Obligations

After the Final Completion Certificate has been issued, each Party remains liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract is deemed to remain in force.

10. VARIATIONS AND CLAIM

10.1 Right to Vary

The Employer's Representative may, in its absolute discretion and at any time before the Taking-Over Certificate is issued, initiate, or immediately instruct Variations by written notice and the Contractor must carry out and be bound by any such Variations. Unless otherwise instructed by the Employer's Representative in this notice, the Contractor must provide a detailed breakdown of the increase or decrease in the Contract Price and any effect on the Time for Completion within 7 days of receipt of this notice, and before the Contractor carries out the Variation. The Contractor must then execute and is bound by the Variation unless otherwise instructed by the Employer's Representative.

The Contractor agrees that a Variation may involve an omission of any part or parts of the Works and in the case of an omission the Employer may engage others to perform that part or parts so omitted.

10.2 Valuation of Variations

Variations will be valued by the Employer's Representative as follows:

a) at a rate or lump sum price agreed between the Parties, or in the absence of agreement
b) where appropriate, at rates in the Bill of Quantities, or if there are no applicable rates in the Bill of Quantities, at the rates in the schedule of Variation rates contained in the Schedule of Contract Price, or
c) in the absence of appropriate rates, then a fair and reasonable valuation of the Variation will be made by the Employer's Representative, or
d) if the Employer's Representative so instructs, at day work rates set out in the Schedule of Contract Price for which the Contractor must keep records of hours of labour and Contractor's Equipment, and of Materials used.

For the avoidance of doubt the Contractor's entitlement to payment for a Variation excludes non-project specific overheads and costs.

10.3 Notice of Delay

The Contractor must notify the Employer's Representative as soon as practicable and in any case in writing no later than 7 days (or within a time frame notified by the Employer's Representative) after it becomes aware of any event or circumstance which may delay or disrupt the Works, or which may give rise to a claim for additional payment, Costs and/or other entitlements or relief from obligations, under any Clause of these General Conditions or otherwise arising out of or in connection with the Contract. The Contractor must take all reasonable steps to minimise these effects.

The notice submitted by the Contractor under this Sub-Clause 10.3 must set out details of the event or circumstance giving rise to the claim, and if requested supply supporting documents, stating a reasonable period by which the Contractor believes the Time for Completion should be extended and the nature and extent of any additional resultant Costs. As soon as practicable after the receipt of this notice, the Employer's Representative will notify the Contractor of the period, if any, by which the Time for Completion will be extended and additional payment of Costs (if any) to which the Contractor is entitled under the Contract. The Employer's Representative may also respond with comments and request any necessary further particulars.

The Contractor is not entitled to an extension to the Time for Completion or additional payment or Costs if it does not submit a notice in accordance with and within the time stated in Sub-Clause 10.3 in which case the Contractor will be deemed to have waived its entitlement to make such claim, the Employer will be discharged from all liability arising out of or in connection with the claim and the Contractor must comply with its obligations to perform the Works by the Time for Completion and for the Contract Price.

10.4 Right to Claim

Subject to Sub-Clause 10.3, if the Contractor incurs Cost as a result of any of the Employer's Risks, other than a Force Majeure event, the Contractor will be entitled to the amount of such Cost. If as a result of any of the Employer's Risks, it is necessary to change the Works, this will be dealt with as a Variation.

10.5 Adjustments for Changes in Cost

Unless otherwise expressly stated in the Schedule of Contract Price, the Contract Price, and the rates and prices inserted in the Bill of Quantities, will not be adjusted for rises or falls in the cost of labour, goods and other inputs to the Works and the Contract Price and the rates and prices inserted in the Bill of Quantities, will be deemed to include amounts to cover contingency of rises and falls in the cost of labour, goods and other inputs to the Works.

11. CONTRACT PRICE AND PAYMENT

11.1 Contract Price & Valuation of the Works

The Employer must pay the Contractor the Contract Price in accordance with this Clause 11 and the Schedule of Contract Price. The Contractor is deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price and all fixed unit rates and prices in the Contract.

11.2 Statements

The Contractor must submit a statement to the Employer's Representative in accordance with the requirements and timings stated in the Schedule of Payment or otherwise as notified by the Employer's Representative in writing. Each statement must be in a form approved by the Employer's Representative, showing the value of the work performed and details of any other amounts to which the Contractor considers itself entitled. If requested by the Employer's Representative, when submitting the statement the Contractor must provide verification of all payments owed to subcontractors and the Contractor's Personnel.

The statement must be based on the prices and/or rates set out in the Bill of Quantities or as otherwise set out in the Schedule of Contract Price.

If a percentage is stated in the Schedule of Details, the Contractor will be entitled to that percentage of the value of Materials and Plant listed in the Schedule of Details if such Plant and Materials are in accordance with the Contract, delivered to and properly stored on the Site at a reasonable time.

Within 28 days after the Employer's Representative issues the Taking-Over Certificate, the Contractor must submit a statement to the Employer's Representative as its final statement in respect of the Contract Price and any claim the Contractor has in respect of the Works under the Contract which the Contractor considers to be due from the Employer for all events and circumstances that have occurred up to the Date of Substantial Completion stated in the Taking-Over Certificate.

The Contractor is not entitled to make, and the Employer is released from, any new claim or an increased existing claim against the Employer in respect of the Contract Price or otherwise in respect of all events and circumstances that have occurred up to the earlier of the submission of the statement or expiration of the 28 days.

11.3 Advance Payment

a) The Employer will make the advance payment (if any) set out in the Schedule of Payment, as a loan for mobilisation, when the Contractor submits a Bank Guarantee for advance payment in accordance with this Sub-Clause 11.3. If no advance payment is set out in the Schedule of Payment, then this Sub-Clause 11.3 will not apply.

b) Unless otherwise notified by the Employer, the Employer will pay the advance payment only after receiving the Bank Guarantee for performance (if any) in accordance with Sub-Clause 4.4 and a Bank Guarantee for advance payment in accordance with Sub-Clause 11.3(c), in amounts and currencies equal to the advance payment.

c) The Bank Guarantee for advance payment payable in accordance with Sub-Clause 11.3(b), must be an unconditional and irrevocable on-demand bank guarantee in the

form provided in the Schedule of Security, from a bank approved by the Employer. Unless and until the Employer receives this guarantee, Sub-Clause 11.3 will not apply.

d) The Contractor must ensure that the Bank Guarantee for advance payment is valid and enforceable until the whole of the advance payment has been repaid, but its amount may be progressively reduced by the amount repaid by the Contractor in the interim payments. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor must extend the validity of the guarantee until the advance payment has been repaid.

e) The advance payment must be repaid by the Contractor through percentage deductions in interim payments. The Employer will deduct a percentage of each interim payment, at the rate stated in the Schedule of Payments, until such time as the advance payment has been repaid.

f) If the advance payment has not been repaid prior to the issue of the Taking Over Certificate for the Works or prior to termination of the Contract, the whole of the balance then outstanding will immediately become due and payable by the Contractor to the Employer.

11.4 Interim Payment

Within 28 days of delivery of each statement submitted in accordance with Sub-Clause 11.2, the Employer will pay to the Contractor the amount shown in the Contractor's statement less retention at the rate stated in the Schedule of Details and less any amounts to be deducted for advance payment and repayments in accordance with Sub-Clause 11.3, and less any other amount for which the Employer's Representative has specified its reasons for disagreement or that has become due under the Contract. The Employer is not bound by any sum previously considered by the Employer to be due to the Contractor

The Employer may withhold interim payments until it receives the performance security under Sub-Clause 4.4 (if any).

11.5 Payment of First Half of Retention

One half of the retention will be paid by the Employer to the Contractor within 14 days after issuing the Taking-Over Certificate under Sub-Clause 8.2.

11.6 Payment of Second Half Retention

The remainder of the retention will be paid by the Employer to the Contractor within 14 days after receiving the Final Completion Certificate.

11.7 Final Payment

Within 7 days after receiving the Final Completion Certificate, the Contractor must submit a final account to the Employer's Representative together with any documentation reasonably required to enable the Employer to ascertain the final contract value.

Within 28 days after the submission of this final account, the Employer must pay to the Contractor any amount due. If the Employer disagrees with any part of the Contractor's final account, the Employer must specify its reasons for disagreement when making payment.

11.8 Currency

Payment will be in the currency stated in the Schedule of Details.

11.9 Delayed Payment

The Contractor is not entitled to any interest in respect of any amount in any statement submitted to the Employer in accordance with Sub-Clause 11.2 which remains due and unpaid.

11.10 Provisional Sums

If a provisional sum is included in the Schedule of Contract Price, it will not be payable by the Employer unless the Employer's Representative directs the Contractor to perform the work or item to which the provisional sum relates. If the Employer's Representative directs the Contractor to perform that work, the work or item will be priced by the Employer's Representative in accordance with Sub-Clause 10.2, and the difference will be added to or deducted from the Contract Price.

11.11 Audit and Investigations

a) Each payment made by the Employer to the Contractor may be subject to a post-payment audit by auditors, whether internal or external, of the Employer or by other authorised and qualified agents of the Employer at any time during the term of the Contract and for a period of two (2) years following the expiration or prior termination of the Contract. The Employer is entitled to a refund from the Contractor for any amounts shown by such audits to have been paid by the Employer other than in accordance with the terms and conditions of the Contract.

b) The Contractor acknowledges and agrees that, from time to time, the Employer may conduct investigations relating to any aspect of the Contract or the award thereof, the obligations performed under the Contract, and the operations of the Contractor generally relating to performance of the Contract. The right of the Employer to conduct an investigation and the Contractor's obligation to comply with such an investigation does not lapse upon issuance of the Final Completion Certificate or prior termination of the Contract. The Contractor must provide its full and timely cooperation with any such inspections, post-payment audits or investigations. Such cooperation must include, but is not limited to, the Contractor's obligation to make available the Contractor's Personnel and any relevant documentation for such purposes at reasonable times and on reasonable conditions and to grant to the Employer access to the Contractor's premises at reasonable times and on reasonable conditions in connection with such access to the Contractor's Personnel and relevant documentation. The Contractor must require its agents, including, but not limited to, the Contractor's attorneys, accountants or other advisers, to reasonably cooperate with any inspections, post-payment audits or investigations carried out by the Employer.

12. DEFAULT & TERMINATION

12.1 Default by Contractor

If the Contractor abandons the Works, refuses or fails to comply with a valid instruction of the Employer or the Employer's Representative or fails to proceed expeditiously and without

delay, or is in breach of the Contract, the Employer's Representative may give notice referring to this Sub-Clause and stating the default.

If the Contractor has not taken all practicable steps to remedy the default within 14 days after the Contractor's receipt of the Employer's Representative's notice, the Employer may by a second notice of 14 days, terminate the Contract.

The Employer may terminate the Contract immediately by written notice if the Contractor is declared insolvent under Sub-Clause 12.3 or is in breach of Sub-Clauses 4.7, 4.8, 4.14, 4.15 or 4.16 or submits a guarantee, certificate, statement, test result or any other document it is required to submit under the Contract that is false or intentionally misleading.

If the Employer delivers a termination notice under this Sub-Clause 12.1, the Contractor must stop work and demobilise (except to the extent specified in the notice from the Employer) and take such action as necessary or as the Employer's Representative directs, for the transfer, protection and preservation of the Employer's property and deliver any required goods and documents to the Employer's Representative. The Contractor must use its best efforts to comply immediately with any reasonable instructions included in the notice for the assignment of any subcontract and for the protection of life or property or for the safety of the Works. The Contractor must leave behind any Contractor's Equipment, Materials and Plant which the Employer or the Employer's Representative instructs, in writing, is to be used until the completion of the Works. The Employer may employ others to complete or perform the Works and the cost incurred that exceeds the Contract Price will be a debt due from the Contractor to the Employer.

12.2 Default by Employer

If the Employer fails to pay in accordance with the Contract, or if a prolonged suspension affects the whole of the Works as described in Sub-Clause 2.3, the Contractor may give notice referring to this Sub-Clause and stating the default. If the default is not remedied within 14 days after the Employer's receipt of this notice, the Contractor may suspend the execution of all or parts of the Works.

If the default is not remedied within 28 days after the Employer's receipt of the Contractor's notice, the Contractor may by a second notice of 14 days, terminate the Contract. The Contractor must then demobilise from the Site.

12.3 Insolvency

If the Contractor is declared insolvent under any applicable law, the Employer may by written notice terminate the Contract immediately.

12.4 Payment upon Termination

After termination, the Contractor is entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:

a) any sums to which the Contractor is entitled under Sub-Clause 10.4,
b) any sums to which the Employer is entitled,
c) in the absence of appropriate rates, the rates in the Contract will be used as the basis for valuation, or failing which the Employer's Representative will make a reasonable valuation, or

d) if the Contractor has terminated under Sub-Clause 12.2 or the Employer has terminated under Sub-Clause 12.5, the Contractor is entitled to the Cost of its suspension and demobilisation together with a sum equivalent to 5% of the value of those parts of the Works not executed at the date of termination.

The net balance due must be paid or repaid within 28 days of the notice of termination.

12.5 Employer's Entitlement to Terminate for Convenience

The Employer may in its absolute discretion terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination will take effect 28 days after the latter of the dates on which the Contractor receives this notice, or the Employer returns the Bank Guarantee for performance.

12.6 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clauses 12.2, 12.5, 13.2 or 12.3 has taken effect, the Contractor must promptly cease all further work (except to the extent specified in the notice from the Employer) and take such action as necessary or as directed by the Employer, for the transfer, protection and preservation of the Employer's property, protection of life or for the safety of the Works. Unless otherwise notified in writing by the Employer under Sub-Clause 12.1, the Contractor must remove all Contractor's Equipment from the Site and remove from the Site any wreckage, rubbish and debris of any kind and leave the whole of the Site in a clean and safe condition.

13. RISK & RESPONSIBILITY

13.1 Contractor's Care of the Works

The Contractor is responsible for the care of the Works from the Commencement Date until the date the taking-over Certificate is issued under Sub-Clause 8.2. Responsibility will then pass to the Employer. If any loss or damage happens to the Works during the above period, the Contractor must rectify such loss or damage so that the Works conform with the Contract and the requirements of any relevant authorities.

The Contractor must defend, hold and save harmless and indemnify, at its own cost, including legal costs, the Employer, its agents and employees from and against all suits, actions, claims and costs arising out of the acts or omissions of the Contractor, its employees, agents or subcontractors in connection with the Works and the Contractor's other obligations under or in connection with the Contract, in respect of any accident, bodily injury, sickness or death to any person, infringement of any intellectual property rights and loss or damage to the Works or any property unless due to an act or default of the Employer or its personnel. In defending the Employer, the Contractor shall not enter into a settlement agreement without the prior written approval of the Employer.

13.2 Force Majeure

If a Party is or will be prevented from performing any of its obligations by Force Majeure, the Party affected must notify the other Party immediately in writing and not later than 7 days, setting out full details of the Force Majeure event and the reasons for the Force Majeure event preventing that Party from, or delaying that Party from, performing the affected

obligations under this Contract. If instructed by the Employer's Representative, the Contractor must suspend the execution of the affected Works and, to the extent agreed with the Employer's Representative, demobilise the Contractor's Equipment, but only so far as, and for so long as, the performance of those obligations is affected by the Force Majeure event. The affected Party must use its best endeavours to overcome or remove the effects of the Force Majeure event as quickly as possible.

Upon completion of the Force Majeure event, the affected Party must as soon as is reasonably practicable recommence the performance of the affected obligations.

If the event continues for a period of 84 days, either Party may then give notice of termination which will take effect 28 days after the giving of the notice.

After termination, the Contractor is entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:

a) any sums to which the Contractor is entitled under Sub-Clause 10.4,
b) the Cost of suspension and demobilisation,
c) any sums to which the Employer is entitled.

The net balance due must be paid or repaid within 28 days of the notice of termination.

The Contractor acknowledges and agrees that, with respect to any of its obligations under the Contract, the Contractor will be performing such obligations in areas in which the Employer, is engaged in, preparing to engage in, or disengaging from peacekeeping, humanitarian or similar operations and any delays or failure to perform such obligations arising from or relating to harsh conditions within such areas, shall not, in and to itself, constitute a Force Majeure event.

14. INSURANCES

14.1 Extent of Cover

The Contractor must, on or prior to the Commencement Date, effect and thereafter maintain insurances in the joint names of the Parties:

a) for loss and damage to the Works, Materials, Plant and the Contractor's Equipment,
b) for liability of both Parties for loss, damage, death or injury to third parties or their property arising out of the Contractor's performance of the Contract, including the Contractor's liability for damage to the Employer's property other than the Works, and
c) for liability of both Parties and of any Employer's personnel for death or injury to the Contractor's Personnel except to the extent that liability arises from the negligence of the Employer, any Employer's representative or their employees.

14.2 Arrangements

All insurances must conform with the requirements detailed in the Schedule of Details. The policies must be issued by insurers and in terms approved by the Employer. The Contractor must provide the Employer with evidence that any required policy is in force and that the premiums have been paid.

All payments received from insurers relating to loss or damage to the Works must be held jointly by the Parties and used for the repair of the loss or damage or as compensation for loss or damage that is not to be repaired.

14.3 Failure to Insure

If the Contractor fails to effect or keep in force any of the insurances referred to in the previous Sub-Clauses, or fails to provide satisfactory evidence, policies or receipts, the Employer may, without prejudice to any other right or remedy, effect insurance for the cover relevant to such default and pay the premiums due and recover the same as a deduction from any other monies due to the Contractor.

15. RESOLUTION OF DISPUTES

15.1 Dispute Resolution Procedure

Unless settled amicably by the Parties' Representatives, any dispute or difference which arises between the Contractor and the Employer out of or in connection with the Contract, including any valuation or other decision of the Employer ("**Dispute**"), the Dispute must be referred, if requested by either Party, to the Senior Representatives of the Parties set out in the Schedule of Details, or any replacement notified by a Party to the other Party in writing.

If the Senior Representatives of the Parties are unable to resolve a Dispute referred to them within 28 days, either Party may invite the other Party to conciliate the Dispute in accordance with the provisions of Sub-Clause 15.2. Otherwise the Dispute must be referred, if requested by either Party, directly to arbitration in accordance with the provisions of Sub-Clause 15.3.

15.2 Conciliation

a) In accordance with Sub-Clause 15.1, either Party may invite the other Party to conciliate a Dispute under the UNCITRAL Permanent Court of Arbitration Optional Conciliation Rules, 1996 (the "Conciliation Rules") provided that;
   i) the language of the conciliation must be in English;
   ii) one conciliator must be appointed and agreed by the Parties; or
   iii) if the Parties are unable to agree on the appointment of a conciliator within 14 days after the matter has been referred to conciliation, the conciliator will be appointed by the Secretary-General of the Permanent Court of Arbitration in accordance with the Conciliation Rules.

If the Parties do not reach agreement under the Conciliation Rules, the Dispute shall be referred, if requested by either Party, to arbitration in accordance with Sub-Clause 15.3.

15.3 Arbitration

If the Parties are unable to resolve the Dispute in accordance with Sub-Clause 15.1 or 15.2, the Dispute must, if requested by either Party, be referred to and finally resolved by arbitration in accordance with the UNCITRAL Arbitration Rules ("Arbitration Rules") then in effect, provided that:

a) there is no seat or place of arbitration. The place of hearing must be the place stated in the Schedule of Details;
b) the language of the arbitration must be English;

c) the decisions of the arbitral tribunal must be based on general principles of Indian law in vogue. The arbitral tribunal must not award punitive damages. In addition, the arbitral tribunal must not award interest in excess of the India Inter-Bank Offered Rate then prevailing, and any such interest must be simple interest only.

The Parties will be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such dispute, controversy, or claim.

The arbitral proceedings and any information and documents relating to these proceedings must be regarded as confidential.

15.4 Dispute resolution not to delay execution of the Works

Despite any activation of the dispute resolution procedures under Sub-Clause 15.1, the Contractor must continue to execute the Works and its other obligations under or in connection with the Contract.

15.5 Survival

This Clause 15 survives the completion, expiry or termination of the Contract.

16. PRIVILEGES AND IMMUNITIES

Nothing in or relating to the Contract is deemed a waiver, express or implied, of any of the privileges and immunities whatsoever.

PARTICULAR CONDITIONS

Additional Clauses

The General Conditions are amended by the inclusion of the following additional conditions:
If nothing is stated, then no additional conditions apply.

Clause	Additional General Condition

Schedules

SCHEDULE 1 - SCHEDULE OF DETAILS

Commencement Date (Sub-Clause 1.1)	Date.....
Contract Price (Sub-Clause 1.1)	[***If this is a lump sum contract insert the following: "The lump sum amount of [insert the amount in words and figures]"*** See the Schedule of Contract Price & Payment for a breakdown of the Contract Price
Contractor's Representative (Sub-Clause 1.1)	[***name, position title and contact details to be inserted***]
Defects Notification Periods (Sub-Clause 1.1)	12 months
Employer's Representative (Sub-Clause 1.1)	[***insert name, position title and contact details***]
Project (Sub-Clause 1.1)	Up-gradation, Commissioning, Testing, and Validation of 05 Bio-safety Level (BSL-3) Laboratories, 04 LPA Clean Rooms, and Works for One C & DST Laboratory under RNTCP across India
Substantial Completion (Sub-Clause 1.1)	No additional grounds.
Time for Completion (Sub-Clause 1.1)	**Whole of the Works** Schedule I- 4 months from the Commencement Date. Schedule II- 3 months from the Commencement Date. Schedule III- 3 months from the Commencement Date. Schedule IV- 3 months from the Commencement Date. Schedule V- 3 months from the Commencement Date.
Address for Service of Notices and Communications (Sub-Clause 1.5)	**Employer** **Attention: Sanjay Rastogi** **Strategic Alliance Management Services Pvt. Ltd. (SAMS)** **1/1B, Choudhary Hetram House, Bharat Nagar,** **New Friends Colony, New Delhi 110 025 INDIA** **Facsimile :: +91-11-26312514** **Contractor** Attention: [***to be inserted***] Position title: [***to be inserted***] Address: [***to be inserted***] Facsimile Number: [***to be inserted***] Email Address: [***to be inserted***]

Time(s) for access to and possession of site (Sub-Clause 2.1)	**Date.....**
Amount of Bank Guarantee for Performance (Sub-Clause 4.4)	The amount of the Bank Guarantee for performance to be provided under Sub-Clause 4.4 is the amount equal to **10%** of the Contract Price.
Additional Employer's Risks (Sub-Clause 6.1)	Site if not ready.
Time for Programme Submission (Sub-Clause 7.2)	14 days after the Commencement Date
Delay Damages for failure to complete the Works within the Times for Completion (Sub-Clause 7.4)	**Whole of the Works** 0.15% of the total contract amount per day subject to a maximum of 10% of the contract value.
Cumulative Amount of Delay Damages (Sub-Clause 7.4)	10%
Percentage of Plant & Materials (Sub-Clause 11.2)	Nil
Percentage deduction for Retention (Sub-Clause 11.4)	The sum of **5%** of the estimated value of Works executed in the relevant payment period as set out in the Statement for that period will be retained from each and every payment, except for any Advance Payment made pursuant to Sub-Clause 11.3, up to a maximum of ***10%*** of the Contract Price.
Currencies of payment (Sub-Clause 11.8)	Payments will be made in INR only.
Insurance Details (Sub-Clause 14.2)	[***insert insurance requirements and amounts***]
Senior Representatives (Sub-Clause 15.1)	**Employer** Sanjay Rastogi, Associate Director (MCS) Strategic Alliance Management Services Pvt. Ltd. (SAMS), 1/1B, Choudhary Hetram House, Bharat Nagar, New Friends Colony, New Delhi 110 025 INDIA Facsimile :: +91-11-26312514 Contractor [***insert name, position title and contact details***]
Arbitration (Sub-Clause 15.3)	The place of the hearing, if any, shall be determined at the time the dispute arises.

SCHEDULE 2- SCHEDULE OF WORKS

LIST OF WORKS & SCHEDULIG

As per Sub sections 1 of SECTION VI of ITB

SCOPE OF WORKS, TECHNICAL SPECIFICATIONS AND DRAWINGS

As per Sub sections 4 and 5 of SECTION VI of ITB

SCHEDULE 3 - SCHEDULE OF SITE

As per Sub Sections 5 of SECTION VI of ITB

SCHEDULE 4 - SCHEDULE OF CONTRACT PRICE

For example:

1. Contract Price

   [If this is a lump sum contract, insert the lump sum amount and include the clearest breakdown of the Contract Price. This may be in tabular form.]

2. Bill of Quantities

   Not Applicable

   Adjustments for Changes in Cost

   "The Contract Price will not be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works"

SCHEDULE 5 - SCHEDULE OF PAYMENT

Applications for Interim Payments

Sl. No.	Suggested milestones for BSL3 lab/ LPA clean room/C&DST lab establishment	Broad Reference in Scope of work of BSL-3	Suggested percent costs
1	On submission of Inception Report of whole of project (as per Contract) along-with related documents.	Ref. 1, 16 & Annex – I, VII, VIII, X	10%
2	On completion of Electrical Cabling, communication network, Plumbing, Minor civil works.	1(c) & (d), 5, 8 and 10(f),	10%
3	On completion of Ventilation Unit (HVAC) ducting, Filters, Air conditioning Unit and AHU installation, Transducers and control systems, Fire dampers.	4, 7 & 10(a)	20%
4	On completion of Interiors, Modular Monolithic Panelling, Pass box, Doors, Glass windows, Coving, BSC Placement and ducting, UVGI system, Electrical fixtures and outlets.	3 & 10	20%
5	On completion of Flooring, Epoxy, Monolithic Finishing (Silicon sealing), Furniture, Transducers, Telecom, monitoring and access control devices.	2 & 9	20%
6	On completion of Laboratory system integration with BMS, Deep cleansing, Final commissioning and validation, labeling, Laboratory documents handover and handover of BSL-3, LPA room and C&DST room **(handover of whole of completed Works under Schedule awarded).**	6, 11, 12, 13, 14 & 15	10%
7	After two months from the successful operation of the laboratory.	-	10%
Total			**100%**

Note-

iii. Above Payment Schedule covers completion of Works as per broad milestones given above for each Schedule including BSL-3, LPA & C&DST lab, as applicable.

iv. Retention money @ **5%** shall be deducted from each of the interim payment disbursement.

SCHEDULE 6 - SCHEDULE OF SECURITY

BANK GUARANTEE FOR PERFORMANCE
[*On the letterhead of the Bank*]

Date: [***insert***]

To:

The Associate Director (MCS)
Strategic Alliance Management Services Pvt. Ltd. (SAMS),
1/1B, Choudhary Hetram House, Bharat Nagar,
New Friends Colony, New Delhi 110 025 INDIA

Dear [***insert***]

[*insert works title*] Construction Contract - Bank Guarantee for Performance

You entered into a contract dated [***insert date***] with [***insert***] ("**Contractor**") titled [***insert contract title***] Construction Contract for the [***insert name of the project***] for certain works and services ("**Works**") to be undertaken by the Contractor ("**Contract**").

We, [***insert Bank***], irrevocably and unconditionally undertake with you that whenever you give written notice to us stating that in your sole and absolute judgment the Contractor has failed to observe or perform any of the terms, conditions or provisions of the Contract on its part to be observed or performed, we will, notwithstanding any objection which may be made by the Contractor and without any right of set-off or counterclaim, immediately pay to you or as you may direct such an amount as you may in such notice require not exceeding the sum equivalent to ***10*** % of the Accepted Contract Amount ("**Guaranteed Sum**").

This Bank Guarantee for Performance ("**Guarantee**") is valid and will continue to be valid from the date of this letter for the Guaranteed Sum till [***insert date***]. This Guarantee will automatically become null and void by the end of this validity period.

Any payment by us in accordance with this Guarantee must be in INR or immediately available and freely transferable ***currency*** free and clear of and without any deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, set off, counterclaims, deductions or withholdings of any nature whatsoever and by whomever imposed.

Our obligations under this Guarantee constitute direct primary, irrevocable and unconditional obligations, do not require any previous notice to or claim against the Contractor and will not be discharged or otherwise prejudiced or adversely affected by any:

- time, lenience or tolerance which you may grant to the Contractor;
- amendment, modification or extension which may be made to the Contract or the Works executed under the Contract;
- intermediate payment or other fulfilment made by us;

- change in the constitution or organisation of the Contractor; or
- other matter or thing which in the absence of this provision would or might have that effect, except a discharge or amendment expressly made or agreed to by you in writing.

This Guarantee may not be assigned by you to any person, firm or company other than an Affiliate, without our prior written consent, which must not be unreasonably withheld. You must notify us in writing of any assignment, after which we must make any payment claimed under this Guarantee to the person, firm or company specified in the notice which will constitute a full and valid release by us in relation to that payment.

Any notice required by this Guarantee is deemed to be given when delivered (in the case of personal delivery) or forty-eight (48) hours after being despatched by prepaid registered post or recorded delivery (in the case of letter) or as otherwise advised by and between the parties.

We agree that part of the Contract may be amended, renewed, extended, modified, compromised, released or discharged by mutual agreement between you and the Contractor, and this security may be exchanged or surrendered without in any way impairing or affecting our abilities under this Guarantee without notice to us and without the necessity of any additional endorsement, consent or guarantee by us, provided, however, that the Guaranteed Sum does not increase or decrease.

No action, event or condition which by any applicable law may operate to free us from liability under this Guarantee will have any effect. We waive any right we may have to apply such law so that in all respects our liability under this Guarantee will be irrevocable and, except as stated in this Guarantee, unconditional in all respects.

Capitalised words and phrases used within this Guarantee have the same meanings as are given to them in the Contract.

This Guarantee is governed by the Uniform Rules for Demand Guarantees, ICC Publication No. 758, provided that the supporting statement under Article 15 (a), and Articles 34 and 35 are excluded. Any disputes arising out or in connection with this Guarantee, or the breach, termination, or invalidity thereof will be referred to and finally resolved by arbitration in accordance with the UNCITRAL Arbitration Rules then in effect, the language of the proceedings being English.

Nothing in or relating to this Guarantee shall be deemed a waiver, express or implied, of any of the privileges and immunities whatsoever.

IN WITNESS of which the [***insert Bank***] has duly executed this Guarantee on the date stated above.

SIGNED by [***insert***])
as attorney for [***insert***])
under power of attorney)
dated [***insert***])
in the presence of)
)
……)
….)
Signature of witness)
) ……
……) …...
….) By executing this agreement the
Name of witness (block) attorney states that the attorney has
letters)) received no notice of revocation of
……. the power of attorney
….
Address of witness
……
….
Occupation of witness

Address for notices

[***insert address***]

BANK GUARANTEE FOR ADVANCE PAYMENT

(Deleted)

SCHEDULE 7 - SCHEDULE OF PROGRAMME

(A) Approved Preliminary Programme

(B) Milestone Dates

(C) Contract Programme Requirements

(A) **Approved Preliminary Programme**

The Approved Preliminary Programme is attached to this Schedule and set out immediately after this page.

(B) **Milestone Dates**

The Contractor must complete the following Milestones by the corresponding Milestone

Dates:

Sl. No.	Milestone	Milestone Date
1	(insert a detailed description of the Milestone) (for example: The supply, construction, commissioning, testing	(insert date)
2	(insert a detailed description of the Milestone)	(insert date)
3	(insert a detailed description of the Milestone)	(insert date)
4	(insert a detailed description of the Milestone)	(insert date)
5	(insert a detailed description of the Milestone)	(insert date)

If no Milestones are listed above, then no Milestones apply and the Contractor must still complete the whole of the Works by the Time for Completion.

(C). Contract Programme Requirements [*this section is to set out the programme* r*equirements consistent with the general conditions. An example is provided below - amend as required:*]

Within 21 days after the Date of the Contract, the Contractor must submit to the Employer's Representative a draft Contract Programme incorporating all timing requirements of the Contract, in accordance with Sub-Clause 8.3 of the General Conditions. Upon approval and certification by the Employer's Representative, the draft Contract Programme, or resubmission thereof, will become the Contract Programme.

The draft Contract Programme must be in such form and detail as the Employer's Representative requires and shall contain as a minimum:

1. the order in which the Contractor proposes to carry out the Works;
2. the time limits within which submission of any Contractor's Documents are required under the Contract; and

The Contract Programme must be prepared in sufficient detail to ensure the adequate planning, execution and monitoring of the Works. The networked activities must be detailed enough to provide a meaningful measurement tool for progress of works. For this purpose, with the exception of approval cycles and the procurement of material, no activity can have a duration of more than 28 days.

The Contract Programme shall be resource loaded and include material, plant and labour. The labour resource assignment shall be further broken down to clearly identify types (trade and/or discipline) and number of resources allocated to an activity.

The Contract Programme must include a detailed CPM logic linked network with activity durations and resource allocations. Negative lags and/or SF (start – finish) relationships are not to be used in developing the Contract Programme.

The Contract Programme will be prepared in electronic format using a recognised computer programme or as otherwise directed by the Employer's Representative.

The Contract Programme will be coded as such to identify the work packages within the scope of work and each ID will be in a format approved by the Employer's Representative. Additionally, the Contract Programme will also identify the life-cycle phases of the work to be carried out i.e. Design, Procurement, Construction, Commissioning & Handover.

The Contract Programme must be accompanied by and/or detail:

1. a programme narrative that describes the inclusions and assumptions made in preparing the Contract Programme;
2. a general description of the arrangements and methods which the Contractor proposes to adopt for carrying out the Works;
3. the critical path for the Works and a complete critical path analysis for the execution of the Works which must show clearly the links between

activities and the float times available within the Contract Programme and the earliest start/earliest finish and latest start/latest finish times for each and every activity;

4. Details, and durations on Site, of the resources proposed to achieve the Contract Programme;
5. A manpower (resource) histogram detailing cumulative and monthly volumes by trade for the duration of the Works;
6. A detailed cash flow estimate, in quarterly periods, of all payments to which the Contractor may be entitled under the Contract;
7. An overall planned performance monetary s-curve based upon the approved Contract Programme; and
8. A schedule of all submittals and material procurement activities, including time for submittals, re-submittals and reviews and time for any fabrication and delivery of manufactured products and samples. The interdependence of design procurement and construction activities must be included in this schedule.

SUBMISSIONS

All programme submissions by the Contractor are to include:

1. 3 coloured hard copies, plus
2. 1 full copy in native electronic format on CD.

CALENDARS

All programmes shall be developed using appropriate calendars that reflect the intended method of working, public holidays, etc. The standard calendars to be used are:

1. Calendar 1 – Eight (8) hour day, Five (5) day work week, Saturday and Sunday non-working days and include public holidays. The start day for the calendar is Sunday. This calendar should generally be applied to all non-construction activities related to design, procurement, government and/or other approvals, etc.
2. Calendar 2 – Ten (10) hour day, Six (6) day work week, Sunday non-working day and include public holidays. The start day for the calendar is Saturday. This calendar will be applied to a majority of construction activities.

All other non- standard calendars that need to be used to reflect the intended method of work are to be identified and highlighted in any programme submission and will be subject to the Employer's Representative's approval.

SCHEDULE 8 - SCHEDULE OF KEY PERSONNEL

The Contractor's Key Personnel for the Project are:

Sl. No.	Position Description	Name
1	[*insert position description*] [*for example: Safety Manager, Quality control Manager, Environmental Manager, Site Manager, Site Foreman.*]	[*insert name*]
2	[*insert position description*]	[*insert name*]
3	[*insert position description*]	[*insert name*]
4	[*insert position description*]	[*insert name*]
5	[*insert position description*]	[*insert name*]
6	[*insert position description*]	[*insert name*]
7	[*insert position description*]	[*insert name*]
8	[*insert position description*]	[*insert name*]
9	[*insert position description*]	[*insert name*]
10	[*insert position description*]	[*insert name*]

If there is a position stated in this Schedule but no person is named in that particular role, then the Contractor shall obtain the Employer's Representative's approval before appointing a person to fill that role.

Schedule 13 - SCHEDULE OF FORMS OF CERTIFICATES

(A) Form of Interim Payment Certificate

(B) Form of Final Payment Certificate

(C) Form of Taking Over Certificate

(D) Form of Final Completion Certificate

(E) Form of Discharge

(A) FORM OF INTERIM PAYMENT CERTIFICATE

[ON SAMS LETTERHEAD]

[***insert Date***]

Contractor's Representative

[***Address***]

INTERIM PAYMENT CERTIFICATE

Dear [***insert***]

[***insert works title***] **Construction Contract ("Contract")**

[***insert name of the project***]

This Interim Payment Certificate is issued pursuant to Clause 11.4 of the Contract.

Date of Statement applying for an Interim Payment Certificate:

Total amount claimed in the Statement: INR

Value of the Works executed (measured in accordance with the Schedule of Contract Price) and the Contractor's Documents produced up to the end of the month; INR

The achievement of the Milestones (if any) set out in the Schedule of Contract Price in the amounts specified therein; INR

Amount to be deducted for retention, calculated by applying the percentage of retention stated in the Details to the total of the above amounts until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Details; INR

Amounts to be deducted for advance payment and repayments in accordance with Sub-Clause 11.3 [Advance Payments]; INR

Amount to be deducted for all prior payments made be the Employer to the Contractor. INR

Any other addition or deductions which may have become due under the Contract or otherwise, including those under Clause 15 (Claims, Disputes and Arbitration) INR

Yours sincerely

.....

[insert]

Employer's Representative

(B) FORM OF FINAL PAYMENT CERTIFICATE

[ON SAMS LETTERHEAD]

[***insert Date***]

Contractor's Representative
[***Address***]

FINAL PAYMENT CERTIFICATE

Dear [***insert***]

insert works title] **Construction Contract ("Contract")**

[***insert name of the development***]

This Final Payment Certificate is issued pursuant to Clause 11.7 of the Contract.

Date of Final Statement applying for a Final Payment Certificate:

Total amount claimed in the Final Statement: INR

Value of all work done in accordance with Contract: INR

Any additional amount that the Contractor is entitled to under the Contract: INR

Amount to be deducted for all prior payments made by the Employer to the Contractor: INR

Total of the amount due for payment to [the Contractor by the Employer][the Employer by the Contractor]: INR

Yours sincerely

.....

[***insert***]

Employer's Representative

(C) FORM OF TAKING-OVER CERTIFICATE

[ON SAMS LETTERHEAD]

[***insert Date***]

Contractor's Representative

[***Address***]

TAKING-OVER CERTIFICATE

Dear [***insert***]

[***insert works title***] **Construction Contract ("Contract")**

[***insert name of the development***]

We refer to Clause 8.2 of the Contract.

We advise you that on [***insert date***] the Works, or a Section or part of the Works as specified below, were completed to a stage ready to be Taken Over by the Employer in accordance with the Contract.

The works to which this Taking-Over Certificate relates are:	

By signing this Taking-Over Certificate, the Employer acknowledges and accepts that the Works, or the Section or part of the Works specified above, were completed, including the matters described in Clause 7 [*Time for Completion*], and Taken Over by the Employer in accordance with the Contract on [***insert date***].

This Taking-Over Certificate is executed by an official representative duly authorised to bind the Employer.

This Taking-Over Certificate does not relieve you from any of your unperformed or continuing warranties, obligations or liabilities under or in connection with the Contract or at law, including the remedying of all defects.

Yours sincerely

.....

[***insert***]

Employer's Representative

(D) FORM OF FINAL COMPLETION CERTIFICATE

[ON SAMS LETTERHEAD]

[***insert Date***]

Contractor's Representative

[***Address***]

FINAL COMPLETION CERTIFICATE

Dear [***insert***]

[***insert works title***] **Construction Contract ("Contract")**

[***insert name of the development***]

We refer to Sub-Clause 9.3 of the Contract.

We advise that on [***insert date***] you have completed your obligations under the Contract to a stage ready for the Final Completion Certificate to be issued by the Employer in accordance with the Contract.

By signing this Final Completion Certificate, the Employer acknowledges and accepts that your obligations under the Contract have been completed to a stage ready for the Final Completion Certificate to be issued by the Employer and the last Defect Notification Period has expired.

This Final Completion Certificate is executed by an official representative duly authorised to bind the Employer.

This Final Completion Certificate does not relieve you from any of its unperformed or continuing warranties, obligations or liabilities under or in connection with the Contract or at law.

Yours sincerely

.....

[***insert***]

Employer's Representative

SCHEDULE 15 - SCHEDULE OF PERMITTED SUBCONTRACTORS

Subcontract Works	Permitted Subcontractors
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]

For all other subcontract works not listed above, the Contractor must obtain the Employer's prior written consent before engaging a subcontractor to execute such parts of the Works.

If no subcontractors are listed above, then no Permitted Subcontractors apply and the Contractor must obtain the Employer's prior written consent before subcontracting any part of the Works.

SCHEDULE 16 - SCHEDULE OF NOMINATED SUBCONTRACTORS

Subcontract Works	Nominated Subcontractors
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]
[*insert description*]	[*insert*]

For all other subcontract works not listed above or in Schedule 15, the Contractor must obtain the Employer's prior written consent before engaging a subcontractor to execute such parts of the Works.

The Employer reserves the right to nominate additional subcontractors for certain works in accordance with the General Conditions.