सत्यमेव जयते
Government of Gujarat

Department of Science and Technology

Government of Gujarat

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Government of Gujarat

Volume II

CONTRACT
OF
Supply, Installation, Testing & Commissioning of Laboratory Infrastructure at Gujarat Biotechnology University, Gandhinagar

Gujarat Biotechnology University
GIFT Urban Extension Area, GIFT city road
Gandhinagar- 38235

Brief of the Project:-

The Gujarat Biotechnology University, to be made a world class research-focused academic institution, will nurtured and prepare biotech scientists in product-focused research to create and deliver a strong pipeline of innovative products for the country.

The University will have world-class infrastructure, an intellectual property base and skill sets for education, training, research, product development and technology commercialisation in biotechnology and allied sciences.

The project involves the installation of furniture in four rooms currently functioning as classrooms. The goal is to upgrade these rooms to enhance their functionality, comfort, and aesthetics, aligning with the institution's standards and ensuring they meet the specific needs of the educational environment.

CONTRACT AGREEMENT

This agreement (hereinafter referred to as the "**Contract**") is made at [●], on this the [●] day, of [●], [*insert year*]:

Gujarat Biotechnology University, an University was incorporated under the Gujarat Biotechnology University Act, of the State Government 'as a teaching and affiliating University.' and is subject to all the laws, statutes, rules, regulation and any other state or center directives from time to time that shall, if need be, ONLY as per the interpretation of Registrar, Gujarat Biotechnology University c/o GSBTM, supersede any/all conditions of this Agreement.

Hence forth to be referred to as "Client" or "GBU" or "Gujarat Biotechnology University" or "University" or "Authority"

And,

M/s [……], {company, incorporated under the Companies Act, 1956/2013 (hereinafter referred to as the "**Contractor**" which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns and substitutes) of the **OTHER PART**

M/s.
PAN Card No:
Address:

The Contract is put in place for the specific and limited purpose of Construction of Green House With Fan and Pad as as per the tender ID no: _____ and all its binding and operative parts that was duly participated in by the Contractor and is awarded the contract.
It is a non-transferable Contract.

CONDITIONS OF CONTRACT

1. Definitions:

- The "Contract" means documents forming the tender, all the documents therein and acceptance thereof, together with the letter of intent, work order, schedule of terms and conditions, specifications, drawings, communications, instructions and any other directives issued by the competent authority to the appointed contractor.
- The "Tender Document" means the form of tender, the applicable schedules and/or additional conditions and the specifications and/or drawings as issued to the contractors for the purpose of bidding.
- The expression "works" or "work" when used in the conditions of contract shall, unless there be something in the subject or context repugnant to such construction means, the works or the work contracted to be executed under or in virtue of the contract whether original or altered.
- The "Contractor" means the individual or firm or company, whether incorporated or not, undertaking the works and shall include his or its legal personal representative, successors and permitted assignees.
- "GUJARAT BIOTECHNOLOGY UNIVERSITY" means the Gujarat Biotechnology University, GANDHINAGAR. and the "Accepting Officer" means the officer who is authorized to sign and signs the contract on behalf of the "GUJARAT BIOTECHNOLOGY UNIVERSITY."
- Tender Inviting Authority who administers and in the case of the term contracts directs the contract.
- The "Engineer-in-charge / Person deligated by Authority" means all officers of the GUJARAT BIOTECHNOLOGY UNIVERSITY appointed by the EIC to supervise the works or part of the works.
- The "Consultant" means designing, supervision agency appointed by Gujarat Biotechnology University.
- "B.S." means the "British Standard" as issued by the British Standards institution. "A.S." means the American Standards as issued by the American Standard Institutions and "I.S." means the "Indian Standards" as issued by the Indian Standards Institutions. Wherever the above mentioned abbreviations are preferred to, in the specifications and / or work orders, they mean the addition with all amendments current at the date of issue of tender documents of work orders. In the case of measurement and terms of contracts "Specifications" means those contained in Gujarat Biotechnology University, GANDHINAGAR schedule together with any amendments etc. embodied in the tender documents, "Drawings" refer to those accompanying the tender documents and/or any work orders referred therein.
- The "Contract Sum" means the sum accepted or the sum calculated in accordance with the prices accepted in the tender and/or the contract rate as payable to the contractor for the full and entire executing and completion of works.
- "The date of completion" is the date or dates of completion of the work or any part of the works set out or ascertained in accordance with the individual work orders and the tender documents or any subsequent agreed amendments there to.

2. Subject to and in accordance with the provisions of this Contract, the applicable Laws, Good Industry Practice, the Authority hereby grants to the Service Provider, and the Contractor hereby accepts the exclusive right and authority to provide the works during the subsistence of this Contract for a period

of 2 Months (the "**Term**"), unless an early termination occurs in accordance with this Contract. The Contract period shall be commencing from the date of signing of this Contract.

Term of Contract:-

- Supply and Installation Period – 10 Weeks
- Defect Liability of the project – 1 Yr after completion

Compensation for the delay: The time limit allowed for carrying out the work as entered in the tender shall strictly observed by the contractor and shall be reckoned from the date on which the order to commerce the work is given to the contractor pursuant to signing of this Contract. The work throughout the stipulated period of Contract proceeds with due diligence (time being deemed to be essence of contract) and for delay, deduction of 0.1% of contact value per day of delay subject to maximum of 10 % of the contract value from running bills. If the Contractor has not shown any intention to complete the work as per schedule after bidder has been informed of Liquidity Damage deduction. Authority may at its discretion terminate the contract and hand it over to suitable agency at risk and cost of the Contractor.

3. **Notice for unsatisfactory progress:** If the progress or a particular portion of the work is unsatisfactory the Engineer-in-charge / Person deligated by Authority whose decision shall be final, shall not withstanding that the general progress of work is satisfactory; be entitled to take after giving the contractor 10 days' notice in writing and the contractor will have no claim for compensation for any loss sustained by him owing to such actions.

4. **Priority of Documents**

   This Contract, and all other agreements and documents forming part of or referred to in this Contract are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Contract, the priority of this Contract and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:

   (a) the Contract; and
   (b) all other agreements and documents forming part hereof or referred to herein.

   i.e, the Contract at (a) above shall prevail over the agreements and documents at (b) above.

5. **Action in the case of Default by Contractor** Even after notice, default by the contractor for showing the progress at site or procurement Authority is free to terminate the contract which not allowing bidder from his liability to pay compensation amounting to the whole of his Performance Security and liability of the contractor for past and future compensation shall remain unaffected in the event of the Engineer-in-charge / Person deligated by Authority taking action for taking possessions of all or any tools, plants, materials, and stores in such upon the work or the site thereof belonging to the contractor, or procured by him and intended to be used for the execution of the work of any part thereof paying for allowing for the same in account at the contract rates, or in the case of a contract rates not being applicable to current market rates to be certified by the Engineer-in-charge / Person deligated by Authority whose certificate thereof shall be final. In the alternative, the Engineer-in-charge / Person deligated by Authority may by notice in writing to the contractor or his clerk of works,

foremen or other authorized agent, require him to remove such tools, plants, materials or stores from the premises within a time to be specified in such requisition to decisions to the contractor failing to comply with any such requisition, the decision of the Engineer-in-charge / Person deligated by Authority as to the expenses of any such removal and the amount of the proceed and expense of any such sale, be final and conclusive against the contractor.

6. **Extension of Time Limit:** If the contractor shall desire an extension of the time limit for completion of the work on the ground of his having been unavoidably hinder in its execution or on any other ground, he shall apply in writing before 4 weeks of due date of completion of project to the Engineer-in-charge / Person deligated by Authority and the Engineer-in-charge / Person deligated by Authority may, if in his opinion there are reasonable grounds for granting extension, recommend such extension as he may think necessary or proper. The decision of the competent authority in this regard shall be final and binding to the contractor. Any delay attributed to GUJARAT BIOTECHNOLOGY UNIVERSITY shall be compensated only by way of extending the limit.
7. **Payment to Contractors:**
   Terms of payments for Domestic Goods:
   1. 75% of the total payment shall be Released on submission of proof of delivery of complete item at GBU, inspection report and
   2. 20% on certification of satisfactory installation of the item at the consignee's premises.
   3. 5% of the payment shall be released upon the satisfactory handing over & commissioning.

8. **Retention Money Security: In** addition to performance security for the due fulfilment of the performance under the Contract by the contractor, 5% of the value of the work done shall be deducted from each RA Bill (As Per Payment Terms) by the Authority towards retention money security (Retention money Security). On the PMC issuing a certificate of the completion of the work the 5% retention money Security will be released at the end of contract period and final certification by Engineer-in-charge, Gujarat Biotechnology University.

9. Bills shall be submitted by the contractor end of the work/ month on or before the date fixed by the Engineer-in–charge in original copies as required.

10. Works to be executed in accordance with specifications, orders etc. The contractor shall execute in whole and every part of work in the most substantial and workman-like manner and both as regarding materials and in every other respect in strict accordance with the specification. The Contractor also shall confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer-in-charge / Person deligated by Authority and lodged in his office and to which the contractor shall be entitled to have access for the purpose of Inspection at such office, or in the site of the work, during office hours and the contractor shall, also if he so requires, be entitled at his own expenses to make or cause to be made copies of the specification, and of all such designs.

11. **Extension of Time Limit in consequence of Addition or Alteration**
    The time limit for the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work and the certificate of the Engineer-in-charge / Person deligated by Authority as to such proportions shall be conclusive.

12. No compensation for alternation in or restriction of work to be carried out. If at any time, after execution of the contract documents the Engineer-in-charge / Person deligated by Authority shall, for any reason whatsoever, require the whole or any part of the work, as specified in the tender, to be stopped for any period or shall not require the whole or part of the work to be carried out at all or to be carried out by the contractor, he shall give notice in writing of the fact to the contractor who shall thereupon suspend or stop the work totally or partially as the case may be in any such case, except as provided here under the contractor shall have no claim to any payment or compensation what so ever on account of any profit or advantage which he might have derived from the execution, of the work in full but which he did not so derive in consequence of the full amount of work not having been carried out or on account of any loss that he may be put to on account of materials purchased or agree to be purchased or for unemployment of labour recruited by him. He shall not also have any; claim for compensation by reason of any alterations having been made in the original specification, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated. Where however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him of said notice, the Engineer-in-charge / Person deligated by Authority provided they are not in excess or requirement and are of approved quality and /or shall be compensated for the loss, if any, that he may put to in respect of materials agreed to be purchased by him. The amount of such compensation to be determined by the Engineer-in-charge / Person deligated by Authority whose decision shall be final. If the contractor suffers any loss on account of his having to pay, his labour charges during the period, during which the stoppage of work has been ordered under this clause the contractor shall on application be entitled to such compensation on account of labour charges as the Engineer-in-charge / Person deligated by Authority whose decision shall be final, may consider reasonable provided that the contractor shall not be entitled to any compensation on account of labour charges if, in the opinion of the EIC, the labour could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.

13. **No Claim for Variation in Quantities of Work**: Quantities shown in the tender are approximate and no claim shall be entertained for quantities of work. Payment will be made as the actual quantity executed and certified by EIC.at site, being either more or less up to any extent than those entered in the tender or less than those entered in the tender or estimate. Will be not the case for any claim in this regard.

14. **No Claim for Compensation for Delay in staring work**: No compensation shall be allowed for any delay caused into starting of work on account of acquisition of land and in the case of clearance for works or any delay in according sanction to estimates.

15. **Entering upon or commencing any portion of work**: The contractor shall not enter upon or commence any portion of work except with the written authority or instructions of the Engineer-in-charge / Person deligated by Authority or his subordinate in charge of the work, failing such the contractor shall have no claim to ask for measurement or payment for work.

16. Method of Payment to contractors shall be made by A/c payee cheques & RTGS.

17. **Acceptance of conditions on tendering for work:**

Submission to tender or acceptance of work order shall imply acceptance of these conditions of tender by contractor.

18. Termination

17.1 Contractor Default

Save as otherwise provided in this Contract, in the event that any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 30 days, the Contractor shall be deemed to be in default of this Contract (a "**Contractor Default**"), unless the default has occurred solely as a result of any breach of this Contract.

a. the Performance Security has been encashed and appropriated and the Contractor fails to replenish or provide fresh Performance Security within a Cure Period of 15 days;
b. subsequent to the replenishment or furnishing of fresh Performance Security, the Contractor fails to cure, within a Cure Period of 15 days, the Contractor Default for which whole or part of the Performance Security was initially appropriated;
c. the Contractor is in material breach of its obligations and / or Scope of Project as laid down in this Contract;
d. In case the Contractor abandons or manifests intention to abandon the Contract, without the prior written consent of the Authority;
e. the Contractor is adjudged bankrupt or insolvent;
f. the Contractor has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the Authority, a Material Adverse Effect;
g. any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be materially false or the Contractor is at any time hereafter found to be in breach thereof;
h. the Contractor has failed to fulfil any obligation, for which failure termination has been specified in this Contract;
i. the Contractor repudiates this Contract or otherwise takes any action or evidences or conveys an intention not to be bound by the Contract;
j. if the Contractor, in the judgment of the Authority has engaged in corrupt or fraudulent practices in competing for or in executing the Contract;
k. if, as the result of Force Majeure, the Contractor is unable to perform a material portion of the Contract for a period of not less than thirty (30) days;
l. if the Authority, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;
m. if the Contractor fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 19 hereof.

17.2 Without prejudice to any other rights or remedies which the Authority may have under this Contract, upon occurrence of a Contractor Default, the Authority shall be entitled to terminate this Contract by issuing a termination notice in writing to the Contractor; provided that before issuing the termination notice, the Authority shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Contractor to make a representation,

and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

17.3 Termination Payment:

a. Upon Termination on account of a Contractor Default during the Term, the Authority shall be entitled to terminate this Contract and forfeit the Performance Security of the Contractor. In such event, the Contractor shall only be entitled to unpaid payment on proportionate basis for the works performed in accordance with the Contract prior to Termination Date after deducting any outstanding amount due and payable by the Contractor to the Authority under the provisions of this Contract. The Authority shall not make any other payment.

b. Upon Termination on account of Authority default, the Authority shall return the Performance Security to the Contractor and shall pay the unpaid payment for the works on proportionate basis for the works undertaken in accordance with the Contract and term hereof prior to Termination Date after deducting any outstanding amount due and payable by the Contractor to the Authority under the provisions of this Contract.

c. For avoidance of doubt, the Termination under this Clause shall be without prejudice to the completion of the works wholly or partially outstanding at the date of such termination.

19. Force Majeure

"Force Majeure" or **"Force Majeure Event"** means the occurrence of any event which (i) is beyond the reasonable control of the Contractor, and (ii) the Contractor could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has material adverse effect on the Contractor, such that it affects the performance by the Contractor of its obligations under this Contract. Such events may include, but are not limited to, wars or revolutions, fires, epidemics, act of God, natural calamities, quarantine restrictions, strikes/ boycotts, Expropriation or compulsory acquisition in national interest of any rights of the Contractor and unlawful revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit etc. which is required by the Contractor to perform its obligations under this Contract.

Upon the occurrence of a Force Majeure Event, the Contractor shall forthwith notify the Authority within 48 hours after it knew, or when it ought to have reasonably known, of its occurrence and shall provide the requisite information sought by the Authority from time to time regarding it. The Contractor shall not be liable for any delay or failure in performance of its obligations under the Contract which is the result of an event of Force Majeure. If a Force Majeure Event subsists for a period of 180 days or more within a continuous period of 365 days, the Authority may in its discretion terminate this Contract by issuing a termination notice to the Contractor without being liable in any manner whatsoever. No payment shall be due and payable by the Contractor to the Authority in case of termination of this Contract due to any Force Majeure Event; provided however that the Authority shall return the Performance Security to the Contractor within 30 days of such force majeure termination and shall pay any outstanding payment for the works undertaken by it till date

of termination due to Force Majeure Event after deducting any outstanding amount due and payable by the Contractor to the Authority under the provisions of this Contract.

The termination payments payable in case of occurrence of Force Majeure is as follows:

If Termination is on account of any of the Force Majeure Events, the Authority shall return the Performance Security to the Service Provider. The Service Provider shall only be entitled to payment of unpaid and due O&M Fee on proportionate basis for the Services rendered in accordance with term hereof prior to Termination Date. The Service Provider shall take appropriate Insurance Cover for hedging risks associated with the events of Force Majeure.

20. Dispute Resolution

20.1 Amicable Settlement

20.1.1 The Parties agree that early resolution of disputes is crucial for a smooth execution of the Contract. The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation;

20.1.2 Any dispute between the Parties as to matters arising under or out of or in relation to this Contract (including its interpretation) between the Parties that cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in Clause 20.2 below.

20.2 Disputes shall be settled by arbitration in accordance with the following provisions:

20.2.1 If the Contractor is of the view that a decision by the Authority's representative is inconsistent with the terms of the Contract, The Contractor shall refer such issue to the Engineer-in-Charge within 14 (fourteen) days from the date of occurrence of such.
If the issue is not resolved, either Party may refer the matter for conciliation within 15 (fifteen) days from the date of decision by the Engineer-in-Charge. If the Parties fail to resolve the issue via conciliation, the Parties shall refer such dispute to Building Works Committee, GBU.
If the dispute is not resolved through conciliation, either Party may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal.
The reference to arbitration proceeding under this clause shall not:

a) affect the right of both the parties under the contract to take possession of all or any tools plants materials and stores in or upon the works of site thereof belonging to the Contractor or procured by him and intended to be used for the execution of the work or any part thereof.
b) Preclude the Authority from utilizing the materials purchased by the Contractor in any work or from removing such materials to other places, during the period the work is stopped or suspended in pursuance of notice given to the Contractor.

c) Entitle the Contractor to stop the progress of the work or the carrying out the additional or altered work in accordance with the provisions of Contract.

21. Performance Security

20.1The Contractor shall as security for the due and faithful performance and discharge obligations relating to works set out in terms of this Contract, procure and furnish to the Authority a Performance Security, in the form of a bank guarantee from a scheduled commercial bank in India acceptable to the Authority for an amount equivalent to Rs._____/- (Rupees _____). The Contractor shall provide such Performance Security within 5 days (ten days) from the signing of this Agreement. Such Performance Security shall be in the form set forth in Annexure-A hereto. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security pursuant hereto, the Authority shall release the Bid Security to the Contractor. No interest shall be payable by the Authority against the Performance Security;

20.2 Upon occurrence of a Contractor Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate from the Performance Security the amounts due to it for and in respect of such Contractor Default. Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 15 (fifteen) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security by the Authority, provide a fresh Performance Security, as the case may be, failing which the Authority shall be entitled to terminate this Contract in accordance with Clause 18.1. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 days for remedying the Contractor Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security as Liquidated Damages, and to terminate this Contract in accordance with Clause 18.

The Performance Security shall remain in force and effect for the entire Term, subject to Clause 22.1 above, the Performance Security shall be released within 3 months after completion of project. In case the Contractor does not adhere to the terms and conditions of the warranty during the Warranty Period upon Expiry Date the Performance Security will be liable to be forfeited by the Authority. "**Expiry Date**" shall mean the date falling on the last date of the Term, or the earlier termination of this Contract.

22. Condition Precedent

The Contractor shall fulfil its Conditions Precedent obligations as per terms hereof within 5 days of date of execution of this Contract or any extension thereof in accordance with terms hereof. The Contractor shall make all reasonable endeavours to satisfy the Conditions Precedent within the time stipulated.

22.1 Conditions to be fulfilled by the Contractor

Subject to Clause 23.3 below, the Conditions Precedent required to be satisfied by the Contractor within a period of 5 (five) days from the date of execution of this Contract shall be deemed to have been fulfilled when the Contractor shall have provided the Performance Security to the Authority;

22.2 The date on which the Conditions Precedent are satisfied by the Contractor shall be the Appointed Date for commencement of Term for the works to be undertaken under this Contract. Upon satisfaction of the Conditions Precedent by the Contractor, the Authority shall issue a commencement of work order.

22.3 Consequences of Termination due to non-fulfilment of Conditions Precedent

a. In the event of Termination of the Contract by the Authority, on account of non-fulfilment of Conditions Precedent by the Contractor, the Authority shall be entitled to encash the Bid Security (if Performance Security has not been furnished) or encash equivalent amount from Performance Security, as the case may be, and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of this Contract shall be deemed to have been waived by and to have ceased with the concurrence of the Contractor.

23. Counterparts

This Contract may be executed in any number of counterparts, each of which when executed shall constitute a duplicate original.

24. Exclusion of implied warranties etc.

This Contract expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

25. Severability

If for any reason whatever, any provision of this Contract is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Contract or otherwise.

26. No partnership

This Contract shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

27. Entire Contract

This Contract and the Annexures together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or

modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Contract are abrogated and withdrawn.

28. Successors and Assigns

This Contract shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

29. Confidentiality

Except with the prior written consent of the Authority, the Contractor and its personnel shall not at any time communicate to any person or entity any Confidential Information acquired in the course of the performance of the works. "**Confidential Information**" means all documents and other forms of information, including oral and electronics communications, disclosed by a Party or its representatives to the other Party or that Party's representatives in connection with this Contract and expressly or impliedly indicated to be confidential;

30. Indemnity

The Contractor expressly acknowledges and undertakes to fully indemnify the Authority from and against all losses, liabilities, costs, damages and claims arising from the Contractor's failure to comply with its obligations under this Contract including but not limited to any compliance with applicable laws, applicable permits, conditions imposed by the insurance policies affected in accordance herewith.

31. Notices

Any notice direction or communication (including the placing or acceptance of an Order) given hereunder by one party to the other:

a. If sent by post to the last known place of business of the other party shall be deemed to have been served on the date when in the ordinary course of post it would have been delivered to the other party; and
b. If sent by email shall be deemed to have been served at the time and date when the email message is delivered to the email box of the intended recipient, as evidenced by an advice of delivery message automatically returned to the sender by the relevant system and network used for the transmission of such message.

32. Intellectual property rights

Any and all patents, registered designs, unregistered designs, copyright or other intellectual property rights whether or not similar to any of the foregoing in or resulting from any work carried out by the Contractor under or in pursuance of this Contract shall belong exclusively, throughout the world, to the Contractor.

33. Modification and Variation

Any modification or variation of the terms and conditions of this Contract by the Authority for remedying any unforeseen adverse circumstances/events, including any modification or variation of the Scope of work, can only be made by written agreement between the Parties.

34. Relation between the Parties

The Parties unconditionally agree and understand that this Contract is on a principal to principal basis and does not create and shall not be deemed to create any employer-employee or a principal-agent relationship between as between the Authority and the Contractor or its Personnel. The Contractor, subject to this Contract, have complete charge of personnel undertaking the works and shall be fully responsible for the works performed by them or on their behalf hereunder. None of the Parties shall be entitled to, by act, word, or deed or otherwise, make any statement on behalf of the other Party or in any manner bind the other Party or hold out or represent that it is representing or acting as an agent of the other Party.

35. Law Governing the Contract

This Contract and any dispute or claim arising out of or in connection with this Contract or its subject matter, existence, validity, termination, interpretation or enforceability shall be governed by and construed in accordance with the laws of India.

36. Handover of Site:

(a) For the purpose of this Contract, the Authority, in accordance with the terms and conditions set forth herein, shall grant to the Contractor, commencing from the date of this Contract, a right of way to the site ("Site") together with all and singular rights, liberties, privileges, easements to the said Site belonging to or in any way appurtenant thereto or enjoyed therewith, for the duration of the duration of the Contract and, for the purposes permitted under this Contract, and for no other purpose whatsoever. Provided however that the rights being vested herein does not, and shall not be construed as creating any demise, interest or ownership in the Site, whatsoever; and is a mere permission to enter the Site and perform the works envisaged hereunder, subject to and in accordance with terms hereof.

(b) It is expressly agreed that the rights granted hereunder shall terminate automatically and forthwith, without the need for any separate action to be taken by the Authority, upon the termination of this Contract for any reason whatsoever.

(c) The Contractor shall use only such Contract as are allotted to it by the Authority and shall not use the Site for any other purpose except to carry out its obligations as per the terms of this Contract. Further, the Contractor shall not sub-license its rights hereunder or create Encumbrances/charge of any nature whatsoever, save and except as may be expressly set forth in this Contract.

37. Transfer Requirement

Upon expiration of the duration of the Contract or the termination of this Contract, as the case may be, the Contractor shall comply with and conform to the following transfer requirements ("Transfer Requirements"):

a) Transfer the Site, free and clear of all Encumbrances;
b) Deliver forthwith the actual or constructive possession of the Project, free and clear of all Encumbrances,
c) cure defects, if any, and hand back/hand over all the Equipment to the Authority; provided that in the event of termination during the Term all the Equipment shall be handed back to the Authority on 'as is where is' basis;
d) transfer and/or deliver all Applicable Permits relating to the project to the extent required and permissible under Applicable Laws to the Authority;
e) execute such deeds of conveyance, documents and other writings as the Authority may reasonably require for conveying, divesting and assigning all the rights, title and interest of

the Contractor in the Project, including the right to receive outstanding insurance claims to the extent due and payable to the Authority or its nominee; and

f) Comply with all other requirements as may be prescribed or required under Applicable Laws for completing the transfer and assignment of all rights, title and interest of the COntractor in the Project, free from all encumbrances, absolutely unto the Authority.

38. Vesting Certificate:-

- The transfer of all rights, title and interest in the Project shall be deemed to be complete on the date when Authority has paid the Contractor, the remaining payment due under this Contract. In such case, the Authority shall, without unreasonable delay, thereupon issue a certificate ("Vesting Certificate"), which will have the effect of constituting evidence of transfer by the Contractor of all of its rights, title and interest in the Project in the Authority pursuant hereto. It is expressly agreed that any defect in the Transfer Requirements shall not in any manner be construed or interpreted as restricting the exercise of any rights by the Authority or its nominee on, or in respect of, the Project, even if, all the Transfer Requirements have been complied with by the Contractor.
- For the avoidance of doubt, the cost of fulfilling the Transfer Requirements shall be solely borne by the Contractor.

39. Insurance:-

39.1 During the entire Term of the Contract, the Contractor shall independently, obtain following insurance cover to secure Scope of Project under this Contract:

a) at its sole cost and expense, obtain, maintain and keep in full force and effect during the Term of this Contract including but not limited to insurance for Works and Contractor's equipments, against injury to persons including labour, workmen and damage to property, third party insurance etc.;

b) require all its Subcontractors to obtain, maintain and keep in full force and effect throughout the time during which they are engaged to perform any Works required to be performed by it including but not limited to insurance for Works performed by them and Subcontractors equipments, against injury to persons and damage to property, third party insurance etc;

c) obtain, maintain and keep applicable insurance policies in accordance with the Applicable Laws, circulars issued by the Government of Gujarat and Good Industry Practice. For avoidance of doubt all applicable insurances for the Works shall be obtained by the Contractor or in the name of the Contractor; and

d) obtain and keep in force all the necessary insurances required for the operations of the facility (from local statutory bodies) and for its employees/Subcontractors in terms of the Applicable Laws, circulars issued by the Government of Gujarat and Good Industry Practice.

If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Authority shall have the option to either keep in force any such insurances, and pay such premia and recover the costs thereof from the Contractor by invoking its Performance Security and/or deducting the amount paid towards such premia from the Payment due to the Contractor by the Authority, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

39.2 Subject to the provisions of Force Majeure, the Contractor shall, in accordance with the provisions of this Contract, be liable to bear the cost of any loss or damage that does not fall within the scope of this clause 39 or cannot be recovered from the insurers.

39.2A The Contractor shall fully indemnify, hold harmless and defend the Authority from and against any and all losses, damages, costs, charges and/or claims with respect to:

a) the death of or injury to any person; or
b) the loss of or damage to any property,

that may arise out of or in consequence of any breach by the Contractor of this Contract during the execution of the Works or the remedying of any defects therein.

39.3 Proof of Insurance

No later than 15 (fifteen) days from the Effective Date, Contractor shall provide to the Authority all certificates, documents and other proofs evidencing that the insurance which the Contractor is obliged to procure under this Contract have been procured and are in full force and effect.

39.4 Deductibles

Any and all deductibles and all losses or damages in excess of the insured limits in the insurance policies required under this Contract shall be to the account of the Contractor, unless otherwise expressly stated in this Contract.

39.5 Insurance Policy Cancellation

In case of cancellation of any insurance policy required to be carried by this Contract, or the insolvency, bankruptcy or failure of any such insurance company that has issued a policy hereunder, the Contractor shall promptly notify the Authority and obtain new insurance policies in the amounts and coverage required hereby.

39.6 Alteration to the Policy Terms

The Contractor shall not make or agree to any material alteration to the terms of any insurance policies without the prior approval of the Authority.

39.7 Insurance policies not to limit Contractor's liability

The insurance policies required to be maintained by the Contractor shall in no way affect, nor are they intended as a limitation of its obligation under the Contract.

39.8 Failure to obtain insurance

If the Contractor fails to take out and/or maintain in effect the applicable insurances required under this Contract, the Authority may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Contractor under the Contract towards the premium of such insurances, or may otherwise recover such amount as a debt due from the Contractor and the Contract Price shall be adjusted accordingly.

39.9 Loss Payee

The Contractor shall ensure that all such insurance policies obtained for the Project in terms of this Contract shall be endorsed in the name of the Authority, or any other person designated by the Authority, is named as the first loss payee in all insurance contracts effected by the Contractor pursuant to this clause 39.

39.10 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Clause 39 shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder against, inter alia, the Authority, and its assigns, successors,undertakings and their subsidiaries, affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

39.11 Contractor's waiver

The Contractor hereby further releases, assigns and waives any and all rights of subrogation or recovery against, inter alia, the Authority and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers and underwriters, which the Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

SPECIAL CONDITIONS: TECHNICAL

1. Contractor shall be responsible for any accident or damage to road gutter, manholes, dustbins, water closet pipe line etc. or any inconveniency caused by contractor for which the necessary compensation shall be paid by the contractor or recovered from the bill as deem fit by the University.
2. If required the work shall be continued during the extended period without any extra rate and it terms & condition. The time limit of the works shall be considered accordingly.
3. It is the responsibility of the contractor to get the work done satisfactorily by arranging sufficient manpower tool tackles materials etc. as per the requirement. For poor performance of the works, reduced rates shall be paid and necessary action shall be taken as per Corporation's rules.
4. The contractor or his authorized representative shall remain present during working hours and as per requirement.
5. Any description is left out in item the work shall be executed as per the instruction of Engineer-in-charge / Person deligated by Authority.
6. If work is not carried out by the contractor, it will be got done at risk and cost of contractor and amount along with 15% supervision charges will be recovered from the bill.
7. If any dispute arises the booklet of "TENDER AND CONTRACT FOR WORKS' may be referred and it will be treated as part of the contract. Final Call will be taken by Registrar, Gujarat Biotechnology University.
8. Contractor has to carry out the items as per the requirement as and when required and if he fails to carry out the work as required, recovery will be made as per penalty clause.
9. Quantities of each item shown in the tender is approximate and may very up to any extent. Claim shall be entertained for quantities of work, executed being more or less than those entered in the Schedule-B of the Tender.
10. **VARIATION**

a. **Right to vary the Work**

During the Construction Period, the Authority as well as the Contractor shall have a right to seek variation in the Work ("**Variation**") by way of a proposal at any time prior to issuing of the Works Completion Certificate.

Any change in the BOQ, which is not triggered by a change in Scope of Project as defined in shall not constitute Variation

b. Authority's right to vary the Work

(i) The Authority may give a proposal for Variation to the Contractor at any time prior to issuing of the Works Completion Certificate. The Contractor shall execute and be bound by each Variation (as applicable to it) proposed by the Authority unless the Contractor promptly gives notice to the Authority stating (with supporting particulars) that:

(a) it cannot readily execute the Variation, or

(b) the Variation will reduce the safety or suitability of the Project. Upon receiving this notice, the Authority may cancel, confirm or vary the proposal for Variation.

(ii) Once the Contractor agrees and becomes bound by the Variation proposed by the Authority, it shall respond to the Authority in writing as soon as practicable, and submit:

(a) A description of the proposed design of the Variation to be performed and a programme for its execution;

(b) A proposal for any necessary modifications to the Programme Schedule set out in Schedule 4 (Programme Schedule) and to the Construction Period; and

(c) A proposal for adjustment to the Contract Price in terms of the below Clause 11.

(iii) The Authority shall, as soon as practicable after receiving such proposal, respond with approval, disapproval or comments, and the Contractor and the Authority shall mutually agree to the terms and conditions of the Variation, including the change in Works, terms relating to increase in Contract Price (taking into account reasonable profit for the Contractor), the schedule of payments and extension of Construction Period (if applicable). It is clarified that the Contractor shall not execute any services or works forming part of the proposed Variation unless the Parties have agreed to the change in Works, terms relating to increase in Contract Price (taking into account reasonable profit for the Contractor), the schedule of payments and extension of Construction Period (if applicable) resulting from such proposed Variation.

The Authority shall, as soon as practicable after receiving such proposal, respond with approval, disapproval or comments, and the Parties shall mutually agree to the terms and conditions of the Variation. The proposal for Variation by the Contractor shall not be applicable or binding on the Authority unless the Authority expressly agrees to the terms and conditions of such Variation, and the Contractor shall not proceed with any services or works as part of the proposed Variation unless expressly instructed by the Authority in writing.

Upon instructing or approving a Variation, the Contractor and the Authority shall agree and determine adjustments to the Contract Price and the schedule of payments. These adjustments shall include reasonable profit, and shall take account of the Contractor's submissions under paragraph 1 of this Clause, if applicable.

11. For Any extra items Contractor needs to take prior approval in written from Authority to execute the same. For that the contractor will be paid As per Tendered amount - % of above / below of the SOR rates or the Rate analysis/MR finalized/accepted by Gujarat Biotechnology University shall be paid to contractor. No extra claim shall be entertained of such items.

12. Determination of the Contract Price in case of Variation

In the event of the Variation of the Work, the adjustment in the Contract Price shall be determined in the following manner:

(a) If rate for varied item of Work is specified in the Bill of Quantities, the Contractor shall carry out the varied item of Work ("**Varied Work**") at the rate adjusted with the mark- up quoted by the Contractor for any variations.

(b) If the rate for any Varied Work is not specified in the Bill of Quantities, the rate for the such item of the Varied Work shall be derived from the rate for the nearest similar item specified in the Bill of Quantities and the decision of the Authority as to the nearest comparable item shall be final and binding on the Contractor.

(c) If the rates of any Varied Work is not included in the Bill of Quantities, such item of Work shall be carried out as per the Gujarat Government approved schedule of rates applicable for the year in which the tender was received. In the event if item is unavailable therein, Work shall be carried out as per the Delhi Schedule of Rates applicable for the year in which the tender was received.

(d) If the rate for any Varied Work cannot be determined in the manner specified in (a) to (c) above, then the Contractor will be paid at such fair and reasonable rates as worked out by the Authority on the basis of rate analysis and/or material and labour required to

execute the item and allowing 12 percent (twelve percent) towards overhead charges and Contractor's profit.

(e) No extra claim shall be entertained of such items. The decision of the Authority shall be final and binding in this regard.

13. The rate only items shall be considered for tender evaluation and those items shall be operated by Gujarat Biotechnology University as and when required.

14. Scheduling of Work will be done by Contractor, EIC will approve it & Contractor will Work according to that as per the priority given by Engineer-in-charge / Person deligated by Authority.

15. The rate of the tender is firm and no any price escalation shall be paid to the contractor, for the contract period & extended period if any.

16. Looking to the urgency of the particular work. The Engineer-in-charge / Person deligated by Authority will instruct to take up and complete the particular job / work in specified time. Otherwise, to complete the work, Engineer-in-charge / Person deligated by Authority will arrange to execute the same without giving any notice or intimation to get the work executed through any other agency and recovery will be made as per decision of EIC / Person deligated by Authority.

17. The contract shall be deemed to have carefully examined the site. The contractor should be deemed to have fully aware with the local site conditions and also all the terms & conditions scope drawings etc. Attached herewith. The bidders are ADVISE to visit the site, inspect the existing location of executing the work before quoting the rates. No Additional payment will done to start the work.

18. The rates are inclusive of all type of laborers, tools, tackles, equipment's, machineries, removed materials category wise, their protection, preservation, storing, loading, unloading, transporting for all leads lifts & elevations height/depths and inclusive of all risks & all liabilities, providing all safety precautions, Insurance, securities, site cleaning leveling dressing the sites etc. required for completion of the work in all respects.

19. The required licenses, permission of the Govt. authorities to be taken by the contractor in advance at no extra charges.

20. The responsibility and liability of manpower to be engaged for this work will be totally of contractor who has been awarded this contract and he will take away all these manpower in his own establishments on completion of this contract. The GUJARAT BIOTECHNOLOGY UNIVERSITY will not be held any responsible and liable in any way in the matter.

21. The complete responsibility of compliance of health and safety of all the "persons at site" and all issues connected with environmental laws as well as pollution at site is placed on the contractor for which no additional amount shall be paid.

22. There shall be no vicarious liability on Gujarat Biotechnology University or any of its officials or the consultants or PMC agencies for any violation of any HSE provisions provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work. HSE manager and contractor/s shall remain solely and wholly liable for any such violation and its civil or criminal liabilities.

23. The "persons at site" shall include entire workforce as well as outsiders, visitors, by-standers and all other persons who are affected by any activity taking place at site.

24. Contractor shall appoint/nominate a representative from his end who shall be solely held responsible for all HSE related activities. This appointee shall be identified as HSE manager.

25. Contractor shall ensure that HSE manager appointed by him is completely aware of all health, safety & environmental protection procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work being undertaken in the project. It shall be COMPLETE and nontransferable responsibility of the HSE manager to ensure that all HSE procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work are followed.

26. Contractor agrees that he is aware of and is instructed regarding HSE procedures provided for under the Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work and it is his responsibility to follow them to the word. If any violation of any HSE rules, laws, codes or measures is observed, contractor shall be solely responsible for negligence.

27. In case of any activity taken up at site that causes damage or loss the a person or property or causes injury or death of a living being; and the cause of accident is identified or adjudged to be negligence of any HSE procedure or violation of any HSE procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work, contractor and his safety manager shall be held sole responsible for the same.

28. In the case of any event that results in damage or loss the a person or property or causes injuryor death of a living being, contractor shall not be able to seek protection under not-being-informed or instructed regarding HSE procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work, as he has been explicitly and specifically informed to follow all HSE procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for HSE and any other specific HSE parameters related to work from time to time and is made solely responsible to implement them.

29. Apart from general HSE measures, contractor is made aware of the safety to be followed during excavation work, especially the danger of collapse of excavated earth of the excavated pits and is expected to follow all safety procedures provided in Indian Standard Code, National Building Code, Local authority statutory provisions for safety and any other specific safety parameters related to work to safe-guard against such accidents.

30. If contractor or his HSE manager becomes aware of a situation or instruction that can or may lead to a HSE procedure violation, he shall not execute the instruction. He shall make a written representation of the HSE issue and shall execute the work only on receiving a written consent to do so. If written consent is not sought and instruction is executed, contractor shall be solely responsible for the HSE procedure violation.

Read, understood, agreed to and signed by
Authorized representative of Gujarat Biotechnology University

M/s _____

Authorized representative of _____

M/s _____
DATE:
PLACE:

Schedule - A (Scope of work)

Supply, Installation, Testing & Commissioning of Laboratory Infrastructure at Gujarat Biotechnology University, Gandhinagar

The scope of work involves Supply, Installation, Testing & Commissioning of Laboratory Infrastructure at Gujarat Biotechnology University, Gandhinagar as per the Tender terms, SOR & Market Rate items, Tender specifications, relevant IS Codes. The details of the scope to be obtained from the detail item list mentioned in the Bill of Quantities (BOQ) in schedule - B

Bidder must undertake following points in consideration for submitting the tender.

- Scope of work includes Supply, Installation, Testing & Commissioning of Laboratory Infrastructure and successfully handover to Authority. To support this bidder must ensure qualified staff and necessary infrastructure for the same.
- The project involves the installation of furniture in four Laboratory Rooms currently functioning as classrooms. The goal is to upgrade these rooms to enhance their functionality, comfort, and aesthetics, aligning with the institution's standards and ensuring they meet the specific needs of the educational environment.
- Bidder or their authorised representative shall have to attend Authoritys query & be immediate (within 1 day) basis for breakdown of any services/equipment.

Technical Specifications for

Laboratory Furniture & Accessories

Sr. No.	Description	Qty.	Unit
IF _ 03			
1	ISLAND Bench (IB - 1 & 2) Size: L 7255 mm x W 1500 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	10.88	Sqm.
	- 500 mm wide storage module with one drawer one shutter	12.00	Nos
	- Leg space	12.00	Nos
	- Double sided double tier reagent rack with electrical raceway	6.51	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	32.00	Nos
	- MS 25 X 25 X 1.2 mm Sq. Pipe for Granite Support	10.00	Nos
	- Vertical support for leg space	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
2	Wall Bench (WB - 1 & 3) Size: L 1000 mm x W 750 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	0.75	Sqm.
	- 500 mm wide storage module with one drawer one shutter	2.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.00	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
3	Wall Bench (WB - 2) Size: L 1450 mm x W 750 mm x H 900 mm	1.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.09	Sqm.
	- 750 mm wide storage module with one drawer two shutters	1.00	Nos
	- 500 mm wide storage module with one drawer one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.45	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Close Panel in G.I. Construction	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
4	Corner Bench (CB - 1 & 2) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Single piece molded PP sink (L 600 x W 450 x D 315)	1.00	Nos
	- Worktop mounted three way water tap with swan neck spout	1.00	Nos
	- PP Adjustable Pegboard with 46 nos. PP Pegs. (Size: 600 x 600 mm)	1.00	Nos
	- Worktop mounted, double outlet eye wash with SS breaded flexible hose	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- Acrylic Partation Ht-450mm	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos

5	Corner Bench (CB - 3 & 4) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	4.00	Nos
	- Service Pendant	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
IF _ 04			
6	ISLAND Bench (IB - 1 & 2) Size: L 7255 mm x W 1500 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	10.88	Sqm.
	- 500 mm wide storage module with one drawer one shutter	12.00	Nos
	- Leg space	12.00	Nos
	- Double sided double tier reagent rack with electrical raceway	6.51	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	32.00	Nos
	- MS 25 X 25 X 1.2 mm Sq. Pipe for Granite Support	10.00	Nos
	- Vertical support for leg space	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
7	Wall Bench (WB - 1 & 3) Size: L 1000 mm x W 750 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	0.75	Sqm.
	- 500 mm wide storage module with one drawer one shutter	2.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.00	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
8	Wall Bench (WB - 2) Size: L 1450 mm x W 750 mm x H 900 mm	1.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.09	Sqm.
	- 750 mm wide storage module with one drawer two shutters	1.00	Nos
	- 500 mm wide storage module with one drawer one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.45	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Close Panel in G.I. Construction	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
9	Corner Bench (CB - 1 & 2) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Single piece molded PP sink (L 600 x W 450 x D 315)	1.00	Nos
	- Worktop mounted three way water tap with swan neck spout	1.00	Nos
	- PP Adjustable Pegboard with 46 nos. PP Pegs. (Size: 600 x 600 mm)	1.00	Nos
	- Worktop mounted, double outlet eye wash with SS breaded flexible hose	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- Acrylic Partation Ht-450mm	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
10	Corner Bench (CB - 3 & 4) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.

	- Corner storage module with one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	4.00	Nos
	- Service Pendant	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
IF _ 05			
11	ISLAND Bench (IB - 1 & 2) Size: L 7255 mm x W 1500 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	10.88	Sqm.
	- 500 mm wide storage module with one drawer one shutter	12.00	Nos
	- Leg space	12.00	Nos
	- Double sided double tier reagent rack with electrical raceway	6.51	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	32.00	Nos
	- MS 25 X 25 X 1.2 mm Sq. Pipe for Granite Support	10.00	Nos
	- Vertical support for leg space	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
12	Wall Bench (WB - 1 & 3) Size: L 1000 mm x W 750 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	0.75	Sqm.
	- 500 mm wide storage module with one drawer one shutter	2.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.00	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
13	Wall Bench (WB - 2) Size: L 1450 mm x W 750 mm x H 900 mm	1.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.09	Sqm.
	- 750 mm wide storage module with one drawer two shutters	1.00	Nos
	- 500 mm wide storage module with one drawer one shutter	1.00	Nos.
	- Worktop mounted electrical raceway in GI powder coated construction	1.45	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Close Panel in G.I. Construction	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
14	Corner Bench (CB - 1 & 2) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Single piece molded PP sink (L 600 x W 450 x D 315)	1.00	Nos
	- Worktop mounted three way water tap with swan neck spout	1.00	Nos
	- PP Adjustable Pegboard with 46 nos. PP Pegs. (Size: 600 x 600 mm)	1.00	Nos
	- Worktop mounted, double outlet eye wash with SS breaded flexible hose	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- Acrylic Partation Ht-450mm	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
15	Corner Bench (CB - 3 & 4) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.

	- 6/16 Amp electrical sockets and 16 Amp one way switch	4.00	Nos
	- Service Pendant	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
IF _ 06			
16	ISLAND Bench (IB - 1 & 2) Size: L 7255 mm x W 1500 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	10.88	Sqm.
	- 500 mm wide storage module with one drawer one shutter	12.00	Nos
	- Leg space	12.00	Nos
	- Double sided double tier reagent rack with electrical raceway	6.51	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	32.00	Nos
	- MS 25 X 25 X 1.2 mm Sq. Pipe for Granite Support	10.00	Nos
	- Vertical support for leg space	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
17	Wall Bench (WB - 1 & 3) Size: L 1000 mm x W 750 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	0.75	Sqm.
	- 500 mm wide storage module with one drawer one shutter	2.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.00	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
18	Wall Bench (WB - 2) Size: L 1450 mm x W 750 mm x H 900 mm	1.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.09	Sqm.
	- 750 mm wide storage module with one drawer two shutters	1.00	Nos
	- 500 mm wide storage module with one drawer one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	1.45	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	2.00	Nos
	- Close Panel in G.I. Construction	1.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
19	Corner Bench (CB - 1 & 2) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Single piece molded PP sink (L 600 x W 450 x D 315)	1.00	Nos
	- Worktop mounted three way water tap with swan neck spout	1.00	Nos
	- PP Adjustable Pegboard with 46 nos. PP Pegs. (Size: 600 x 600 mm)	1.00	Nos
	- Worktop mounted, double outlet eye wash with SS breaded flexible hose	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- Acrylic Partation Ht-450mm	2.00	Nos
	- Filler Panel in G.I. Construction	2.00	Nos
20	Corner Bench (CB - 3 & 4) Size: L 1030 mm x W 1030 mm x H 900 mm	2.00	Nos
	- Work top in 18 ± 1 mm thick Black Granite construction	1.06	Sqm.
	- Corner storage module with one shutter	1.00	Nos
	- Worktop mounted electrical raceway in GI powder coated construction	2.06	Rmt.
	- 6/16 Amp electrical sockets and 16 Amp one way switch	4.00	Nos
	- Service Pendant	1.00	Nos

	- Filler Panel in G.I. Construction	2.00	Nos
21	Laboratory Chair	120.00	Nos
	- Seat Dia -15" Approx 		
	- With Backrest		
	- With Hydraulic		

LABORATORY FURNITURE & ACCESORIES

- The entire laboratory furniture should be tested as per **SEFA-8M standards** in SEFA approved labs with latest **2016 Guidelines** published by SEFA.

- The laboratory furniture should be modular construction & design made of mainly Skin Passed / Zero Spangle G.I. (Galvanized Iron) duly coated with at least Minimum 50 micron Epoxy Powder coated in panel form and in CKD (Completely Knocked Down) construction so it can be erected at site as per attached layout. The design should have provision for reconfiguration for change in layout using simple tooling and should provide independent access to the utilities installed, electrical panel & instrumentation panel.

- All GI sheet components should be fabricated by precision shearing, levelling, notching, piercing, machines to achieve consolidated dimensions within close tolerances under the strict quality checks and assembled with the aid of fixtures. Exposed welding marks should be polished smooth to improve aesthetic. Corner intersections of vertical and horizontal members should in the same plane with bolted joints and should be suitably aligned.

A. Laboratory work tables with plinth design, is where the worktop is mounted directly on a base of modular plinth mounted cabinets. This type of design provides flexibility in terms of easy change in the configuration of the work table in the future.

❖ Under bench modules for Laboratory work tables:

All modules manufactured by Citizen Industries are manufactured from **IS 277 standards Zero Spangle Galvanized Iron sheets** in a **weldless construction**, to ensure excellent corrosion resistance of the base material itself.

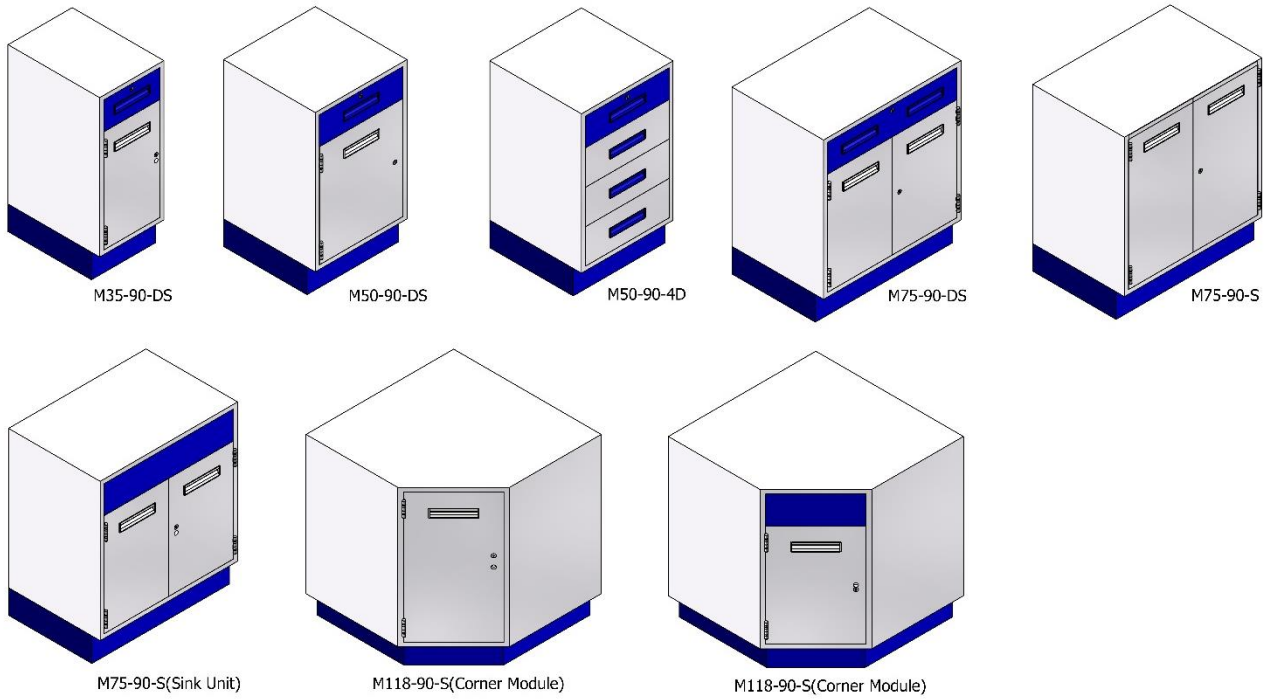
Before assembly, each panel is individually powder coated with Minimum 50 micron thickness using pure epoxy powder. In addition to **SEFA-8M certification**, the coating quality and strength is ensured through 1000-hours salt spray test and other physical tests conducted for each batch.

Fabrication of all panels is carried out using CNC punching and folding machines to ensure perfect accuracy and precision which adds to the overall finish of lab furniture. All shutters and drawer fronts are provided in a double skin construction with buffers to eliminate banging sound.

Citizen furniture modules are certified for latest **SEFA-8M standard** which is a proof of quality and rugged construction. The modules are fabricated in standard and tailor-made designs to meet customer's requirements of dimensions and configuration.

Necessary leg space can be provided between two cabinets wherever required.

Standard Module
Type:- Plinth base Module



❖ Detailed Specifications and thickness of GI items in each module/ under cabinets:

- Cabinet end panels; min. 1.0 mm thick GI Sheet

- Cabinet rear panel and top panel; min. 1.0 mm thick GI sheet

- Cabinet base skid; 1.0 mm thick GI Sheet

- Cabinet drawers; 1.0 mm thick GI Sheet

- Cabinet shutters & drawer front panels; double skin const, min 0.8 mm thick GI sheet

- Cabinet main frame structure and drawer slide rails, 1.6 mm thick GI Sheet

- Knee Space/ Leg Space/ Rear Enclosure/ Close Panel, min. 1.0 mm thick GI sheet

- Cabinet shelf; min. 1.0 mm thick GI sheet

❖ Hinges:

Hinges shall be constructed in SS 304. The type of hinges shall be Knuckle-Barrel type hinges with positive catch arrangement for extra-ordinary strength & full 270 degree opening (exposed type) construction. The fittings of hinges in cabinet body & shutter must not be welded. The cabinet shall be comprise of 3 hinges on one side, if the height of cabinet or under bench unit is more than 1000 mm.

❖ Drawer rails:

Telescopic channel; up to load bearing capacity 45 kg (100 lbs). Welding of drawer rails is not acceptable.

❖ Handles

Aluminium flush type handles with pure epoxy powder coated.

❖ Locks

Lock with two keys for drawers only OR Lock with two keys for drawers and shutters

❖ Worktop

The worktop shall be 18/19 mm thick natural black Granite construction. The front edge shall be half round molding with groove at the bottom side to avoid any spillage.

❖ Sink:

In one piece, molded Sink in Polypropylene (PP) construction. Sink outlet shall be provided with a large bottle trap in PP construction. The size of sink shall be L 600 mm X D 450 mm X H 315 mm with flexible pipe of 1 mtr (approx.)

❖ Three/ One Way Water Taps:

Three way/ One way taps/valves with goosenecks required at the sink tables made of forged brass body with 1/2" BSP male inlet and powder coated. Goosenecks shall have a separate outlet coupling with a female thread securely brazed to the gooseneck for attachment of serrated hose ends, aspirators and other outlet fittings. Rigid goosenecks shall have a male inlet thread and be threaded directly into the faucet body so as to be absolutely rigid. Swing goosenecks shall utilize a TFE packing with an externally adjustable packing nut. Water faucets and valves shall be fully assembled. All taps shall have plastic knob with ISI approved color code.

Construction Detail of 3 Way/ One-way Water Taps:

1. **Raw Material:**

- Brass as per IS: 319 (I) (Machining Grade).

- Brass as per IS: 8737 (Forging Grade).
- Pipe as per IS: 407 (CuZn37).
- Polypropylene Knob.
- All Gasket / 'O' Ring Nitrile Rubber.
- Inlet Connection 1/2" B.S.P.

2. Testing:

- Pneumatic Test at 18 Bars.
- Hydraulic Test at 9 Bars.
- Bursting Test at 36 Bars.
- Working Temperature Range: 0' to 70' Celsius

3. Powder Coating:

- Epoxy Fusion Bond

❖ Peg Board:

'- PP Adjustable Pegboard with 46 nos. PP Pegs. (Size: 600 x 600 mm)

❖ Eye Wash:

Floor standing, overhead emergency shower with eyewash unit, main frame in S.S fabrication.

Worktop mounted, hand held type, single/double outlet eye wash with SS breaded flexible hose.

❖ Electrical Raceways:

Electrical raceways are offered in triangular or rectangular box type design in 1 mm thick GI construction finished with epoxy coating. Internal wiring is carried out using reliable make copper conductors with FRLS insulation. Raceways are mounted on vertical members of reagent racks or on work surface of the table when not provided with reagent rack.

❖ Vertical Service Pendants (Droppers):

Various services such as gas or liquid lines, electrical or data cables are laid through vertical service pendants when such services are to be drawn from overhead lines. The pendants are generally fabricated out of galvanized iron sheets and provided with service covers on one side to access service valves and other fittings. The size of the service droppers depends upon number of services to be drawn through. Electrical Switches / Sockets - Legrand or Equivalent make.

List of recommended make of materials for laboratory furniture

SR. NO.	MATERIAL	RECOMMENDED MAKE
1.	ZERO SPANGLED GALVANIZED IRON (GI) SHEET	TATA STEEL / SAIL / JINDAL MAKE
2.	DRAWER RAILS	HETTICH / HAFELE
3.	LOCKS	HETTICH / HAFELE
4.	LABORATORY FITTINGS	PREMIER POLYMERS
5.	LABORATORY SINKS / DRIP CUPS	PREMIER POLYMERS
6.	LABORATORY ELECTRICAL SOCKET	NORTHWEST / LEGRAND / MK
7.	DATA & VOICE SOCKET	NORTHWEST / LEGRAND / MK
8.	EYEWASH / SHOWER	PREMIER POLYMERS

Schedule - C (Technical Specification Electrical & Make Of Materials)

A. DISTRIBUTION BOARDS:

1.0 SPECIFICATIONS

Distribution boards shall be fabricated from 18-gauge M.S. sheet or shall be readymade as specified in the make of material list. It shall be of double door type with hinged (lockable if required) door suitable for recessed mounting in wall. Distribution boards shall be powder coated with 7-tank process application.

The distribution boards shall be provided with phase barriers, wiring channels to accommodate wires and individual per phase neutral links. There shall be separate or individual earth link as per requirement. Proper arrangement shall be made for mounting of MCB's and other accessories.

Distribution boards shall meet with the requirements of IS 2675 and marking arrangement of bus bars shall be in accordance with I.S. standards.

Bus bars shall be suitable for the incoming switch rating and sized for a temperature rise of 35° C over the ambient. Each board shall have two separate earthing terminals. Circuit diagram indicating the load distribution shall be pasted on the inside of the DB as instructed. One earthing terminal for single phase and two terminals for 3 phase DB's shall be provided with an earth strip connecting the studs and the outgoing ECU earth bar.

The top and the bottom faces of the D.B. shall be provided for conduit entry of minimum 1" dia. The faces if asked shall be kept detachable.

All outgoing feeders shall terminate on a terminal strip which in turn is interconnected to the MCB/Fuse base by means of insulated single conductor copper wires as follows

Up to 15 A	2.5 sq.mm.	40 A	10 sq.mm.
25 A	4.0 sq.mm.	63 A	16 sq.mm.
32 A	6.0 sq.mm.		

Each DB shall have indicating lamps preferably neon type denoting power availability in the board after the switch indicating lamps shall be complete with fuses.

MINIATURE CIRCUIT BREAKERS (MCB):

MCB's shall have quick make and break non-welding self-wiping silver alloy contacts for 10 KA short circuit both on the manual and automatic operation. Each pole of the breaker shall be

provided with inverse time thermal over load and instantaneous over current tripping elements, with trip-free mechanism. In case of multi-pole breakers, the tripping must be on all the poles and operating handle shall be common. Breakers must conform to BS 3871 with facility for locking in OFF position. Pressure clamp terminals for stranded/solid conductor insertion are acceptable up to 4 sq.mm. aluminium or 2.5 sq.mm. copper and for higher ratings, the terminals shall be suitably shrouded. Wherever MCB isolators are specified they are without the tripping elements.

RCCB / ELCB

The RCCB should suffices all the requirements of IS as per code IS - 12640 - 1988. The RCA should be current operated and not on line voltage.

The RCCB should ensure mainly the following functions:

i) Measurement of the fault current value.
ii) Comparison of the fault current with a reference value.
iii) The RCCB should have a torroidal transformer which has the main conductors of primary (P - N) which check the sum of the current close to zero.
iv) All metal parts should be inherently resistant to corrosion and treated to make them corrosion resistant.
v) It should be truly current operated.
vi) It should operate on core balance torroidal transformer.
vii) Its accuracy should be ± 5 %.
viii) It should operate even in case of neutral failure.
ix) It should trip at a present leakage current within 100 mA
x) Its enclosure should be as per IP 30.
xi) Its mechanical operation life should be more than 20,000 operations.
xii) It should provide full protection as envisaged by IE rules - 61-A, 71 - ee, 73 - ee, 1985 and also rule 50 of IE rule1956.
xiii) It should conform to all national and international standards like IS: 8828-1993, IS: 12640-1988, BS 4293 - 1983, CEE 27 (International commission Rules for the approved of electrical equipment).

1.1 WORKMANSHIP

The D.B. shall be properly grouted in the wall in concealed manner taking care that the powder coating is not scratched and dents are not formed on the D.B. The MCBs and ELCBs. In the distribution boards shall be fixed as per the circuit details provided. All the wires terminating in the MCBs and the ELCBs shall be lugged for proper contact and ferrules depicting the circuit nos shall be provided. D.B.s mounted in concealed manner shall have a groove around it so as to save the finish of the plaster and colour during future opening of the door. The distribution boards shall have circuit chart tagged on the door for future maintenance. Danger notice plates shall be fitted to the distribution boards with screws and not stuck so as to assure its presence for a longer duration.

1.2 MODE OF MEASUREMENT

The distribution boards shall be measured in nos and the MCBs and ELCBs shall be measured in numbers separately.

Note:

All material and workmanship have to be as per latest IS / International standards.

B. 1.1 KV GRADE L.T. CABLES AND CABLE TERMINATION:

1.0 SPECIFICATIONS

L. T. XLPE CABLE*:*

GENERAL:

The medium voltage cables shall be supplied, laid, connected, tested and commissioned in accordance with the drawings, specifications, relevant Indian Standards specifications, manufacturer's instructions. The cables shall be delivered at site in the original drums with manufacturer's name, size and type clearly written on the drums.
All cables shall be adequately protected against any risk of mechanical damage to which they may be liable in normal conditions of handling during transportation, loading, unloading etc.
The cable shall be supplied in single length i.e. without any intermediate joint or cut unless specifically approved by the client.
The cable ends shall be suitably sealed against entry of moisture, dust, water etc. with cable compound as per standard practice.

CONDUCTOR:
Uncoated, annealed copper / aluminium, of high conductivity, upto 4 mm^2 size the conductor shall be solid and above 4 mm^2 the conductors shall be concentrically stranded as per IEC: 228.

INSULATION:
Cross link polyethylene (XLPE) extruded insulation rated at 70^oc.

CORE INDENTIFICATION:

Two cores	:	Red and Black
Three cores	:	Red, Yellow and Blue
Four cores	:	Red, Yellow, Blue and Black
Single core	:	Green, Yellow for earthing.

Black shall always be used for neutral.

ASSEMBLY:
Two, three or four insulated conductors shall be laid up, filled with non-hygroscopic material and covered with an additional layer of thermoplastic material.

ARMOUR:
Galvanized steel flat strip / round strips applied helically in single layers complete with covering the assembly of cores.
For cable size upto 10 sq mm : Armour of 1.4 mm dia G.I. round wire
For cable size above 10 sq mm : Armour of 4 mm wide 0.8 mm thick GI strip

SHEATH:

ST -2 PVC along with polypropylene fillers to be provided.
Inner sheath shall be extruded type and shall be compatible with the insulation provided for the cables.
Outer sheath shall be of an extruded type layer of suitable PVC material compatible with the specified ambient temp. of 50°c and operating temperature of cables. The sheath shall be resistant to water, ultra violet radiation, fungus, termite and rodent attacks. The colour of outer sheath shall be black.
Sequential length marking along with size and other standard parameters shall be required at every 1.0 mtr on the outer sheath.

TESTING:
Finished cable tests at manufacturers works: The finished cables shall be tested at manufacturer's works for all the routine tests for all the length and size of cables to be delivered at site and the certificate for the same shall be furnished to client. If required the cables shall be tested in presence of the client's representative.
Voltage test: Each core of cable shall be tested at room temperature at 3 KV A.C. R.M.S. for duration of 5 minutes.
Conductor resistance test: The D.C. resistance of each conductor shall be measured at room temperature and the results shall be corrected to 20°c to check the compliance with the values specified in the Is 8130 – 1976.
Cable tests before and after laying cables at site:
Insulation resistance test between phases, phase to neutral and phase to earth.
Continuity test of all the phases, neutral and earth continuity conductor.
Earth resistance test of all the phases and neutral.
All the tests shall be carried out in accordance with the relevant IS code of practice and Indian Electricity Rules. The bidder shall provide necessary instruments, equipments and labour for conducting the above tests and shall bear all the expenses in connection with such tests. All tests shall be carried out in the presence of client and the results shall be prescribed in forms and submitted.

CABLE MARKING:
The outer sheath shall be legibly embossed at every meter with following legend:

ELECTRIC CABLE: 1100 V, SIZE: ___C X ____ MM^2 with Manufacturers name, year of manufacturing and ISI symbol.

SEALING DRUMMING AND PACKING:

After tests at manufacturer's woks, both ends of the cables shall be sealed to prevent the ingress of moisture during transportation and storage.

Cable shall be supplied in length of 500 mtrs or as required in non-returnable drums of sufficiently sturdy construction.

Cables of more than 250 meters shall also be supplied in non-returnable drums.

The spindle hole shall be minimum 110 mm in diameter.

Each drum shall bear on the outside flange, legibly and indelibly in the Englist literature, a distinguishing number, the manufacturer's name and particulars of the cable i.e. voltage grade, length, conductor size, cable type, insulation type, and gross weight shall also be clearly visible. The direction for rolling shall be indicated by an arrow. The drum flange shall also be marked with manufacturer's name and year of manufacturing etc.

CABLE TERMINATION:

Cable terminations shall be made with aluminium crimped type solder less lugs for all aluminium cables and stud type terminals. For copper cables copper crimped solder less lugs shall be used.
Crimping shall be done with the help of hydraulically operated crimping tool.
For joints where by cable is with aluminium conductor and busbars are aluminium, bimetallic lugs shall be used with compound. CUPAL type of washers shall be used.
Crimping tool shall be used for crimping any size of cable.

CABLE GLANDS*:*

Cable glands shall be of brass single compression type. Generally single compression type cable glands shall be used for indoor protected locations and double compression type shall be used for outdoor locations.

FERRULES:

Ferrules shall be of self-sticking type and shall be employed to designate the various cores of the control cable by the terminal numbers to which the cores are connected, for ease in identification and maintenance.

CABLE JOINTS:

Kit type joint shall be done and filled with insulating compound. The joint should be for 1.1 KV grade insulation.

1.1 WORKMANSHIP

Cables shall be laid in the routes marked in the drawings. Where the route is not marked, the Contractor shall mark it out on the drawings and also on the site and obtain the approval of the CLIENT AND/OR ITS ARCHITECT before laying the cable. Procurement of cables shall be on the basis of actual site measurements and the quantities shown in the schedule of work shall be regarded as a guide only.

Cables shall be laid on walls, cable trays, inside shafts or trenches. Saddling or support for the cable shall not be more than 500 mm apart. Plastic identification tags shall be provided at every 30 m.

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

In the case of cables buried directly in ground, the cable route shall be parallel or perpendicular to roadways, walls etc unless marked on drawing by architect / consultant. Cables shall be laid on an excavated, graded trench, over a sand or soft earth cushion to provide protection against abrasion. Cables shall be protected with brick or cement tiles on all the three sides as shown on drawings. Width of excavated trenches shall be as per drawings. Back fill over buried cables shall be with a minimum earth cover of 750 mm to 1000 mm. The cables shall be provided with cables markers at every 10 meters and at all loop points.

All cables shall be full runs from panel to panel without any joints or splices. Cables shall be identified at end termination indicating the feeder number and the Panel/Distribution board from where it is being laid. Cable termination for conductors up to 4 sq.mm. may be insertion type and all higher sizes shall have compression type lugs. Cable termination shall have necessary brass glands. The end termination shall be insulated with a minimum of six half-lapped layers of PVC tape. Cable armouring shall be earthed at both ends.
In case of cables entering the buildings. It would be done duly only through pipes. The pipes shall be laid in slant position, so that no rainwater may enter the building. After the cables are tested the pipes shall be sealed with M. seal & then tarpaulin, shall be wrapped around the cable for making the entry watertight.

Testing: MV cables shall be tested upon installation with a 500 V Meggar and the following readings established:
Continuity on all phases.
Insulation Resistance.
between conductors.
all conductors and ground.
All test readings shall be recorded and shall form part of the completion documentation.
Cable joints shall be done as per regular practice and check shall be carried out for loose connections and leakages. Insulation cutting shall be done properly taking care that no area of the conductor remains exposed. Crimping shall be done with the help of hydraulic tool. Proper insulation tape shall be applied at the cable and lug joint.

Format for cable testing certificate:

a. Drum no. from which cable is taken :
b. Cable from _____ to _____
c. Length of run of this cable _____ mtr
d. Insulation resistance test
   Between core 1 to earth _____mega-ohm
   Between core 2 to earth _____mega-ohm
   Between core 3 to earth _____mega-ohm
   Between core 1 to core 2 _____mega-ohm
   Between core 2 to core 3 _____mega-ohm
   Between core 1 to core 3 _____mega-ohm
   Duration used:
e. High voltage test: Voltage Duration
   Between core and earth Between individual cores

Note:

All material and workmanship have to be as per latest IS / International standards.

C. INTERNAL WIRING

1.0 SPECIFICATIONS

RIGID PVC AND FLEXIBLE PVC FRLS LHSFT CONDUITS:

All conduits shall be rigid PVC alloy low in halogens pipe having minimum wall thickness of medium gauge 1.6 to 2.0 approved by F.I.A. & I.S.I. and shall confirm to IS 9537 part 3 and complying with fire safety standards classification V-0. The temperature stability shall be from – 20^{o}c - +80^{o}c and also shall be uV stabilized.

Up to 38 mm diameter in slab - minimum 1.8 mm. wall thickness.

Up to 38 mm diameter in floor - minimum 2.0 mm. wall thickness.

Above 40 mm. diameter - minimum 2.2 mm. wall thickness.

Flexible conduits shall be formed from a continuous length of spirally wound interlocked steel strip with a fused zinc coating on both sides. The conduit shall be terminated in brass adapters.

ACCESSORIES:

PVC conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs etc. shall be specifically designed and manufactured for their particular application. All conduit fittings shall conform to IS: 2667-1964 and IS: 3857-1966. All fitting associated with galvanized conduit shall also be galvanized.

WIRES:

All wires shall be single core multi-strand/ flexible copper or single strand Copper (if specified in BOQ), PVC insulated **HFFR** grade as per IS: 694 and shall be 660 V\1100 V.

All wires shall be colour coded as follows:

Phase	**Colour of wire**
R	Red
Y	Yellow
B	Blue
N	Black
Earth	Green (insulated)
Control (If any)	Grey
All off wires	Same as Phase wire

SWITCHES & SOCKETS:

Switches shall be modular type with silver-coated contacts. Sockets shall be 5 pins with switch and plate type cover. Combination of multiple switch units and sockets should be used to minimize the switch boxes.

For heavy duty, metal clad sockets with M.C.B / Isolator mounted in a galvanized steel box shall be provided.

SWITCH PLATE AND BOX:
Plates of the same make, as that of switches shall be used with the modular range. Also M.S. boxes shall be taken as switch boxes.

1.1 WORKMANSHIP

The size of conduit shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be 25 mm diameter unless otherwise indicated or approved. Size of wires shall not be less than 1.0 sq.mm. Copper or 2.5 sq.mm. Aluminium.

Nominal Dia of wires (mm)	Nominal Cross sec. Area (mm^2)	20 mm		25 mm		32 mm		38 mm	
		S	B	S	B	S	B	S	B
1/2.40	1.50	4	3	8	6	15	9	--	--
1/1.80	2.50	4	2	6	4	10	8	--	--
1/2.24	4.00	2	2	4	3	8	6	--	--
1/2.80	6.00	1	--	4	3	6	6	--	--
1/3.55	10.00	1	--	3	2	5	4	6	5

S - runs of conduits which have distance not exceeding 4.25 m. between draw boxes & which do not deflect from the straight by an angle more than 15 degree.

B - runs of conduits, which deflect, from the straight by more than 15°.

Conduits shall be kept at a minimum distance of 100 mm. from the pipes of other non-electrical services. And maintain minimum 300 mm distance between telephones, TV & Computer piping.

Separate conduits/raceways shall be used for:

Normal lights and 5 A 3 pin sockets on lighting circuit.

Separate conduit shall be laid from D.B. to switch board.

Power outlets - 15 A 3 pin 20 A/30 A, 2 pin scraping earth metal clad sockets.

Emergency lighting.

Telephones.

Fire alarm system.

Public address system & Music system.

For all other voltages higher or lower than 230 V.

T.V. Antenna.

Water level guard.

Computer Wiring

Wiring for short extensions to outlets in hung ceiling or to vibrating equipments, motors etc., shall be installed in flexible conduits. Otherwise rigid conduits shall be used. No flexible extension shall exceed 1.25 m.

Conduits run on surfaces shall be supported on metal 12 mm. thick G.I. pressure saddles which in turn are properly screwed to the wall or ceiling. Saddles shall be at intervals of not more than 500 mm. Fixing screws shall be with round or cheese head and of rust-proof materials. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using fabricated mild steel junction/pull through boxes for better appearances. No cross-over of conduits shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance.

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

Conduits buried in concrete structure shall be put in position and securely fastened to the reinforcement and got approved by the CLIENT AND/OR ITS ARCHITECT, before the concrete is poured. Proper care shall be taken to ensure that the conduits are neither dislocated nor choked at the time of pouring the concrete suitable fish wires shall be drawn in all conduits before they are embedded.

Where conduit passes through expansion joints in the building, adequate expansion fittings shall be used to take care of any relative movement.

Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. Inspection boxes shall be spaced at not more than 12 meters apart or two 90° solid bends or equal. All junction and switch boxes shall be covered by 6 mm clear plate. These junction boxes shall form part of point wiring or conduit wiring as the case may be including the cost of removing the cover for painting and re-fixing. No separate charges shall be allowed except where specially mentioned.

Conduits shall be free from sharp edges and burrs and the threading free from grease or oil. The entire system of conduits must be completely installed and rendered electrically continuous before

the conductors are pulled in. Conduits should terminate in junction boxes of not less than 32 mm. deep.

An insulated earth wire of copper rated capacity shall be run in each conduit.

Power Wiring:

All final branch circuits for lighting and appliances shall be single conductor/ stranded/ flexible wires run inside conduits. The conduit shall be properly connected or jointed into sockets, bends, and junction boxes.

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

All circuits shall preferably be kept in a separate conduit up to the Distribution Board. No other wiring shall be bunched in the same conduit except those belonging to the same phase. Each lighting branch circuit shall not have more than ten outlets or 800 watts whichever is lower. Each conduit shall not hold more than three branch circuits.

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

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

Control switches shall be connected in the phase conductors only and shall be `ON' when knob is down. Switches shall be fixed in 3 mm. thick painted or galvanized steel boxes with cover plates as specified. Cadmium plated brass screws shall be used.

Power wiring shall be distinctly separate from lighting wiring. Conduits not less than 25 mm. and wires not less than 2.5 sq.mm. copper shall be used.

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

Testing: the entire installation shall be tested for :

Insulation resistance.

Earth continuity.

Polarity of single pole switches.

General: All the wiring switch board, outlet points shall be done in a concealed manner in wall & slab in PVC conduit of minimum 25 mm dia. (medium gauge) & with 650v / 1100v grade PVC

insulated flexible copper conductor wire. The switches should be modular with moulded cover plates, blank plates for outlet boxes. The accessories, connectors, sockets, should be fixed with brass chrome / cadmium plated machine screw. For fan points the rates should be with hum -free type 300 W regulators as required to complete the point wiring. The wiring shall be as per IS: 732 and IS: 4648. The wiring shall be done in a looping manner so as to avoid junction boxes at any place. All the looping shall be done only in the switchboard and outlet points. The size of the wire shall be as per the specification. Colour code shall be strictly followed.

The size of wires shall as follow :

25-32 Amp. metal clad points:

Phase / Neutral 4.0 mm^2

Earth 2.5.0 m m^2

20 Amp. out let points :

Phase / Neutral 4.0 m m^2

Earth 2.5 m m^2

Two nos. of 15 Amps. socket out let connected in parallel

from DB to first outlet

Phase / Neutral 4.0 m m^2

Earth 2.5 m m^2

from first outlet to second outlet.

Phase / Neutral 2.5 m m^2

Earth 2.5 m m^2

Light, fans, exhaust fan, 5 Amp. On board plug point, two way light points, bell point etc from switch to outlet.

Phase / Neutral 1.5 m m^2

Earth 1.0 m m^2

From D.B. to switch board – lighting / 5 A socket etc – i.e. circuit mains part of point wiring

Phase / Neutral 2.5 m m^2

Earth 1.5 m m^2

15/20 Amps. Socket outlet for AC (Single Phase/Three Phase) / Geyser

Phase / Neutral 2.5 m m^2

Earth 1.5 m m^2

15/20 Amps. Socket outlet for appliances or looped from sockets with 4 sq mm ckt.

Phase / Neutral 2.5 m m^2

Earth 2.5 m m^2

Separate pipes shall be laid for off wires and circuit mains.

Circuit mains of same phase shall be drawn in one pipe with prior permission/discussion with the consultant.

Separate phase, neutral and earthing wire of sizes recommended by consultant shall be drawn for each and every circuit mains.

Mains for lighting and on board plug points shall be of one-size higher wires than those used in off.

The point definition shall be conduiting and wiring from D.B. to S.B. and there from to final outlet point including switches and accessories, junction boxes, fan boxes, zarri work with cement –sand etc of approved make.

Note:

All material and workmanship has to be as per latest IS / International standards.

LIST OF APPROVED MAKES OF ELECTRICAL WORKS

SR. NO.	ITEM DESCRIPTION	MAKE LIST
1.	MEDIEM VOLTAGE / WIRES FOR INTERNAL WIRING	RR CABLE / HAVELLS / POLYCAB / AVOCAB
2.	DISTRIBUTION BOARD	LEGRAND / SCHNEIDER / HONEYWELL / LK-E&A (L&T) / HAVELLS
3.	MCB, RCCB	SEIMENS / SCHNEIDER / ABB / LEGRAND / LK-E&A
4.	MODULAR SWITCHES, SOCKET & OTHER	HONEYWELL- HORIZON / LEGRAND-MYRIUS / HAVELLS –
5.	LUGS / BIMETALLIC LUGS	DOWELL`S / HMI / COMET / HEX
6.	CABLE GLAND	JAINSON / COMET / POLYCAB / HEX
7.	PVC CONDUITS AND ACCESSORIES	PRECISION / NIHIR / POLYCAB / ASTRAL / BBC / BEC / VRAJ

Schedule - D (Technical Specification Civil Work)

ITEM NO. 1

Demolishing Including RCC/Brick manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 150 metres lead as per direction of Engineer-in-charge.

GENERAL:

The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant item as specified or shown in the drawings.

The demolition shall always be planned before hand and shall be done in reverse order of the one in which the structure was constructed. This scheme shall be got approved from the Engineer- in charge before starting the work. This however will not absolve the Contractor from the responsibility of proper and safe demolition.

Necessary dropping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damages is caused to the adjoining property.

Wherever required, temporary enclosures or partitions shall also be provider. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

Mode of measurements and payment

Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter: (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to

the nearest 0.01 Cu.m.

The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

The rate shall be for a unit of one Cu.Mt.

ITEM NO. 3

Providing And fixing single layer water proof gypsum board 12.5 mm thick sections using water proof board of size 1220 mm x 1830 mm x 8.0 mm suspended by GI suspender channel of size 25 mm x 3 mm with intermediate channel og size 18 mm x 40 mm x 0.8 mm at 1220 mm center to center ceiling section of size 40 mm x 35 mm x 0.55 mm at 457 mm c/c and perimeter channel A of size 20 mm x 27 mm x 30 mm x 0.5 mm at edges & drops incl. paper tap sand soffit cleat, anchor fastener, scooch bolt connecting cleat, joining compound top coat on ceiling incl. making necy. Opening for light fitting, diffuser etc. comp. as per detail drawing as directed

Components shall be used for grid work (or) as specified in the drawing. Gypsum board M-84, GI Frame
Work as per Manufacturer and as approved by the Engineer-In- charge, Paint M-44, Fibber glass wool, Nuts and bolts etc.

Workmanship

Material & Workmanship shall be followed as given in BOQ. Gypsum Board of plain series 12.5 mm
Manufactured by India gypsum or equivalent shall be used. The Gypsum board shall conforms to IS 2095. The longitudinal edge of the Gyp board shall be of tapered/ square edges, so as to have flush joints while fixing. Handling and transporting of Gypsum board shall be done carefully and as recommended by the manufactures. The board should always be kept in a dry and covered place sheltered from rain and to avoid dampness from flow, they should be supported on wooden battens which should not be more than 45cm apart on a flat surface. The material shall be stacked in piles of smaller heights and should not be stacked on edges. Gyp board which have deformed due to poor stacking should not be used. Cutting of board should be made in faced side of the board by means of retractable knife or by using a normal saw and the edges of the boards shall be planned using proper files. The frame work for false ceiling shall be made out of tested specially made from GI of specified gauge as per schedule, accurately formed and die cuts with identical ends in automatic machine with precision tools. All workmanship shall be best quality as followed in a modern sheet metal shops equipped with all machines such as press, dies, spot welding machine, baking oven etc. All materials shall be done by a process approved by the Engineer-in-Charge and in a manner that will not damage the materials. All work shall be accurately formed to the required dimensions, true to line, level and plane in all directions and properly sized to suit the exact dimension within permissible tolerances. Twisted or bent sections shall not be permitted to be used on work. Main runners and cross members shall be of sizes as specified in the schedule/shown in the drawing. The main runners shall be slotted for cross runners and punched for hangers/suspenders cross runners shall have identified die formed ends accurately

cut for easy, correct and proper fit assembly. Shearing, cropping shall be clean, reasonably square and free from distortion. Surfaces and joints to be welded shall be free from loose scale, slag, rust, grease, paint and any other foreign materials. The surface shall be wire brushed vigorously. Welding sequence shall be followed to avoid needless distortion and minimize shrinkage stresses. Holes to be made in pressed M.S. sheet shall not be made by flame cutting.

The flame cut or unfair holes are not acceptable connection of supported members with erection clearance for all members. Where for practical reasons greater clearance is necessary, suitable designed seating should be provided. Any damages done to the walls/ceiling shall be reinstated to original condition. The contractor shall not be entitled for any extra cost on this account.

GI pressed sections grid system shall be of as per manufacturer specification or equivalent approved

Standard suspended G.I. grid system and as approved by the Engineer In charge. The suspended ceiling Grid shall be of self-interlocking for main runners and cross runners of specified section and pattern as Required to suit the span as per drawing. The contractor shall take all necessary field measurements before the commencement of the frame work to ensure proper fittings of the work to actual condition of work at site. Particular care should be taken to examine the positions of all recessed lighting, trap doors and other openings indicated on drawings or as directed by the Engineer-in-Charge. The correct panel sizes shall be decided to suit each location. The false ceiling levels shall then be marked on walls. Mark the position of the runners to suit the span of the area. Fix up the wall angles with approved metal fasteners and level then correctly. The position of suspender shall then be marked on the R.C. slab as per the sizes of the panels decided for each area with due consideration to location of air-conditioning ducts, grills& diffusers etc. Suspenders of type and design fabricated as per drawing and approved by the Engineer-in-Charge, shall then be securely fixed at correct points with approved metal fasteners/expansion bolts of specified dia., as per manufacturers specifications. It shall be ensured that the hanger/suspender shall remain perpendicular and not pulled by the suspension system to any side. Fix up the runner to the suspenders and lock up the runners at the joints, complete the levelling starting from the fixed points and proceed towards the other end. Fix up the cross tees/channels to every runner joints to have stability while levelling. Approved gypsum board/sheets cut to correct sizes shall then be placed on the runner, starting from the centre of the width and work side wards. Connect all cross tees and put on the approved spring type hold down clip/pins as per drawing. Holes if required to be provided in gypsum board sheets shall be drilled and on no account holes shall be punched. Lock the runner tees and tiles with hold down clips/pins as required. Wherever grouting for frame work, suspenders etc. is required to be done in masonry walls columns/beams etc., the same shall be done after the entire frame work is properly levelled.

The contractor shall take into consideration all wastage in the gypsum board. Sheets, grid system frame Work/pressed steel frame work, G.I. suspenders, screws, nuts, bolts, washers etc. required for fixing Gypsum board. Sheet false ceiling and vertical masking while quoting his rates. Gypsum board sheet false ceiling and vertical masking shall be fixed to pressed steel frame grid system by means of spring clip (brass counter sunk machine screws in case of masking of approved size, make and at approved spacing or as shown in drawing or as instructed. After fixing the gypsum board sheets, all holes of screws etc. shall be filled with approved putty, levelled with the gypsum board sheets and sand papered, so that no sign of screw is visible on the. Sheets. For all the. Sheets false ceiling and vertical masking work, the sheet of required size and shape shall be cut as per approved panel size shown in drawing and fixed on pressed steel frame in the best workman like manner.

Trap doors/lighting recesses/troughs of approved size and shape with approved matching work, shall be Provided in the false ceiling and vertical masking at the specified places. Any damage done to the Walls/columns/ceilings/plasters/floors etc. shall be made good to the original condition at his own cost.
The contractor shall not be entitled for any extra cost on this account. During the execution of this work, the contractor shall take all the precautions to prevent damage to the painted surface, plaster, floor tiles, doors etc. Contractor should specifically note that the area where the false ceiling is required to be provided will be in advance stage of completion with various finishing items such as painting, floor
Polishing etc. Any damage to these finishes will have to be made good by him at no extra cost to the Department. No person other than workman employed by the false ceiling contractor shall be permitted access to any area over which the sheeting is being laid. The contractor should take protective measures during the progress of work. Cat ladders or roof boards, scaffolding etc. should invariably be used by men working on the roof/false ceiling/masking etc.

Necessary door openings of hinged type of suitable sizes has to be provided with a suitable frame work for control valves and for access above false ceiling / AC duct boxing at no extra cost. Joints at horizontal, vertical and inclined surfaces shall be suitably strengthened with additional G.I. frame work as required.
Finally the boards are jointed and finished so as to have a flush look which includes fling and finish gin the tapered and square edges of the board with a jointing compound, paper tape and two coats of primer suitable for gyp board (all as per recommended practices of manufacturer). Then, the finished Gyp board has to be painted with 2 coats of acrylic emulsion matt finish paint of approved colour and make. Fibber wool should be used as per requirement. Details of A.C. grills, diffusers, and recessed type electrical fittings to be erected in false ceiling will be as per specifications and as shown in drawings.

Mode of measurement & Payment:

Measurements will be made on flat plan area basis in Sq.m calculated to 3 places of decimal. Length and Breadth shall be measured corrected to a cm. No deduction shall be made for cut-outs made for A.C. grills, diffusers, electrical fittings, smoke detectors etc.
The rate shall include providing all materials, erecting, suspending, G.I. grid work, jointing the boards, Providing required cut-outs and open able doors and painting including providing necessary fittings and Fixtures etc. complete as per the specifications and all other activities related to the completion of the above job. Also nothing extra shall be payable on account of any strengthening of the supporting suspension system for the false ceiling, around the openings in the false ceiling by using additional hangers, fasteners, runners, cross tees, etc.

ITEM NO. 4

Providing and fixing Metal tiled false ceiling of size (600x600)mm in true horizontal level suspended on inter locking Micro metal grid of hot dipped galvanized steel sections. It consists of main "T" runner of size 14x32x0.3x3600mm, cross "T" of size 14x32x0.3x1200mm, secondary cross "T" of size 14x32x0.3x600mm and PPGI wall angle of size 14x19x0.4x3000mm. Bottom exposed capping of width 14 mm of all T-sections shall be of 0.25mm thick PPGI. PPGI wall angle 14x19x0.4x3000mm {Material-GI(IS513),YS-280Mpa,Galvanised 90GSM(IS277),Finish-painted 25 micron top side,10 micron backside,)} is fixed along the perimeter of the ceiling to walls, partitions or columns etc., with wooden screws at 300mm centers or Hilti HPS 6 x40mm placed at 600 mm c/c. soffit cleat 27x37x25x1.6mm {GI(IS513)YS-260Mpa,Finish-Galvanised 120GSM(IS277) } is fixed with Rawl Plug- Ø8x45mm {Material-IS 513 CR2 grade, Zinc coating (7

to 8 microns) pull out load- 6.8kN for M30 concrete grade} creating 1200mm x 1200mm grid. Main-T runners 14x32x0.3x3600mm {GI(IS513)YS-280Mpa,Finish-Galvanised 120GSM (IS277) are then suspended at 1200mm c/c from ceiling using 4mm zinc electroplated butterfly level clips of size 85x30x0.8mm spaced at maximum 1200mm center to center along main T and not more than 150mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600mm from the adjacent wall. 14x32x0.3x1200mm cross T {GI(IS513)YS-280Mpa,Finish-Galvanised 120GSM(IS277) } is interlocked between the main T at 600mm center to center to form a grid of 1200x600 mm and then secondary cross "T" 14x32x0.3x600mm {GI(IS513)YS-280Mpa,Finish-Galvanised 120GSM(IS277) } is then interlocked at middle of the 1200x600mm grid to form grids of 600x600mm. Cross Tees at the ends having length more than 600mm are to be supported independently. Finally T-15, Reveal edge powder coated perforated metal tiles of size (595x595)mm having 60-65 micron powder coating on face side, 9.5mm drop and overall thickness 0.5mm, made of galvanized iron (120GSM galvanizing), NRC≥0.5 with an open area of >18% with diagonal perforations of 1.8mm diameter @ pitch of 2.5mm in (557x557)mm area & backed by black coloured acoustic fleece, is placed in the grid. Passages & Other Locations

WORKMANSHIP: Metal tiled false ceiling of size (600x600)mm in true horizontal level suspended on inter locking Micro metal grid of hot dipped galvanized steel sections. It consists of main "T" runner of size 14x32x0.3x3600mm, cross "T" of size 14x32x0.3x1200mm, secondary cross "T" of size 14x32x0.3x600mm and PPGI wall angle of size 14x19x0.4x3000mm. Bottom exposed capping of width 14 mm of all T-sections shall be of 0.25mm thick PPGI. PPGI wall angle 14x19x0.4x3000mm {Material-GI(IS513),YS-280Mpa,Galvanised 90GSM(IS277),Finish-painted 25 micron top side,10 micron backside,)} is fixed along the perimeter of the ceiling to walls, partitions or columns etc., with wooden screws at 300mm centers or Hilti HPS 6 x40mm placed at 600 mm c/c. soffit cleat 27x37x25x1.6mm {GI(IS513)YS-260Mpa,Finish-Galvanised 120GSM(IS277) } is fixed with Rawl Plug- Ø8x45mm {Material-IS 513 CR2 grade, Zinc coating (7 to 8 microns) pull out load- 6.8kN for M30 concrete grade} creating 1200mm x 1200mm grid. Main-T runners 14x32x0.3x3600mm {GI(IS513)YS-280Mpa,Finish-Galvanised 120GSM (IS277) are then suspended at 1200mm c/c from ceiling using 4mm zinc electroplated butterfly level clips of size 85x30x0.8mm spaced at maximum 1200mm center to center along main T and not more than 150mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600mm from the adjacent wall. 14x32x0.3x1200mm cross T {GI(IS513)YS- 280Mpa,Finish-Galvanised 120GSM(IS277) } is interlocked between the main T at 600mm center to center to form a grid of 1200x600 mm and then secondary cross "T" 14x32x0.3x600mm {GI(IS513)YS-280Mpa,Finish-Galvanised 120GSM(IS277) } is then interlocked at middle of the 1200x600mm grid to form grids of 600x600mm. Cross Tees at the ends having length more than 600mm are to be supported independently. Finally T-15, Reveal edge powder coated perforated metal tiles of size (595x595)mm having 60-65 micron powder coating on face side, 9.5mm drop and overall thickness 0.5mm, made of galvanized iron (120GSM galvanizing), NRC≥0.5 with an open area of >18% with diagonal perforations of 1.8mm diameter @ pitch of 2.5mm in (557x557)mm area & backed by black coloured acoustic fleece, is placed in the grid. Passages & Other Locations

MODE OF MEASUREMENT & PAYMENT:
The rate shall for unit of Square meter.

ITEM NO. 6 & 7

Providing and applying Wall painting (three coats) with plastic emulsion paint of approved brand and manufacture on under coated wall surface to give and even shade including throughly brushing the surface free from mortor droppings and other foreign matter and sand paperd smooth on new work to give an even shade.for all height

Materials:

Water shall be conform to M-l. The plastic emulsion shall conform to I.S. 5411-1969 (part-I).

WORKMANSHIP:

Scaffolding: The relevant specifications of item No. 18.11 para 2.1. shall be followed.

Preparation of surface: The relevant specifications of item No. 18.44 para 2.2. shall be followed.

Preparation of Mix: This shall be done as per manufacturer's instructions. The thinning of emulsion is to be done with water and not with turpentine. The quantity of thinner to be added shall be as per manufacturer instructions

Applications:

Before pouring into small containers for use, the paint shall be stirred thoroughly in its container. When applying also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.

The paint shall be laid on evenly and smoothly by meant of crossing and laying off the crossing and laying off consist of covering the area over with paint, brushing the surface hard for the first lime over and then brushing alternately in opposite direction two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of mouldings, etc. shall be left on the work. The full process of crossing and laying off will constitute one coat.

The paint shall be applied with brush or rollers. For undecorated surfaces, the surface shall be treated with minimum two coats of cement water proofing paint. The second or subsequent coat shall not be started until the preceeding coat has become sufficiently hard to resist marking by brush being used. The surface on finishing shall present a flat velvety smooth finish. It shall be even and uniform in shade without patches, brush marks, paint drops etc.

Precautions:

Old brushes if they are to be used with emulsion paints, shall be completely dried of turpentine oil paint by washing in warm soap wafer.

Brushes shall be quickly washed in water immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush.

In the preparation of wall for plastic emulsion painting, no oil base putties shall be used in filling cracks, holes etc.

Splashes on floors etc. shall bi cleaned out without delay as they will be difficult to remove after hardening.

Washing of surfaces treated with emulsion paint shall not be done within 3 to 4 weeks of application.

Protective measures: 2.6.1. The relevant specifications of item No. 18.17. para 2.3. shall be followed:

MODE OF MEASUREMENT & PAYMENT:

The rate shall for unit of Square mete

Schedule-E

FINANCIAL BID

With reference to your DTP document dated****, I having examined the bidding documents and understood their contents, hereby submit my Bid for the aforesaid Project. The Bid is unconditional and unqualified.

I hereby submit our Financial Bid/ Price Bid compromising percentage of Total Project Cost above / below / equal with respect to the estimated Cost of Project (Including applicable GST and including any other taxes) and offer to perform the Project in respect thereof for the following commercial consideration:

Item of Work	**Total amount according to estimated quantities**	**Above/ Below**	**Quoted Rates in Percentage**	**Contract Value (in INR)**
As per Bill of Quantities attached in Technical Bid. Note: To be paid as per the actual execution of the work				

The Bidding percentage hereby will be applicable in respect to each BoQ items individually. I agree to keep this offer stays valid till the end of the contract.

Estimated amount
Put to tender Rs_____
Deduct_____% **Below** Rs_____
Net. Rs_____
In Words_____

Estimated amount
Put to tender Rs_____
Add_____% **Above** Rs_____
Net. Rs_____
In Words_____

Notes

1. All work shall be carried out as per Public Works Department Handbook and other specifications of Division or as directed.
2. Rates quoted include clearance of site (prior commencement of work and at its close) inall respects a nd hold good for work under all conditions, site, moisture, weather etc.
3. All Above rates are inclusive of all taxes excluding GST. GST will be paid extra over the Contract Amount.

Signature of the Contractor

Registrar, GBU

ANNEXURE A

PERFORMANCE SECURITY

BANK GUARANTEE FOR PERFORMANCE SECURITY

[To be stamped in accordance with Stamp Act,]

The ……,

……..

……..

WHEREAS:

(A) …….. (the **"Contractor"**) and the ……, …….. (the **"Authority"**) have entered into a Contract dated …….. (the **"Contract"**) whereby the Authority has agreed to the Contractor to undertake the Project (as defined in the Contract), subject to and in accordance with the provisions of the Contract.

(B) The Contract requires the Contractor to furnish a Performance Security to the Authority in a sum of Rs.____/- (Rupees ____) the "**Guarantee Amount**") as security for due and faithful performance of its obligations, under and in accordance with the Contract, during the Term (as defined in the Contract).

(C) We, …… through our Branch at ……(the **"Bank"**) have agreed to furnish this Bank Guarantee by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees and undertakes to pay to the Authority upon occurrence of any failure or default in due and faithful performance of all or any of the Contractor's obligations, under and in accordance with the provisions of the Contract, on its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums upto an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an Officer not below the rank of ……. in the Authority, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Contract shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authoritsy shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations under the Contract and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any Dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Contract or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Contract or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Contract and and /or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Contract or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for ….. days during the Term and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee, no later than ___ (____) months from the date of expiry of this Guarantee, all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred Branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect for a period of …. Days as mentioned in the Contract or until it is released earlier by the Authority pursuant to the provisions of the Contract.

Signed and sealed this ……. day of ……., 20…… at ……..

SIGNED, SEALED AND DELIVERED
For and on behalf of
the BANK by:

(Signature)
(Name)
(Designation)
(Code Number)
(Address)
NOTES:

i. The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
ii. The address, telephone number and other details of the Head Office of the Bank as well as of issuing Branch should be mentioned on the covering letter of issuing Branch.