

सी.एस.आई.आर.-राष्ट्रीय वनस्पति अनुसंधान संस्थान

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)

राणा प्रताप मार्ग, लखनऊ-२२६००९

C.S.I.R-NATIONAL BOTANICAL RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Rana Pratap Marg, Lucknow-226001

Cover Page

Tender Documents

Subject:- Development of BSL-3 Laboratory for Covid-19 testing at 1st floor in
Animal House building in garden at NBRI, Lucknow.

NIT No. : 1/WKS/01/20-GL

Estimated Cost : Rs. 62,92,504/=

Date of Bid Opening : 04.05.2020 at 10:10 A.M.

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C.S.I.R.-NATIONAL BOTANICAL RESEARCH INSTITUTE,
(Council of scientific & Industrial Research)

File No. 1/WKS/01/20-GL

Name of work:- Development of BSL-3 Laboratory for Covid-19 testing at 1st floor in
Animal House building in garden at NBRI, Lucknow.

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Note: Tenderer should confirm that they have received/downloaded all the above papers

Signature of Contractor

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NOTICE INVITING E-TENDER

1. Item rate e-tender in two envelope systems are invited through the e-tendering portal "<https://etenders.gov.in>" for the work "Development of BSL-3 Laboratory for Covid-19 testing at 1st floor in Animal House building in garden at NBRI, Lucknow." from reputed registered contractors of appropriate class of CPWD, MES, Railways, Post & Telegraph, State PWD's, Semi government organizations and/or from those who have successfully carried out similar works for CSIR or its laboratories. The tenderers should have successfully completed at least three similar works amounting to 40 % (Rs.25.18 lakhs) or two similar works of 50 % (Rs.31.47 lakhs) or at least one work amounting to 80 % (Rs. 50.35 lakhs) value of the estimated cost or above in a single contract during the last Seven years. The contractor should have valid 'A' class electrical license (either firm should have 'A' class electrical license or submit a undertaking for engaging 'A' class license holder agency for execution of electrical/air conditioning work and will provide their details and copy of 'A' class electrical license). The contractors may apply with proof of fulfilling the above conditions along with copies of PAN, GST registration number, satisfactory work completion certificates.

*Similar work shall mean Development of BSL 3 level lab.

The contractor may apply through e-portal with scanned self attested copies of above documents, and original may produce if required at any time.

Sl. No	Tender No.	Estimated Cost (Rs.)	Time of Completion of work	Earnest Money Deposit (Rs.)	Publish Date	Bid Document Download/ Sale start Date	Bid Submission End Date & Time	Bid Opening Date
1.	1/WKS/01 /20-GL	62,92,504/= market rate (including GST)	30 Days	1,25,850/=	27.04.20	27.04.2020 from 09:30 AM	02.05.20 Up to 05:00 P.M.	04.05.20 at 10:00 A.M.

2. The tender document cost of Rs. 1,180/= (1000.00 + 180.00 GST @ 18%) (Non refundable) shall be deposited through RTGS/NEFT or through bank challan in SBI, NBRI Branch or in the form of DD/ Pay order in favor of "Director, CSIR-NBRI, Lucknow".

3. EMD of Rs. 1,25,850/- shall be deposited in the form of Demand Draft/Pay Order drawn in favor of Director, CSIR-NBRI, Lucknow or UTR receipt of EMD deposited through RTGS/NEFT in SBI NBRI, Lucknow bank account.

The bank details for depositing tender fee and EMD in the account of "National Botanical Research Institute, Lucknow is SBI NBRI Lucknow Branch, Saving Bank Account No. 30267652846, IFSC code: SBIN0010173, MICR code: 226002051."

4. The scanned copy of Tender cost (UTR Receipt/DD/Pay Order/Bank Challan) & EMD (UTR Receipt/DD/Pay Order) shall be uploaded along with Technical Bid to the e-tendering website by the bidder within period of bid submission and original be dropped in tender box placed in the Room of Security Officer at main gate or by post.
5. Online bids submitted by intending bidders shall be opened only of those bidders who have deposited the tender fee & EMD in said manner and have uploaded the required scanned copies of self-certified documents along with Technical Bid.
6. The tenderer has to indicate the name & telephone numbers of issuing agency of the completion certificates to enable the verification of the documents and will produce BOQ of work done for verification of similar nature items, if required. It may be noted that even after opening of price bid, the credential submitted are found to be false/forged, the offer submitted shall be rejected out rightly. No further clarification will be sought from the tenderers.
7. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the documents that need to be submitted, any deviations from these may leads to rejection of the bid. Please read carefully the annexed “Instructions for Online Bid Submission” before submission of bid.
8. Intending tenderers are advised to take in to account any corrigendum/Instructions/Information’s published in respect of tender document before/submitted their bids.
9. Validity period of the tender shall remain for a period of 90 DAYS from the date of opening of tender for the purpose of acceptance and award of work, Validity beyond 90 days shall be on mutual consent.
10. The tenderer shall not be permitted to tender for works in the concerned unit of CSIR in which a relative is posted in the grade between Controller of Administration and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or subsequently employed by him and who are relatives as mentioned above.
11. NOTE: A person shall be deemed to be relative or another if, and only if (a) they are members of a Hindu undivided family or (b) they are husband and wife, or (c) the one is related to the other in the following manner, Father, Mother (including step mother), son (including step son), Son's wife, Daughter (including step daughter) Son's Son, Son's daughter, Sons' daughter husband, daughter's husband, daughter's son's wife, daughter's daughter, daughter's husband, Brother (including step brother), Brother's wife sister (including step sister), sister's husband.
12. The site of the work is at the first floor of animal house building in garden and the tenderer shall inspect the site to acquaint himself fully about the conditions in regard to accessibility of site, nature and extent of ground, working conditions of site and locality including stacking of materials installations of tools and plants etc. Before tendering the tender the conditions effecting accommodations and movements of execution of work shall not be entertained by the institute under any circumstances.
13. Earnest Money will be forfeited if the contractors fail to commence the work within the period as mentioned in the work awarded letter.
14. The tenderer shall not impose any conditions or make any changes, additions, alterations and modifications in the on line tender form except quoting rates and amounts. Tenderer who desires to offer rebate, if any, shall mention in the separate covering letter and attach it with the tender documents.
15. If it is found that the tender is not submitted in proper manner or contains too many corrections or absurd rates of item, it would be open for the department to take suitable action.
16. Contractor must quote for all the items of the schedule otherwise their tenders are likely to be treated as incomplete.

17. The latest CPWD specifications shall be followed.
18. After award of work the contractor shall give the names, qualifications and detail of experiences of the supervisory staff to be deputed for the work. He shall also give a list of the major tools and plants to be deployed at the site.
19. The contractor shall execute an agreement and this tender document shall be part of the agreement.
20. Rates quoted by contractor shall be for complete work including labour cess, GST and all other taxes & duties etc. nothing extra shall be payable other than quoted rates. Statutory deduction, TDS on GST etc. as applied by the Govt. will be deducted from the contractor's bill, if required. Contractors are requested to refer clause no.5 of General conditions of contract for quoting rates of tender items.
21. The tenderer should see drawings and in case of doubt obtain required particulars, which may in any way influence his tender from the Engineer as no claim whatsoever will be entertained for any alleged ignorance thereof.
22. DEFECTS LIABILITY PERIOD. Twelve months from the date of completion as certified by the Employer.
23. SECURITY DEPOSIT: A sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as Earnest Money, will amount to Security Deposit of 5% of the tendered value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as Performance security within the period prescribed for commencement of work in the Letter of Award issue to him.
24. COMPENSATION: Contractor shall pay as compensation as amount equal to one percent of such smaller amount as the Employer (whose decision in writing shall be final) may decide on the cost of the whole work as shown in the agreement for every week that the work remains uncompleted or unfinished or due quantity of work remains incomplete after the proper dates. Compensation to be paid shall not exceed 10% of the estimate cost of the work as shown in the agreement.
25. The employer does not bind himself to accept the lowest or any tender and reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rates quoted.
26. Canvassing in connection with the tenders is prohibited and the tenders submitted by the contractor who resort to canvassing are liable for rejection.
27. All safety measures to be followed during execution of work. For any misshaping / incident etc. the contractor alone will be solely responsible.
28. Looking in to the national emergency the work should be started immediately without any delay on getting the work order/execution of agreement and the work should be completed in stipulated time frame.
29. Director, NBRI reserves the right to reject any or all the tenders without assigning any reason thereof.

Instructions for Online Bid Submission:

Prospective tenderers are advised to get themselves register at CPP-portal, obtain 'Login ID' & 'Password' and go through the instructions available in the Home Page after log in to the CPP-portal <https://tenders.gov.in> and they must have Digital Signature Certificate (DSC) of appropriate class.

The tenderer shall submit their tender only at CPP-portal in two separate envelope parts i.e. **Envelope-I as a Technical Bid and Envelope-II as Price Bid** as per following details.

Technical Bid (Envelope-I) containing scanned copy of EMD & Tender Fees etc.

The scanned copies of following documents are to be furnished/uploaded by the Contractor along with **Technical Bid** as per the tender documents for pre qualification:

- I. Bank Challan/Demand Draft/Pay Order/Banker's Cheque or UTR receipt of RTGS/NEFT against deposit of Tender document cost.
- II. Demand Draft/Pay Order/Banker's Cheque or UTR receipt of RTGS/NEFT against deposit of EMD.
- III. Self certified copy of Enlistment/registration in appropriate class of CPWD, MES, Railways, Post & Telegraph, State PWD's, Semi government organizations and/or work experience certificate in CSIR or its laboratories.
- IV. Self certified copy Certificate of registration under GST.
- V. Self certified copy of work completion/experience certificates of required value of similar works done.
- VI. Self certified copy of PAN Card.
- VII. Partnership deed, in case of partnership firm.
- VIII. The entire tender document of **Technical Bid** as uploaded by the department duly digitally signed by the bidder.
- IX. Scanned copy of signed & stamped Undertaking by the Bidder for unconditional acceptance of conditions and any other papers ask for in the bidding documents.
- X. Valid 'A' class Electrical License issued by Department Of Electrical Safety, Govt. of U.P (either firm should have 'A' class electrical license or submit a undertaking for engaging 'A' class license holder agency for execution of electrical work and will provide their details and copy of 'A' class electrical license).

Note: The acceptance / rejection of their bids will be intimated to the bidders/ firms through e-tendering portal.

Price (Bid Envelope-II)

The price bid shall be uploaded with following document in Envelope-II:

- I. All rates shall be quoted in the format provided (xls. Only) and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the file name. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

Note: Uploading of bid documents in location other than specified above shall not be considered. The bid documents received in hard copy will stand rejected.

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Appendix

1.	Defect liability period	Twelve Months from the date of Virtual completion as certified by the engineer-in-Charge.
2.	Time of completion	30 Days Only
3.	Minimum value of work interim certificate	25.00 Lakhs. Or less Bill at the discretion of the Engineer - In-Charge.
4.	Earnest Money	Rs.1,25,850/- (Rs. One Lakh Twenty Five Thousand Eight Hundred Fifty Only)
5.	Performance Security	5% of the tendered value of work to be deposited by successful tenders before execution of agreement.
6.	Liquidated damages for insufficient progress of work (Clause 23-B)	1% per week of the total cost of the work awarded subject to a maximum of 10% of the gross value of the work done or cost of work awarded whichever is more.
7.	Subsequent retention	Sufficient sum to make up 10% of the value of work done inclusive of earnest money subject to maximum of 5% of the tendered value are gross value of work done, whichever is more.
8.	Time of submission of final bill by the contractor.	Three months from the date of virtual completion.

Signature of Contractor

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Particulars of Contractor

Name of Contractor : Mr.....
Firm of Contractor : M/s.....
Telephone No. (office) :
Office Address :
Residential Address :
As the firm limited : Yes.....Use/No.....
Give name and address of partners:-

Name

Address

- a)
b)
c)
d)

Partnership deed

: Please enclose with tender

Name of Bankers

: M/s.....

Power of attorney

: Enclosed attested copy/original power of attorney in case of firm.

State: Name and address of person holding power of attorney:

Name

:

Address

:

Registration particulars

:

a) Registered with

:

b) Registered No.

:

c) Financial limit upto

:

which registered

:

d) Trade for which registration :

Signature of Contractor

GENERAL CONDITIONS OF CONTRACT

1. INTERPRETATION

- (a) In construing these conditions, the Specifications, the Schedule of Quantities, Tender, Special Conditions and Agreement, the following words shall have the meanings herein assigned to them except where the subject or context otherwise requires.
- (b) This contract shall comprise of the Articles of Agreement, General Conditions of Contract, Special Conditions, Additional Special Conditions, the Schedule of Quantities, Specifications, letter of acceptance of tender and other documents mentioned in the contents sheet attached hereto and including those to which only reference is made herein.
- WORK OR WORKS:** shall mean all work or works defined in schedule of quantities, specifications and such other work or works as the contractor may be entrusted with for carrying out under this contract.
- ENGINEER:** shall mean the Engineer designated by the Employer to superintend and perform other duties as indicated in the contract.
- CONTRACTOR:** shall mean the individual or Firm or Company, whether incorporated or not, undertaking the work and shall include the legal personal representative or such individual or the persons composing such Firm or Company or the successors of such Firm or Company and the permitted assignees of such individual or Firm or Firms or Company.
- SITE:** shall mean the site of the contract works including any buildings and erections thereon and any other land adjoining thereto (inclusive) as aforesaid allotted by the Employer or the Engineer for the contractor's use.
- COMPENSATION:** Shall mean all sums payable by way of compensation under any of the conditions and whether or not any damage sustained, and whether or not any damage shall have been sustained. Words impugning persons include firms and corporations; words impugning the singular only also include the plural and vice versa where the context so required.
- The headings are given to the clauses for convenience and they will not limit the meaning or scope of the clauses in any way.

2. DRAWINGS AND SPECIFICATIONS

The contractor shall execute whole and every part of the work in the most substantial and workmanlike manner both as regards material and otherwise in every respect in accordance with the specifications. The contractor shall also conform exactly and faithfully to the design, drawings and instructions given in the respect of the work by the Engineer. The contractor shall be furnished free of charge one copy of such specifications and all such designs, drawings and instructions as are not included in the printed publications.

3. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

- (a) The contractor shall provide at his own cost all materials (except such materials, if any as may in accordance with the contract be supplied by the Employer) plants, tools, appliances, implements, ladders, scaffolding, temporary works, etc. requisite or proper for the execution of the work whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or which may be necessary for the purpose of satisfying or complying to the requirements of the Engineer, as to any manner as to which under these conditions he is entitled to be satisfied together with carriage thereof to and from the work. The contractor shall also supply without charge the requisite number of persons with means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract and/or from his Security Deposit.

- (b) The contractor shall provide himself with requisite quantity and quality of water for carrying out the work at his own cost. If, however, piped water is supplied by the Employer, the contractor shall pay for the water at one per cent of the total cost of the work done except on Electrical work, Air-conditioning work and Furniture work. The contractor shall make his own arrangement for water connection and laying of further pipelines from the source of supply of the Employer. It should be clearly understood that the Employer does not guarantee to maintain un-interrupted supply of water and it will be incumbent on the part of the contractor to make alternative arrangement for water at his own cost in the event of any temporary break-down in the water mains so that the progress of work is not held up for want of water. No claim as damages or refund of water charges will be entertained on account of such break-downs. However, if the contractor is permitted to make his own arrangement to draw water from a well, hand-pump, or natural river or pond of the Employer, no charges will be made for the water drawn from the same, but the contractor will make good any damage done to the installations and ensure that the quality of water used in the work is conforming to BIS codes and provide for any treatment at his own cost.
- (c) The contractor shall be allowed to construct temporary wells in Employers' land for taking water for construction purpose only after he has permission of the Employer in writing. No charges shall be recovered from the contractor on this account but the contractor shall be required to provide necessary safety arrangement to avoid any accident or damage to adjacent buildings, roads and service lines. He shall be responsible for any accident or damage caused due to construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of the work.
- (d) The Employer on no account shall be responsible for the expenses incurred by the contractor for hired ground or water obtained from elsewhere.
- (e) Subject to availability the Employer may supply power at only one point from where the Contractor shall make his own arrangement for distribution including provision of electric meters, switches, fuses etc. at his own cost. These shall be in the custody of the Employer. If there is any hindrance caused to other works the contractor shall reroute or remove such temporary lines without any extra cost. Such temporary lines shall be removed after the completion of work. The cost of power consumed by the contractor shall be payable to the employer at rates fixed by the Employer, which would be deducted from the running account bills. However the Employer does not guarantee the supply of power and no compensation for any failure or short supply of power shall be entertained.

4. AUTHORITIES, NOTICES & PATENTS

- (a) The contractor shall conform to any regulations and bye-laws of any corporation and of any electricity supply company and authorities with whose systems the structure is proposed to be connected, and shall before making any variations from the drawing and specifications that may be necessitated for so conforming by giving written notice to the Engineer specifying the variations proposed to be made, the reasons for making it and apply for instructions thereon. If the compliance with this clause involves any extra work not included in this contract, he shall specify these items of work and the allowance of extra payment required on their account.
- (b) The contractor shall give all notices required by the said regulations or bye-laws to be given to any Authority and pay to such Authority or to any public office all fees that may be chargeable in respect of the works and lodge the receipts with the bill to the Engineer for reimbursement.

5. RATES TO INCLUDE ALL TAXES

- (a) Rates quoted by the contractor shall include sales tax, duties, octroi, toll tax, royalties and all other taxes in respect of this contract and the Employer shall not entertain any claim whatsoever in this respect. Tendered rates are inclusive of all taxes and levies payable under the respective statutes. However pursuant to the Constitution (Forty Sixth Amendment) Act, 1982 if any further tax or levy is imposed by Statutes, after the date of receipt of tenders and the contractor thereupon necessarily and properly pays such taxes/levies the contractor shall be reimbursed the amount as per the rules on producing proof of payment so made provided such payments, if any, is not in the opinion of the Employer (whose decision shall be final and binding) attributable to delay in executing of work within the control of the contractor.

- (b) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorised representative of the Employer and further shall furnish such other information and documents as the Employer may require.
- (c) The contractor shall within a period of thirty days of imposition of any further tax or levy pursuant to the Constitution (Forty Sixth Amendment) Act, 1982 give a written notice thereof to the Employer that the same is given pursuant to this condition together with all necessary information relating thereto.

6. MATERIALS

- (a) If the specifications of schedule of items provide for the use of any material to be supplied by the Employer's stores or if it is required that the contractor shall use certain stores to be provided by the Employer as shown in the schedule of materials hereto annexed, the contractor shall be bound to procure and shall be supplied such materials and stores as are from time to time required to be used by him for the purpose of the contract only and value of the materials so supplied at the rates specified in the said schedule of materials and of the quantities incorporated in the work may be set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise or against or from the Security deposit. All materials so supplied to the contractor by the Employer shall remain the absolute property of the Employer and the contractor shall be the trustee of the materials so supplied/procured and the said materials shall not be removed/disposed off from the site of the work on any account and shall be at all times open for inspection by the Engineer or Employer. The contractor shall bear all incidental charges for cartage, storage and safe custody of all materials and against damage due to dampness, rain, sun, fire and theft and be fully responsible for their storage and maintenance. Any such material unused and in perfectly good condition in the opinion of the Employer at the time of the completion of work or termination of the contract, or earlier shall be returned to the Employer at a place directed by the Engineer at contractor's cost and at rates stipulated in the said schedule but in case the Employer decides not to take back the materials the contractor shall have no claim for compensation on account of any such materials supplied to him as aforesaid being unused by him or for any wastage or damage to any such materials.
- (b) If for any reason there is delay or non-supply of material as shown in the schedule, the contractor shall procure the same and complete the work in time after due information and approval of the Employer. The difference in price (between his procurement price and price shown in the schedule) shall be paid to the contractor. However in case approval of the Employer is not given, only suitable extension of time would be considered and no other claim of compensation/damages shall be payable by the Employer.
- (c) After completion of the work or on determination/termination of the contract, the theoretical quantity of cement to be used in work shall be calculated on the basis of statement showing quantity of cement to be used in different items of work provided in current Schedule for the purpose printed by CPWD. In case any item is executed for which the standard constants for the consumption of cement are not available in the above mentioned statement or cannot be derived from this statement, the same shall be calculated on the basis of standard formula to be laid down by the Engineer. Over this theoretical quantity of cement, shall be allowed a variation upto 3% plus/minus for works estimated cost of which as put to tender is not more than Rs 10 lakhs and upto 2% plus/minus for works estimated cost of which as put to tender is more than Rs 10 lakhs. The difference in the quantity actually issued to the contractor and the theoretical quantity including authorised variation, if not returned by the contractor, shall be recovered at twice the issue rate, without prejudice to the provision of other conditions regarding return of materials governing the contract. In the event of its being discovered that the quantity of cement which is less than the quantity ascertained as herein before provided (allowing variation on minus side as stipulated above) the cost of quantity of cement not so used, shall be recovered from the contractor on the basis of stipulated issue rates and cartage to site.
- (d) The provision of foregoing sub-clause shall apply Mutatis-Mutandis in the case of steel reinforcement or structural steel sections (girth diameter/section or category shall be considered separately) except that the theoretical quantity of the steel shall be taken as the quantity required as per design or as authorised by the Engineer, including lap/joints, plus 3% wastage due to cutting into pieces. Over this theoretical quantity 2% plus/minus shall be allowed as variation due to wastage.
- (e) The provision of foregoing sub-clause shall apply Mutatis-Mutandis in the case of cables (other than under-ground cables), wires, conduits/GI pipes, GIMS sheets used in various items of work shall be

calculated on the basis of measurements recorded in the measurement books for the purpose of payment and for assessing the consumption of materials used in the works. Over this quantity a variation of 3% plus shall be allowed for wastage of materials during execution in case of cables (other than under-ground cables), wires, conduits/GI pipes, and 10% plus in case of GIMS sheets.

- (D) The provisions made above are without prejudice to the right of the Employer to take action against the contractor under the conditions of the contract for not doing the work according to the prescribed specifications.

7. TESTING OF MATERIALS

The contractor shall provide assistance, instruments, materials, labour and any other arrangement normally required for testing, checking of materials and workmanship as stipulated in the specifications and by statutory authority at his own cost. The Employer has the right to appoint the testing authorities. The contractor shall pay for the cost of test samples, its packing, transportation including testing fees. Failing his so doing, the same shall be provided by the Engineer at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract and/or from the Security Deposit or proceeds thereof or of a sufficient portion thereof.

8. CONTRACTOR'S ENGINEERS / FOREMAN & WORKMEN

- (a) The contractor shall give all necessary personal superintendence during the execution of the work and as long thereafter as the Engineer may consider necessary until the expiration of the Defects Liability Period. The contractor shall employ competent Site-Engineer/Foreman as per CPWD norms and as approved by the Engineer whose qualification must conform to the requirement specified by the Engineer who shall be constantly in attendance of the work while the men are at work. Any directions, explanations, instructions or notices given by the Engineer to such Site-Engineer or Foreman or any other authorised agent shall be held to be given to the contractor.
- (b) The contractor shall on the request of the Engineer immediately dismiss from the works any person employed thereon who may in the opinion of the Engineer be unreliable or incompetent or who may in the opinion of the Employer misconduct himself.

9. ACCESS

- (a) The Engineer, and the Employer or its representative shall at all reasonable time have free access to the works and/or workshops, factories or other places the materials are being prepared or constructed for the contract and also to any place where the materials are lying or from which they are being obtained and the contractor shall give every facility to them for inspection. Except the representatives of statutory authorities and those mentioned above no other person shall be allowed on the works at any time without the permission of the Engineer.
- (b) If any work is to be done at a place other than the site of works, contractor shall obtain written permission of the Engineer.

10. VARIATION & PRICE FOR VARIATION

- (a) The Engineer with the approval of the Employer shall have power to make any alterations/omissions/additions and/or substitutions from the original specifications, drawings, designs, and written instructions and such alterations, omissions, additions, substitutions shall not invalidate the contract and any altered, additional, or substituted work which the contractor may be directed to do in the manner specified above as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The rates for such altered, additional or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order!
- (b) If the rates for the altered, additional, or substituted work are specified in the contract for the work, the contractor is bound to carry out the altered, additional, or substituted work at the same rates as are specified in the contract for the work.
- (c) If the rates for the altered, additional, or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for a similar class of work as are specified in the contract for the work.

- (d) If the rates for the altered, additional, or substituted work cannot be determined in the manner specified in sub-clause (b) and (c) above, then the contractor shall, within 10 working days from the date of receipt of the order to carry out the work through notice in writing, inform the Engineer of the rate which it is his intention to charge for such class of work, supported by analysis of the rate claimed which shall be based on actual cost of work plus 10% as contractor's profit and over-heads except in case of departmental materials for which contractors profit and over-heads shall be 2.5%. When such notice has been given, the Engineer with the consent of the Employer may agree to such a rate but if the Engineer does not agree to the contractor's rate the Engineer may cancel his order to carry out such class of work and arrange to carry out in such a manner as he may consider advisable.
- (e) Under no circumstances, the contractor shall suspend the work on the plea of non-settlement of rates of items falling under the clause.

11. FAULTY MATERIALS, WORKMANSHIP & DEFECTS AFTER COMPLETION

- (a) The Engineer shall have powers to require the removal from the site of all materials and work which in his opinion are not in accordance with specifications and in case of default, the Engineer shall be at liberty to employ other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials to be substituted thereof and in case of default the Engineer may cause the same to be supplied and all costs which may attend such removal and/or substitution are to be borne by the contractor.
- (b) If it shall appear to the Engineer or to the Chief Technical Examiner, that any work has been executed with unsound, imperfect, or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, any defects, shrinkage or other faults which may appear within the defects liability period of six months from the date of completion arising in the opinion of the Engineer, the contractor shall on demand in writing which shall be made within six months of the completion of the work from the Engineer specifying the work, materials, articles, defects or other faults complained of notwithstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own cost. In case of any such failure, the Engineer may rectify or remove or re-execute the work or remove and replace with others, the material or articles complained of as the case may be at the risk and cost in all respects of the contractor.
- (c) In lieu of rectifying the work not done in accordance with the contract, the Employer may, allow such work to remain, and in that case make allowance for the difference in value, together with such further reduction as in his opinion may be reasonable.
- (d) Provided always that nothing in this clause shall relieve the contractor from his liability to execute the works in all respects in accordance with the terms and conditions of this contract, or from his liability to make good all defects.

12. WORKS TO BE OPEN FOR INSPECTION

- (a) All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Engineer and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer to visit the works shall have been given to the contractor, either himself be present to receive order and instruction or have a responsible agent duly accredited in writing present for that purpose.
- (b) The contractor shall give not less than seven days notice in writing to the Engineer before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up and place beyond the reach of measurement, any work without the consent in writing of the Engineer and the Engineer shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or the Engineer's consent obtained the same shall be uncovered at the contractors

expense or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

13. ASSIGNMENT OR SUB-LETTING

(a) The contract shall not be assigned or sublet without the written approval of the Employer. And if the contractor shall assign or sub-let his contract or attempt to do so or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so or if any bribe, gratuity or gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor or any of his servants or agents to any person in the employment of the Employer in any way relating to his office or employment, or if any such employee or person shall become in any way directly or indirectly interested in the contract, the Employer shall have the power to adopt any of the courses specified under clause-23 as may be best suited to the interest of the Employer and in the event of any of the courses being adopted the consequences specified in the said clause shall ensue.

(b) Where the contractor is a partnership firm, the approval in writing of the Employer shall be obtained before any changes in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement hereunder the partnership firm would have the right to carry out the work hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned or sublet in contravention of clause 13(a) and the same action may be taken and the same consequences shall ensue as provided in the said clause 13(a).

14. INDEMNIFYING AGAINST DAMAGES TO PERSONS, PROPERTY & STATUTES

The contractor shall take all precautions to avoid all accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of work.

(a) The contractor shall be responsible for all injury to persons, animals or things, and for all damage, whether such injury or damage arises from carelessness or accident in any way connected therewith. This clause shall be held to include inter alia any damage due to causes as aforesaid to work, building (whether immediately adjacent or otherwise) and to roads, streets, foot paths, bridges or ways as well as all damage caused to the buildings and works forming the subject of this contract by inclemency of weather. The contractor indemnifies the Employer and holds him harmless in respect of all expenses arising from such injury or damages as aforesaid and also in respect of any award of compensation or damage consequent upon such claim including legal costs.

(b) The contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver the whole of the contracted works complete and perfect in every respect and so as to make good and otherwise satisfy all claims for damage as aforesaid to the property of third parties.

(c) The contractor also indemnifies the Employer against all claim which may be made upon the Employer for acts during the currency of this contract by any employee or representative of an employee of the contractor or any sub-contractors, employed by him, for any injury to or loss of life, of such employees, or for compensation payable under any law for the time being in force to any workmen or to the representative of any deceased or incapacitated workmen.

(d) The contractor also indemnifies the Employer against all claims which may be made upon the Employer for acts during the currency of this contract by the Central/State Government or local Municipal authorities for the noncompliance of any laws, regulations, rules pertaining to wages act, safety act in force and any amendments thereof in respect of all labour and apprentices directly or indirectly employed in the work under this contract.

(e) The Employer shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation costs, charges and/or expenses arising or accruing from or in respect of any such claim and/or damages as aforesaid from any sum or sums due or to become due to the contractor or security deposit.

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(1) The contractor shall indemnify the Employer against any action, claim or proceedings relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under or action brought against the Employer in respect of any such matters as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise therefrom. Provided that the contractor shall not be liable to indemnify the Employer if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the said Employer or his authorised representative.

15. LIEN IN RESPECT OF CLAIM IN OTHER CONTRACTS

- (a) Any sum of money due and payable to the contractor including the security deposit under the contract may be withheld or retained by way of lien by the Employer or Government or any other contracting person or persons against any claim of the Employer or Government or such other persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Employer or Government or with such other persons.
- (b) It is agreed term of the contract that the sum of money so withheld or retained under this clause by the Employer will be kept withheld or retained as such by the Employer or till his claim arising out of in the same contract or any other contract is either mutually settled or determined by the Arbitrator if the contract is governed by arbitration clause or by the competent court as the case may be, and that the contractor shall have no claim for interest or damages whatsoever on his account or any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

16. WITHHOLDING & LIEN IN RESPECT OF SUMS CLAIMED

- (a) Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the Employer shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security deposit, if any deposited by the contractor and for the purpose aforesaid, the Employer shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalisation or adjudication of any such claim. In the event of the security deposit being insufficient to cover the claimed amount or amounts or if no security deposit has been taken from the contractor, the Employer shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which at any time thereafter may become payable to the contractor under the same or any other contract, with the Employer or any contracting person pending finalisation or adjudication of any such claim.

It is an agreed term of the contract that the sum of money so withheld or retained under the lien referred above, by the Employer will be kept withheld or retained as such by the Employer till the claim arising out of or under the contract is determined by the Arbitrator (if the contract is governed by the arbitration clause) or by the competent court as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company the Employer shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum payable to any Partner/limited company as the case may be, whether in his individual capacity or otherwise.

- (b) The Employer shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract or any work claimed by him to have been done by him under the contract and found not to have been executed the contractor shall be liable to refund the amount of over-payment and it shall be lawful for the Employer to recover the same from him in the manner prescribed in sub-clause (a) of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under-payment shall be duly paid by the Employer to the contractor.

Provided that the Employer shall not be entitled to recover any sum over-paid, nor the contractor shall be entitled to payment of any sum paid short where such payment has been agreed upon between the Employer on the one hand and the contractor on the other hand, under any term of contract permitting payment for work after assessment by the Employer.

17. IN-CASE OF DEATH OF CONTRACTOR

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the Employer shall have the option of terminating the contract without compensation to the contractor.

18. SUB-CONTRACTORS

The Employer reserves the right to use the premises and any portion of the site for the execution of any work not included in the contract. The contractor is to afford all reasonable facilities to all sub-contractors, specialists, merchants, tradesmen and others who may at any time be appointed by the Employer for executing any work or supplying any goods relating to the constructions, servicing, equipping or furnishing of the work under this contract.

19. COMPLIANCE TO LABOUR LAWS & APPRENTICE ACT

The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, Contract Labour (Regulation and Abolition) Act, 1970, and rules and orders framed there under and other labour laws affecting contract labour and Apprentice Act, 1961 and the rules and orders framed thereunder that may be in force or brought into force from time to time.

20. COMPENSATION FOR DELAY

(a) The time for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be deemed to be the essence of the contract on the part of the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence and the contractor shall pay as compensation an amount equal to one per cent or such smaller amount as the Employer (whose decision in writing shall be final) may decide on the amount of the whole work as shown in the agreement, for every week that the work remains uncommenced or unfinished after the proper dates.

(b) And further to ensure good progress during the execution of the work, the contractor shall be bound in all cases in which the time allowed for any work exceeds one month (save for special jobs) to complete one-eighth of the whole of the work before one-fourth of the whole time allowed under the contract has elapsed; three-eighths of the work before one-half of such time has elapsed, and three-fourths of the work before three-fourths of such time has elapsed. However for special jobs if a time schedule has been submitted by the contractor and the same has been accepted by the Employer, the contractor shall comply with the said time schedule. In the event of the contractor failing to comply with this condition, he shall be liable to pay as compensation an amount equal to one per cent or such smaller amount as the Employer (whose decision in writing shall be final) may decide on the said cost of the work for every week that the due quantity of work remains incomplete. Provided that the entire compensation to be paid under the provisions of this clause shall not exceed ten per cent on the cost of the work as shown in the agreement.

21. DAMAGE TO WORKS IN CONSEQUENCE OF HOSTILITIES OR WAR-LIKE OPERATIONS

(a) The work (whether fully constructed or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and other things connected therewith shall be at the risk of the contractor until the work has been delivered to the Employer and a certificate from him to that effect obtained. In the event of the work or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or war-like operations, the contractor shall, when ordered in writing by the Employer, remove any debris from the site, collect and properly stack or remove in store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site of debris, stacking, removal of serviceable materials and for the reconstruction of all works ordered by the Employer such payment being in addition to compensation upto the value of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for

the compensation shall be assessed by the Employer. The contractor shall be paid for the damage/destruction suffered and for restoring the material at the rates based on the analysis of rates tendered for in accordance with the provision of this agreement. The certificate of the Employer regarding the quality and quantity of materials and the purpose for which they were collected shall be final and binding on the contractor.

(b) Provided always that no compensation shall be payable for any loss in consequence of hostilities or war-like operations (i) unless the contractor had taken all such precautions against Air Raid as are deemed necessary by the A.R.P. Officers or the Employer, (ii) for any materials etc., not on the site of the work or for any tools and plant, machinery, scaffolding, temporary buildings and other things not intended for the work.

(c) In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Employer.

22. EXTENSION OF TIME

(a) If the contractor shall desire an extension of time for the completion of the work on the grounds of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the Employer within thirty days of the date of hindrance on account of which he desires extension as aforesaid, and the Employer shall, if in his opinion (which shall be final) reasonable grounds shown therefor, authorise such extension of time if any, which may, in his opinion, be necessary or proper.

(b) In the event, the value of work exceeds the value of the Bill of Quantities owing to variations the contractor shall be entitled to ask for extension of time in proportion to the increased value of work.

23. SUSPENSION OF WORK BY CONTRACTOR

(a) The Employer may without prejudice to his right against the contractor in respect of any delay or inferior workmanship or otherwise or to any claims for damages in respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provisions of this contract or otherwise and whether the date for completion has or has not elapsed by notice absolutely determine the contract in any of the following cases:

(i) If the contractor having been given by the Engineer a notice to rectify, reconstruct or replace any defective work or that the work is being performed in any inefficient or otherwise improper or unworkman-like manner shall omit to comply with the requirements of such notice for a period of seven days thereafter or if the contractor shall delay or suspend the execution of the work so that in the judgement of the Employer (which shall be final and binding) he will be unable to ensure completion of the work by the date for completion or he has already failed to complete the work by that date.

(ii) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court of creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.

(iii) If the contractor commits breach of any of the terms and conditions of this contract.

(iv) If the contractor commits any acts mentioned in Clause-13 hereof.

(b) When the contractor has made himself liable for action under any of the cases aforesaid, the Employer shall have the following powers:

(i) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the contractor under the hand of the Employer shall be conclusive evidence). Upon such determination or rescission the security deposit of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of the Employer.

(ii) The Engineer may employ labour paid by the Employer and to supply materials to carry out the work or any part of the work debiting the contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Engineer shall be final and conclusive against the contractor) and crediting him with the value of the work done in all respects

terms of his contract. The certificate of the Engineer as to the value of the work done shall be final and conclusive against the contractor, provided always that action under the sub-clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the Employer are less than the amount payable to the contractor at his agreement rates, the difference should not be paid to the contractor.

(iii) After giving notice to the contractor to measure up the work of the contractor and to take such part thereof as shall be unexecuted out of his hands and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which exceed the certificate in writing of the Engineer shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by the Employer under this contract or any other account whatsoever or from his security deposit.

(iv) In the event any one or more of the above courses being adopted by the Employer the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provisions aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

24. SECURED ADVANCE

The contractor on signing an indenture in the form specified by the Employer during the progress of the execution of the work may be paid if agreed by the Employer upto 75 per cent of the estimated value which shall take into account the market value and contractors tendered rates for the finished item of any material which in the opinion of the Engineer is likely to be incorporated in the work within next three months, are non-perishable and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this clause are incorporated in the work the amount of such advance shall be deducted from the next payment made under any of the clause or clauses of this contract.

25. CERTIFICATES & PAYMENTS

(a) No payments shall be made for a work estimated to cost Rupees ten thousand or less till the whole of the work shall have been completed and certificate of completion given. But in the case of a work estimated to cost more than Rupees ten thousand, the contractor shall, on submitting the bill be entitled to receive a monthly payment proportionate to the part of the work executed, and to the satisfaction of the Engineer, whose certificate of the sum so payable shall be final and conclusive against the contractor, provided the amount of work done is as per the value of intermediate certificate or for a lesser amount at the discretion of the Engineer as mentioned in the NIT. All such intermediate payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the requiring of bad, unsound, imperfect or unskilled work to be removed and taken away and reconstructed, or rejected or be considered as an admission of the due performance of the contract, of any part thereof in any respect or the accruing of any claim nor shall it conclude, determine, or affect in any way the powers of the Employer under these conditions or any of them as to the final settlement and adjustment of the accounts or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within two months of the date fixed for the completion of work or of the date of the certificate of completion furnished by the Employer and payment shall be made within three months if the value of the completed works is upto Rs. two lakhs and in six months if the same exceeds Rs. two lakhs of the submission of such bill. If there shall be any dispute about any item or items of the work then the undisputed item or items only shall be paid within the said period of three months or six months as the case may be.

(b)

Whenever there is likely to be delay in recording detailed measurements for making a running payment, advance payment without detailed measurements for work done worked out at 75 per cent of the tendered rates for assessed quantities may be made in running account bills by the Employer on the basis of a certificate from the Engineer. The advance payments so allowed shall be adjusted in the subsequent running bills by taking detailed measurements thereof. Final payments shall be made only on the basis of detailed measurements.

- (c) A bill shall be submitted by the contractor each month on or before the date fixed by the Engineer on printed forms obtainable from the Engineer's office. The Engineer shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim, as far as admissible, adjusted as far as possible, before the expiry of ten days from the presentation of the bill. If the contractor does not submit the bill within the time fixed as aforesaid the Engineer may cause action within seven days of the date fixed as aforesaid, an authorised representative to measure up the said work in the presence of the contractor whose signature to the measurement will be sufficient warrant and the Engineer may prepare the bill from such measurements.
- (d) Before taking any measurement of any work the Engineer or his authorised representative deputed by him shall give reasonable notice to the contractor. If the contractor fails to attend after such notice or fails to sign or to record the difference within a week from the date of measurement in the manner required by the Engineer then in any such event the measurements taken by the Engineer or by the authorised representative deputed by him as the case may be, shall be final and binding on the contractor and the contractor shall have no right to dispute the same.
- (e) The charges in the bills shall always be entered at the rates specified in the agreement or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the agreement at the rate determined as per clause-10. However in case of partially executed items of work, the Employer at his discretion allows proportionate rates for such items of work as determined by the Engineer whose certificate of the sum so payable shall be final and conclusive against the contractor.

26. SECURITY DEPOSIT

- (a) The contractor shall permit the Employer at the time of making any payment to him for the work done and measured to deduct sum at the rate of 10 % of the gross value of work done in each running bill along with the Earnest Money if any, as already deposited by the contractor will amount to 10 % of the estimated cost of Rs 5.0 lakhs whichever is less, unless full amount of security deposit in cash or in the form of fixed deposit receipts pledged in favour of the Employer has been deposited.
- (b) In case a fixed deposit receipt of any scheduled bank is furnished by the contractor to the Employer as part of the security deposit and the bank goes into liquidation or for any reason is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Employer to make good the deficit of such sum from the running bill as mentioned above. Such deductions will be held by the Employer by way of security deposit, provided always that the Employer for this purpose shall be entitled to recover the said percentage of the amount from each running bill till the balance of the amount of security deposit is realised. All compensation or the other sums of money payable by the contractor under the terms of this contract may be deducted from the security deposit or from the interest arising therefrom or from any sums which may be due to or may become due to the contractor by the Employer on any account whatsoever and in the event of his security deposit being reduced by reason of any such deductions aforesaid, the contractor shall within ten days make good in cash or further fixed deposit receipt pledged in favour of the Employer. The security deposit shall be collected from the running bills of the contractor at the rates mentioned above and the earnest money if deposited at the time of tenders will be treated as part of the security deposit.
- (c) The contractor if he so desires may furnish fixed deposit receipt in advance towards the security deposit. Such fixed deposit receipt shall be of a minimum value of Rs 25000/- each. (The last such fixed deposit receipt could be of a lower value on the basis of the amount). In case any recovery is effected from running account bills, such recovered amount shall not be replaced with fixed deposit receipt. It is in the contractor's interest to keep a watch about the adequacy of the fixed deposit receipt submitted.
- (d)

No partial refund of security deposit shall be made during the defect liability period. In case the final bill is not settled within stipulated period for reasons beyond control and the Employer is satisfied that the security deposit is not required for adjustment of Employer's dues or whatsoever dues either in this or any other contract then this security deposit either in full or in part could be refunded at the sole discretion of the Employer.

- (e) In case of termination of contract, this security deposit shall be forfeited and amount necessary to make up this amount shall be recovered from money due to the contractor under this contract, or any other contract with the Employer.

27. COMPLETION CERTIFICATE

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Employer and within ten days of the receipt of such notice the Engineer shall inspect the work. If there is no defect in the work the Employer shall furnish the contractor with a certificate of completion otherwise a certificate of completion indicating defects shall be issued but the work shall not be considered to be completed until the contractor shall have removed from the premises on which the work shall be executed all the scaffolding, surplus material, rubbish, and all huts and sanitary arrangements required for his work, people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor and cleaned of the dirt, splashes, droppings of finishing items from all wood work, doors, windows, walls, floors or other parts of any building, in, upon or about which the work is to be executed or of which he may have had possession for the purpose of the execution thereof. If the contractor shall fail to comply with requirements of this clause on or before the date fixed for the completion of the work, the Employer may at the risk and cost of the contractor take action as he may think fit and the contractor shall have no claim except for any sum actually realised by the sale thereof.

28. ESCALATION

- (a) If the prices of materials not being supplied by the Employer and/or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contractor shall accordingly be varied, subject to the condition that compensation for escalation in prices shall be available only for the work done during the stipulated period of the contract including such period for which the contract is validly extended under the provisions of Clause-22 of General Conditions of Contract without levy of compensation under Clause-20 of General Conditions of Contract and also subject to the condition that no such compensation shall be payable for a work for which the stipulated period of completion is six months or less. Such compensation for escalation in the prices of materials and labour when due, shall be worked out based on the following provisions.
- (i) The base date for working out such escalation shall be the last date on which the tenders were stipulated to be received.
- (ii) The cost of work on which escalation will be payable shall be reckoned as the cost of the work as per the bills, running or final, and from this amount the value of material supplied by the Employer and proposed to be recovered in the particular bill shall be deducted before the amount of compensation for escalation is worked out. In case of materials brought to site for which secured advance is included in the bill full value of such materials as assessed by the Engineer in charge (and not the reduced amount for which secured advance has been paid), shall be included in the cost of work done for operation of this clause. Similarly when such materials are incorporated in the cost of work, the secured advance is deducted from the bill the full assessed value of the materials originally considered for operation of this clause shall be deducted from the cost of work shown in the bill running or final. Further the cost of work shall not include any work for which payment is made for any item at prevailing market rates.
- (iii) The compensation for escalation for materials & labour shall be worked out as per the formula given below:

$$VM = W \frac{A}{100} \times \frac{(MI - M10)}{M10}$$

VM—Variation in material cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W—Cost of work done worked out as indicated in sub para (ii) above.

A—Component of materials expressed as per cent of the total value of work and is predetermined as 75.

MI—Index numbers of Wholesale prices in India for all commodities published by the Reserve Bank of India for the period under reckoning.

MI6—Index numbers of Wholesale prices in India for all commodities published by the Reserve Bank of India on the date of receipt of tenders.

$$VL = W \frac{B}{100} \times \frac{(LI-LI_0)}{LI_0}$$

VL—Variation in labour cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W—Value of work done, worked out as indicated in sub para (ii) above.

B—Component of labour expressed as per cent of the total value of work and is predetermined as 25.

LI—All India consumer price index numbers for industrial workers published by the Reserve Bank of India for the period under reckoning as far the period under consideration.

LI0—All India consumer price index numbers for industrial workers published by the Reserve Bank of India and valid on the stipulated date of receipt of tenders.

- (b) The following principle shall be followed while working out indices mentioned in sub para (ii) above.
 - (i) The compensation for escalation shall be worked out at half yearly intervals and shall be with respect to the cost of work done during the six calendar months of the said work. The first such payment shall be made at the end of the six months after the month (excluding) in which the tender was accepted and thereafter at six monthly interval. At the time of completion of work, the last period for payment might become less than six months, depending on the actual date of completion.
 - (ii) The index (MI or LI) relevant to any six months for which such compensation is paid shall be the arithmetical average of the indices relevant to the six calendar months. If the period upto date of completion after the six months covered by the last such installment of payment, is less than six months, the index MI or LI shall be the average of the indices for the months falling within that period.
 - (iii) The base index (MI0 or LI0) shall be the one relating to the month in which the tender was stipulated to be received.
- (c) In the event the price of materials and/or wages of labour required for execution of the work decreases there shall be downward adjustment of the cost of work so that the price of materials and/or wages of labour shall be deductible from the cost of work under this contract and in this regard formula herein before stated under this clause shall mutatis mutandis apply, provided that no such adjustment for the decrease in the prices of materials and/or wages of labour aforementioned would be made in case of contracts in which the stipulated period of completion of the work is six months or less.

29. ARBITRATION

- (a) Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality or workmanship or materials used on the work or as to any other question, claim, right matter or thing whatsoever in any way arising out of or relating to the contract, designs, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the person appointed by the Director General, Council of Scientific and Industrial Research, at the time of such dispute or if there be no Director General, Council of Scientific and Industrial Research, the Administrative Head of the Council of Scientific and Industrial Research at the time of such appointment. The arbitrator to whom the matter is originally referred being unwilling or unable to act for any reason, such Director General or Administrative Head as aforesaid at the time of such inability or unwillingness to act shall appoint another person to act as arbitrator in

- the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Director General, Council of Scientific and Industrial Research or the Administrative Head of Council of Scientific and Industrial Research as aforesaid should act as arbitrator and if for any reason, that is not possible, the matter is not to be referred to arbitration at all. In all cases where the amount of dispute is rupees two lakhs and above, the arbitrator shall give speaking award.
- (b) It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.
- (c) It is also a term of the contract that if the contractor does not make any demand for arbitration in respect of any claim in writing within 90 days of receiving the intimation from the Employer that the final bill is ready for payment, the claim of the contractor will be deemed to have been waived and absolutely barred and the Employer shall be discharged and released of all liabilities under the contract in respect of these claims.
- (d) The Arbitrator may from time to time with consent of parties enlarge the time for making and publishing the award.
- (e) Subject as aforesaid the provisions of the Arbitration Act, 1940, or any statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration reference under this clause.

SPECIAL CONDITIONS

1. These special conditions are meant to amplify the general specifications and general conditions of contract.
2. Work shall be done as per CPWD specification. In case of any discrepancy, the order of precedence in interpretation shall be as under.
 - i) Schedule of quantities
 - ii) Drawings
 - iii) Additional conditions
 - iv) General Conditions of contract
 - v) Special condition
 - vi) Additional Technical Specifications
 - vii) CPWD latest Civil & Electrical specifications
 - viii) IS codes
 - ix) International codes
 - x) Best Engineering practice.
3. **STEEL**
Supply of the steel shall be in scope of contractor.
4. **CEMENT**
Supply of cement shall be in the scope of contractor.
5. Unless of otherwise provided in the schedule of quantities the rate tendered by the contractor shall apply for all heights, lifts, leads and depths of the work and nothing extra shall be payable on this account.
6. The surplus excavated earth which is beyond earth which is beyond the requirement of the employer's work may be allowed by the employer to be disposal off by the contractor on his own or sell the surplus excavated earth to private parties at his discretion but nothing extra will be paid for the carriage or disposal of surplus earth if the same is not required on any other work of the employer.
7. Selection of the final location and specified yield from the well will be the responsibility of the contractor.

ADDITIONAL CONDITIONS

1. The structural and architectural drawings shall at all times be properly correlated before executing any work. However, in case of any discrepancy in the item given in the Schedule of quantities appended with the tender and drawings relating to the relevant item the former shall prevail unless and otherwise given in writing by the Engineer.
2. No payment shall be made to the contractor for any damage caused by rain, snowfall, floods or any other natural cause whatsoever during the execution of work. The damage to work will be made good by the contractor at his own cost, and no claim on this account shall be entertained.
3. All materials used shall be as per specifications and ISI marked wherever applicable. ISI marking referred relate to latest BIS code as published by Bureau of Indian Standards upto 30 days before the date of opening the tender.
4. The Contractor shall give a performance test of the entire installation(s) as per standard specifications and/or as directed by the Engineer and will also submit test certificates as are required by Municipal/ Electrical authority or any other authority. Nothing extra shall be payable for the same other than the fees paid to such authorities which shall be reimbursed on production of receipts.

CONTRACTOR'S SITE SUPERINTENDENCE

Staff to be employed by the contractor on works: The contractor shall employ the following technical staff during execution of works:

- (a) For Building and Road works
- i. One Graduate Engineer, when the tendered cost of work exceeds Rs.10 lakhs.
 - ii. One qualified Diploma holder (Overseer) with experience not less than 3 years when the tendered cost of work exceeds Rs. 5 Lakhs but is less than Rs.10 Lakhs
 - iii. One qualified Diploma holder when tendered cost of work is more than Rs.2 lakhs but less than Rs.5 lakhs
- (b) For Sanitary and Water Supply works one qualified Diploma holder with experience of not less than 5 years, out of which one year should be in sanitary and water supply works when the tendered cost of work is more than Rs. 50,000/-.
- (c) For Electrical works
- i. One qualified Graduate Engineer possessing Degree in Electrical Engineering from recognized University with an experience of not less than 3 years or a Diploma holder in Electrical Engineering with in experience of not less than 7 years when the tendered cost of the work is not less than Rs.1.5 Lakhs.
 - ii. One Graduate Electrical Engineer with two Years experience or a Diploma holder in Electrical Engineering with experience of not less than 3 years, when the tendered cost of the work is more than Rs.75,000/- but less than Rs.1.5 Lakhs.
 - iii. One Diploma holder in Electrical Engineering with experience of not less than 3 years when tendered cost of work is more than Rs.37,000/- but less than Rs.75,000/-.
 - iv. One licensed Supervisor with experience of not less than 3 years when the tendered cost of work is more than Rs.7,500/- and less than Rs.37,000/-.
- (d) In case the contractor fails to employ the technical staff as aforesaid, he shall be liable to pay reasonable amount not exceeding the amount shown below for each month of default. These recoveries are subject to modifications from time to time by CSIR based on CPWD:
- i. In case when a Graduate Engineer is to be employed Rs.3000/-.
 - ii. In case when a qualified Diploma holder is required to be employed Rs.1500/-.
 - iii. In case when a technical supervisor is required to be employed Rs.750/-.

IV ADDITIONAL CONDITIONS OF CEMENT AND STEEL

CONDITIONS FOR CEMENT

1. The contractor shall procure 33 grade (conforming to IS: 269) or 43 grade (conforming to IS: 8112) ordinary Portland cement, as required in the work, from reputed manufacturers of cement, having a production – capacity of one million tones per annum or more, such as ACC, I&T, JP Rewa, Vikram, Shri Cement, Birla Jule and Cement Corporation of India etc., as approved by Ministry of Industry, Government of India, and holding, license to use ISI certification mark for their product whose name shall be got approved from the Engineer in charge. Supply of cement shall be taken in 50 Kg. Bags bearing manufacturer's name and ISI marking, samples of cement arranged by the contractor shall be taken by the Engineer in charge and got tested in accordance with provisions of relevant BIS codes. Incase test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time or written order from the Engineer in charged to do so.
2. The cement shall be brought at site in bulk supply of approximately 50 tones or as decided by the Engineer in charge.
3. The cement godown of the capacity to store a minimum of 2000 bags cement shall be constructed buy the contractor at site of work for which no extra payment shall be made. Double lock provisions shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer in charge or his authorized representative and the key of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement by the Engineer at any time.
4. The contractor shall supply free of charge the cement required for testing. The cost of tests shall be borne by the contractor.
5. The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in Clause 6 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause 6 of the contract and shall be governed by conditions laid therein.
6. Cement brought to site and remaining unused after completion of work shall not be removed from site without written permission of the Engineer in charge.

CONDITIONS FOR STEEL

1. The contractor shall procure steel reinforcement bars conforming to relevant BIS codes from main procedures as approved by the Ministry of steel. The contractor shall have to obtain and furnish test certificates to the Engineer in charge in respect of all supplies of steel brought by him to the site of work. Samples shall also be taken and got tested by the Engineer in charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to BIS codes, the same shall stand rejected and shall be removed from the site work by the contractor at his cost within a week's time from written orders from the Engineer in charge to do so.

INDENTURE FOR SECURED ADVANCES

THIS INDENTURE made the..... day of20.....
BETWEEN(hereinafter called the Contractor
which expression shall where the context so admits or implies be deemed to include
his heirs, executors administrators and permitted assignees) of the one part and
Council of Scientific & Industrial Research, New Delhi, a Society registered under the
societies Registration Act-1860 (hereinafter called the Employer which expression
shall include its successors and assignees and authorized officers of the Society) of
the other part.

WHEREAS by an agreement dated..... (hereinafter called the
said agreement) the Contractor has agreed AND WHEREAS the Contractor has
applied to the Employer that he may be allowed advances on the security of materials
absolutely belonging to him and brought by him to the site of the works the subject of
the said agreement for use in the construction of such of the works as he has
undertaken to execute at rates fixed for the finished work (inclusive of the cost of
materials and labour and other charges) AND WHEREAS the Employer has agreed to
advance to the Contractor the sum of Rupees
on the security of materials the quantities and other particulars of which are detailed
in Accounts of Secured Advances attached to the Running Account Bill for the said
works signed by the Contractor onand the
Employer has reserved to himself the option of making any further advance or
advances on the security of other materials brought by the Contractor to the site of the
said works. Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement
and in consideration of the sum of Rupees on or before
the execution of these presents paid to the Contractor by the Employer (the receipt
whereof the Contractor doth hereby acknowledge) and of such further advances (if
any) as may be made to him as aforesaid the Contractor doth hereby covenant and
agree with the President and declare as follows: -

- (1) That the said sum of Rupeesso
advanced by the to the Contractor as aforesaid and all or any further sum or sums
advanced as aforesaid shall be employed by the Contractor in or towards expediting
the execution of the said works and for no other purpose whatsoever.
- (2) That the materials detailed in the said Account of Secured Advances which
have been offered to and accepted by the Employer as security are absolutely the
Contractor's own property and free from encumbrances of any kind and the contractor
will not make any application for or receive a further advance on the security of
materials which are not absolutely his own property and free from encumbrances of
any kind and the Contractor indemnifies the Employer against all claims to any
materials in respect of which an advance has been made to him as aforesaid.

- (3) That the materials detailed in the said Account of Secured Advances and all
other materials on the security of which any further advance or advances may
hereafter be made as aforesaid (hereinafter called the said materials) shall be used by
the Contractor solely in the execution of the said works in accordance with the
directions of the Engineer and in the term of the agreement.



(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Employer or any officer authorised by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Engineer.

(5) That the said materials shall not on any account be removed from the said works except with the written permission of the Employer or an officer authorised by him on that behalf.

(6) That the advances shall be repayable in full when or before the Contractor receives payment from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. However if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the Employer will be at liberty to make a recovery from the Contractor's bill for such payment by deducting there from the value of the said materials then actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing to the Employer shall immediately on the happening of such default be repayable by the Contractor to the Employer together with interest thereon at twelve per cent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the Employer to repay and pay the same respectively to him accordingly.

(8) That the Contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rupees and any further sum or sums advanced as aforesaid and all costs charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the covenant for payment and repayment herein before contained shall become enforceable and the money owing shall not be paid in accordance therewith the Employer may at any time thereafter adopt all or any of the following courses as he may deem best :-

(a) Seize and utilise the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in

that behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor he is to pay same to the Employer on demand.

(b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the Contractor.

(c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the Contractor as aforesaid interest on the said advance shall not be payable.

In witness whereof the said and by the order and under the direction of the Employer have hereunto set their respective hands the day and year first above written.

Signed, sealed and delivered by the said contractor in the presence of :

Signature

Name

Address

Signed by.....

By the order and direction of the Employer in the presence of :

Signature

Name

Address

Signed by.....

PERFORMANCE GUARANTEE

To,
Council of Scientific & Industrial Research,

In consideration of Council of Scientific & Industrial Research (hereinafter) called "The Council" having awards to M/s----- a Company registered under the Companies Act-1965 (hereinafter) called the Contractor, a contract for (hereinafter) called the said contract under the terms and conditions of an Agreement dated----- made between the Council and the Guarantee as herein provided for Rs.----- (Rupees-----only) from Schedule Bank towards due performance of the contract by the Contractor as per the terms and conditions of the contract on the condition that the Bank on demand from the Council and without demur pay to the Council the aforesaid amount.

2. We----- Bank Ltd, (hereinafter) referred to as the 'bank' do hereby undertake to pay to the Council and amount not exceeding Rs. ----- against loss or damages caused to or suffered or would be caused to or suffered by the Council by reasons of any breach or breaches of any of the terms of conditions of the said agreement by the said contractor.

3. We----- Bank Ltd, do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the Council by stating the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Council for reasons of any breach by the said contractor (s) of any of the terms & conditions contained in the said agreement or by reason of the contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amounts due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. -----.

4. This guarantee shall come into force immediately and continue in force and remain valid till six months after the completion of all works under the said contract which according to the terms of the said contract, should be six months from the probable date of completion viz, the----- day ----- of ----- . If, however, the period of the completion of the work under the said contract is for any reason extended and upon such extension if the Contractor fails, before the terms of this guarantee expires, to furnish a fresh or renewed guarantee for the extended period, the Bank shall pay to Council the Said sum of Rs. ----- or such lesser sum as Council may demand.

5. This guarantee shall not be affected by any change in the constitution of the Bank or of the Contractor.

6. Notwithstanding anything hereinbefore contained, the liability of the Bank under this guarantee is restricted to Rs. ----- (Rupees -----day of ----- 20__ unless claim or demand under this guarantee is presented to the Bank within six months from that date all the rights of Council under this guarantee shall be forfeited and the Bank shall be released and discharged from all obligations hereunder.

AMENDMENTS - CONDITIONS OF CONTRACT FOR WORKS

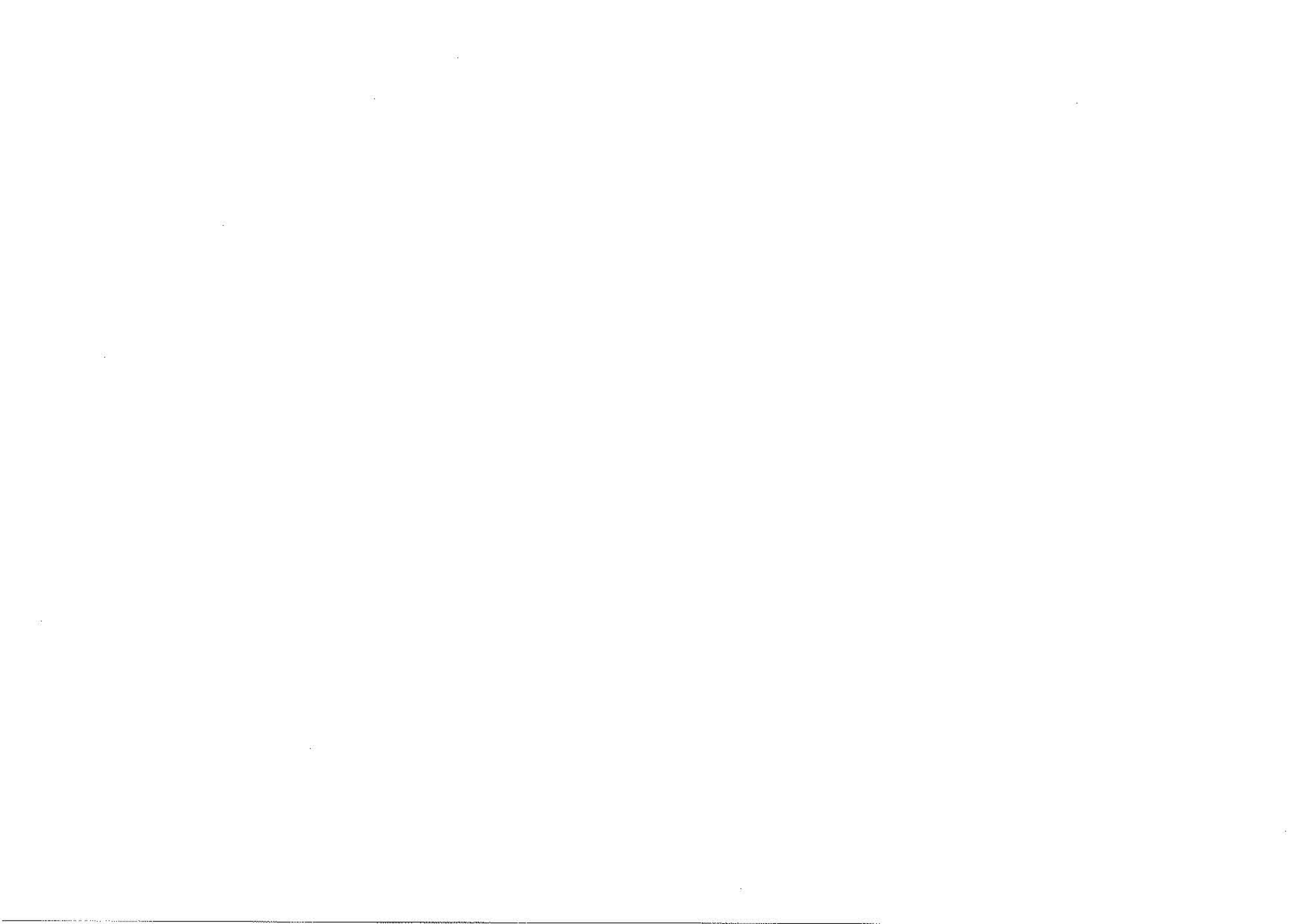
S.NO	PAGE	PARA	MODIFY
1.	2	1(a)	Amend Six to Twelve
2.	5	1(b)	Add a new sub para after 'WORK' as below :- "EMPLOYER" shall mean Director-General, CSIR or any officer authorized by Director-General for the purpose.
3.	6	After para 3	Add a new para 3A :- "SUFFICIENCY of TENDER. The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of the tender for the works and the rates and the prices quoted in the schedule of items, which rates and the prices shall, except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the works."
4.	8	6.	Add sub para (g) as "In case of easy availability of approved quality of cement and steel in the open market it will be Employer's discretion to make these items as contractor's supply."
5.	8	8(a)	Add "Annexure III refers."
6.	9	10	Add sub para 10(f) as "Deviation limits" Building work 30% Maintenance/emergency works 50% Foundation works 100% Services works 30%
7.	9	11 (b) first line	Modify to read as "If it shall appear to the Engineer or to the Employer based on audit/ technical examination that any work has been executed."
		5 th line	Amend six to twelve
		7 th line	Amend six to twelve
8.	12	19	Add "Contractor shall obtain a valid license under Contract Labour (R&A) Act 1970 and Contract Labour (R&A) Central Rules 1971 before commencing work and which should be valid till the completion."
9.	16	26(d)	Add "However, release of security deposit would be only after written clearance of Labour Officer regarding no dues or claims is received."
10.	17	28	Add sub para (d) as "Employer shall have the discretion to permit the IEMA (Indian Electrical & Electronics Manufacturers' Association) clause for escalator in case of specialized works e.g. lifts and electrical and mechanical installations etc. where the price variation is not similar to building works."
11.	17	29	Modify as below :- ARBITRATION (a) Except where otherwise provided in the contract, all questions and disputes relating to the interpretation of the specifications, designs,

			<p>drawings and instructions herein before mentioned, and as to the quality or workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, specifications, estimates, instructions, orders on these conditions or otherwise concerning the works, or the execution or failure to execute the same, whether arising during the progress of the work or after the completion or abandonment thereof, shall be referred to the sole arbitration of the person appointed by the Director-General, Council of Scientific and Industrial Research. The arbitrator shall be appointed within 30 days from the receipt of a request by any party. The arbitrator to whom the matter is originally referred, being unwilling or unable to act for any reason the Director-General shall appoint another person to act as of Arbitrator in accordance with the terms of the contract, such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. The arbitrator shall give a speaking award. The Award of the Arbitrator shall be final and binding on the parties. The cost of the Arbitrator shall be borne equally by both the parties.</p> <p>(b) It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.</p> <p>(c) It is also a term of the contract that if the contractor does not make any demand for arbitration in respect of any claim in writing within 90 days of receiving the intimation from the Employer that the final bill is ready for payment, the claim of the contractor will be deemed to have been waived and absolutely barred and the Employer shall be discharged and released of all liabilities under the contract in respect of these claims.</p> <p>(d) Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996, or any statutory modification or re-enactment thereof and the rules made there under and the time being in force shall apply to the arbitration reference under this clause</p>
12.	18	Add para 30	<p>Add para 30 to as under : "DISMANTLED MATERIAL" : The contractor shall treat all material obtained during dismantling of a structure, services, sub systems/installations, excavation of the site for a work etc., a employer's property and such material shall be disposed of to the best advantage the Employer according to instructions issued in writing by the Engineer.</p>

13.	18	Add para 31	<p>Add para 31 as : PERFORMANCE GUARANTEES</p> <p>"Performance Guarantee may be taken from the contractor before the award of work, by the officer authorized to award the contract, if and where considered necessary, to ensure that a part or whole of the contract is completed by the contractor. In case of non-performance, this guarantee could be encashed.</p>
14	19	2	<p>Modify as "In case of any discrepancy, the order of precedence in interpretation shall be as under:-</p> <ul style="list-style-type: none"> (i) Schedule of quantities (ii) Drawings (iii) Additional conditions (iv) General conditions of contract (v) Special condition (vi) Additional Technical Specifications (vii) CPWD Latest Civil and Electrical specifications (viii) IS codes (ix) International codes (x) Best Engineering practice
15	24		<p>Add Annexure III as below :</p> <p>Contractor's Site Superintendence</p> <p>Staff to be employed by contractor on works. The contractor shall employ the following technical staff during execution of works :-</p> <p>(a) For building and road works</p> <ul style="list-style-type: none"> (i) One Graduate Engineer, when the tendered cost of work exceeds Rs 10 lakhs. (ii) One qualified Diploma holder (overseer) with experience not less than 3 years when the tendered cost of work exceeds Rs 5 lakhs but is less than Rs 10 lakhs. (iii) One qualified Diploma holder when tendered cost of work is more than Rs.2 lakhs but less than Rs. 5 lakhs. <p>(b) For sanitary and water supply works one qualified diploma holder with experience of not less than 5 years, out of which one year should be in sanitary and water supply works when the tendered cost of work is more than Rs 50,000/-.</p> <p>(c) For electrical works:</p> <ul style="list-style-type: none"> (i) One qualified Graduate Engineer possessing Degree in Electrical Engineering from recognized university with an experience of not less than 3 years or a Diploma holder in Electrical Engineering with an experience of not less than 7 years when the tendered cost of the work is not less than Rs 1.5 lakhs. (ii) One Graduate Electrical Engineer with two years experience or a Diploma holder in Electrical Engineering with experience of not

			<p>(iii) less than 3 years, when the tendered cost of the work is more than Rs 75,000 but less than Rs 1.5 lakhs.</p> <p>(iii) One Diploma holder in Electrical Engineering with experience of not less than 3 years when tendered cost of work is more than Rs 37,000 but less than Rs 75,000.</p> <p>(iv) One licensed Supervisor with experience of not less than 3 years when the tendered cost of work is more than Rs 7,500 and less than Rs 37,000.</p>
16	16	Clause 28 Para (ii)	<p>(d) In case the contractor fails to employ the technical staff as aforesaid, he shall be liable to pay reasonable amount not exceeding the amount shown below for each month of default. These recoveries are subject to modifications from the time by CSIR based on CPWD.</p> <p>(i) In case when a Graduate Engineer is to be employed Rs 3,000/-.</p> <p>(ii) In case when a qualified Diploma holder is required to be employed Rs 1,500.</p> <p>(iii) In case when a technical supervisor is required to be employed, Rs 750.</p> <p>*The cost of work on which escalation will be payable shall be reckoned as 85% of the cost of the work as per the bills, running or final, and from this amount the value of material supplied by the Employer..... any items at prevailing market rates.*</p>





AMMENDMENT OF CONTRACT FOR WORKS IN CSIR		AMENDED PROVISION
1	Page 2 PARA 17(C)	Security deposit shall be deducted from the running bills at 10% of the gross value of work done and measured inclusive of Earnest Money subject to a maximum of Rs 5.00 Lakhs (Rupees five lakhs only).
2	Page 15 Ppara 26 (a)	Security deposit: The contractor shall permit the Employer at the time of making any payment to him for the work done and measured to deduct sum at the rate of 10% of the gross value of work done in each running bill alongwith the earnest money if any, as already deposited by the contractor will amount to 10% of the estimated cost or Rs 5.0 lakhs whichever is less, unless full amount of security deposit in cash or in the form of fixed deposit receipts pledged in favour of the Employer has been deposited.
3	Page 16 para 28(a)	Escalation: If the prices of materials not being supplied by the Employer and/ or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contractor shall accordingly be varied, subject to the condition that compensation for escalation in prices shall be available only for the work done during the stipulated period of the contract including such period for which the contract is validly extended under the provisions of Clause 22 of the General Condition of Contract without levy of compensation under clause 20 of General Condition of Contract and also subject to the condition that no such compensation shall be payable for a work for which the stipulated period of completion is six months or less. Such compensation for escalation in the prices of materials and labour, when due, shall be worked out based on the provision.
		A sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money will amount to security deposit of 5% of the tendered value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as Performance Security within the period for commencement of work in the letter of award issued to him. As per 1 above.
		Escalation: If the prices of materials not being supplied by the Employer and/ or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contractor shall accordingly be varied, subject to the condition that compensation for escalation in prices shall be available only for the work done during the stipulated period of the contract including such period for which the contract is validly extended under the provisions of Clause 22 of the General Condition of Contract without levy of compensation under clause 20 of General Condition of Contract and also subject to the condition that no such compensation shall be payable for a work for which the stipulated period of completion is eighteen months or less. Such compensation for escalation in the prices of materials and labour when due shall be worked out based on the provision.

Further the earnest money deposit will be 2% of the estimated cost of work for works costing upto Rs 25 crores and Rs 50 lacs and 1% of the excess of the estimated cost over Rs 25 crore instead of 2.5% of the estimated cost with a maximum limit of Rs 1.00 lacs only being sought presently.

UNDERTAKING BY THE BIDDER

File No.: 1/WKS/01/20-CL.

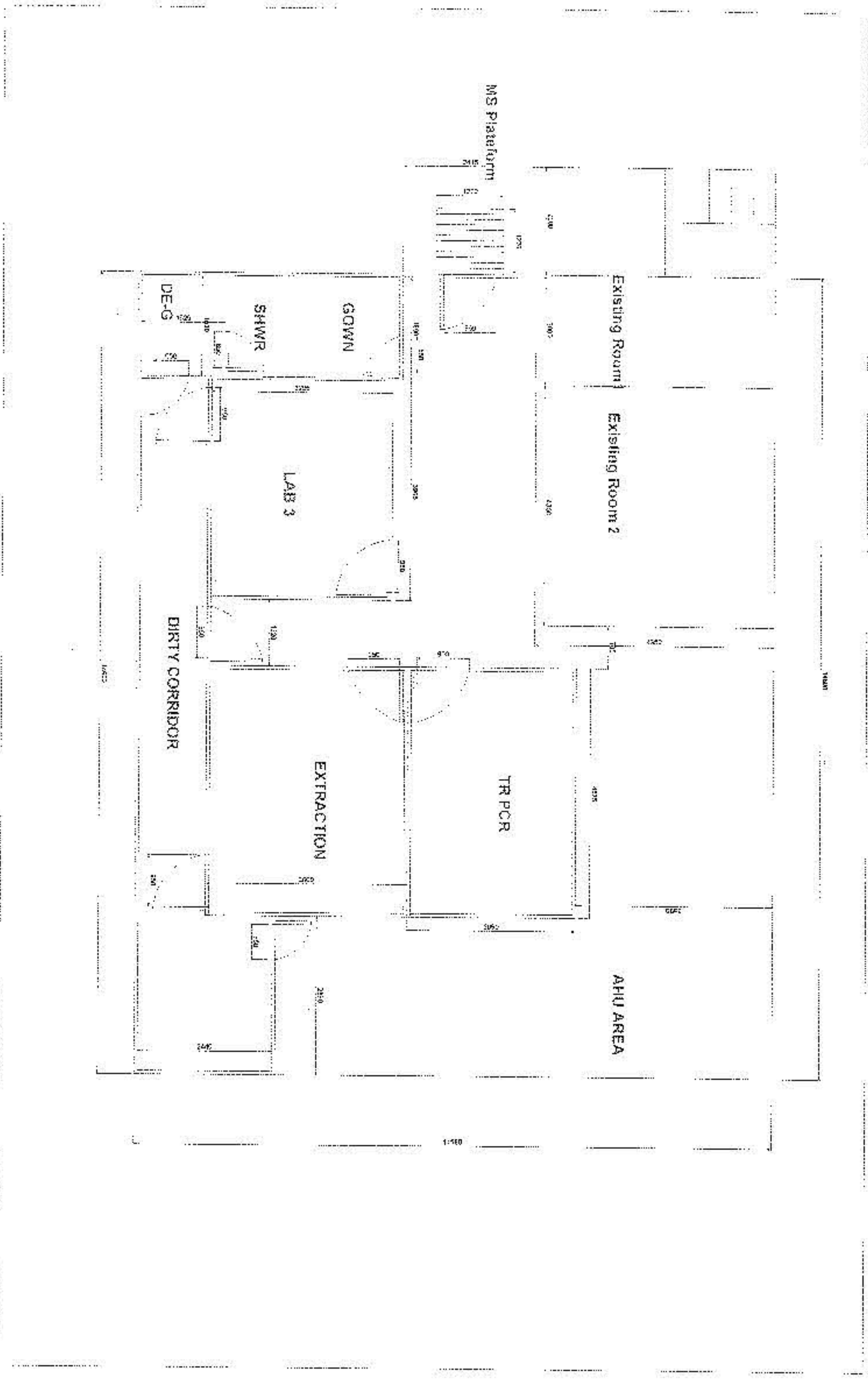
Date:

Name of Work: - Development of BSL-3 Laboratory for Covid-19 testing at 1st floor in Animal House building in garden at NBRI, Lucknow.

I/We, the bidder(s) have read/gone through the contents of the NOTICE INVITING TENDERS/TENDER DOCUMENT carefully and accordingly hereby giving undertaking to abide by the same terms and conditions of tender documents and are fully acceptable to me.

Department reserves the right of Non-consideration of Tender documents of the agencies who are not fulfilling the NIT stipulations and / or having adverse report on the works carried out by them in the past.

Signature with Seal and date



Item Rate BOQ

Tender Inviting Authority: <Director, C.S.I.R. - National Botanical Research Institute, Rana Pratap Marg, Lucknow.>

Name of Work: <Development of BSL-3 Laboratory for Covid-19 testing at 1st floor in Animal House building in garden at NBRI, Lucknow.>

Contract No: <1/WKS/01/20-GL>

Name of the Bidder/ Bidding Firm / Company

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	Item Description	NUMBER #	Quantity	TEXT #	Units	NUMBER #	BASIC RATE in Figures To be entered by the Bidder Rs. P	NUMBER #	TOTAL AMOUNT in Rs. P	NUMBER #	TOTAL AMOUNT in Words	TEXT #
1	2		4	5	7	8			10				
1		Part-A											
2.0		The Pre-fabricated modular construction is designed and constructed for exact size, easy field installation. The Pre-fabricated Clean Room will be a freestanding structure, constructed from composite free standing insulated special PPGI PUF panels with ANTI bacterial coating which will be Hard, Impact resistant, scratch resistant and having elastomeric properties. The entire panel assembly will be light weight having sound absorption and Heat Insulating properties. The PANELS ASSEMBLY should be based on a special G 1 material which is having non corrosive chemical resistant fire retardant non warping properties, the panels will be supported with galvanized steel/extruded aluminium structure which will be fabricated as per the site requirement. COMPLETE AS PER THE ENCLOSED TECHNICAL SPECIFICATIONS											
2.1		A. TR PCR Room size in mm (4550x 3050) :- 55.68 Sqm											
2.2		B. EXTRACTION Room size in mm (4550x 3610) :- 59.40 Sqm											
2.3		C. LAB 3 Room size in mm (3910x 3610) :- 44.76 Sqm											
2.4		D. Entrance Lobby area size in mm :-79.92 Sqm											
2.5		E. Dirty Corridor area:- 79.92 Sqm											
2.6		F. DE gowning area:- 18.90 Sqm											
2.7		G. Shower and Gowning area:-36.63 Sqm											
2.8		Total for above area = 375.21											
3		Flooring seamless with perfectly curved flash-covings, resistance to mechanical stress and dynamic loads and having ESD / EMI (conductive) protection		106.48		Sqm		0.00		INR Zero Only			
4		Tile based and membrane type control panel, mounted flush in the Clean room wall, comprising of the following:		3.00		set		0.00		INR Zero Only			
5		Pass Box		1		set		0.00		INR Zero Only			
6.0		Hermetically sealing type of manual door having features strictly as per the Technical specifications,											
6.1		A. Size appx (1000mm x 2100 mm)		6		set		0.00		INR Zero Only			
6.2		B. Size appx (750mm x 2100 mm)		4		set		0.00		INR Zero Only			

6.3	C. Size appx (650mm x 2100 mm)	1	set			0.00	INR Zero Only
7	Combined Electrical panel for AIR SUPPLY UNITS and Air Extractor Units having main Incomer with Overload protection, Display and monitoring of Voltage and current on individual Phases, Bus Bar base distribution, complete with MCCB, MCBs of sizes as per the requirement of Air Supply Units and Air Extractor Units with automated time delayed start and stop function	1	set			0.00	INR Zero Only
8	Air Handling Unit (AIR Supply Unit) - Constructed out of 0.6mm Pre-coated GI Outer Skin and Inner Skin: 0.6mm Plain GI having total Panel thickness: 50mm thick injected with 40kg / cum density, CFC free PUF insulation, having Extruded Thermal Break aluminium profile frame work, Its Material of Drain pan should be : 20G SS-304 with 12mm thick chemically cross linked fire retardant Polyurethane foam insulation, having Heavy Gauge GI Unit Base Frame. • DX COOLING COIL (R-410a Gas) should have GI Coil Casing, having Tube Material of Imported special grade copper tube, Tube Dia (inch/mm): 3/8" and 0.5mm Thickness of tube , having Header Material: Copper. It should have Special grade aluminium blue fins Chemical salt fog spray 1.5 times long life instead of plane aluminium fins alloy-sine wave and staggered pattern/ 0.13mm, Spacing of Fins should be 11-12. The air Supply Unit should have Face velocity across coil: 500 FPM Expansion of tubes for perfect bonding of copper tubes with fins should be Hydraulically, Pressurtested at 21 kg/sqcm (300psig) pneumatically dipped in water for 2 hours. Should have FAN and filter section completely as per the TECHNICAL Specifications	3	set			0.00	INR Zero Only
9	Air Extractor Unit 4000 CFM Air Handling Unit(AIR Supply Unit) - Constructed out of 0.6mm Pre-coated GI Outer Skin and Inner Skin: 0.6mm Plain GI having total Panel thickness: 50mm thick injected with 40kg / cum density, CFC free PUF insulation, having Extruded Thermal Break aluminium profile frame work, having Heavy Gauge GI Unit Base Frame, FAN and filter sections comprising of advanced Oxidation Process UV light chamber and H 14 grade HEPA filter sections. TECHNICAL Specifications of AIR Extraction/Discharge UNIT. The extracted air volume should be greater than the Volume of air supplied to respective rooms to achieve Negative Air pressure.	4	set			0.00	INR Zero Only
10	AIR COOLED Condenser unit - Nominal Cooling Capacity: 102000 Btu/Hr, 25704 K Cal/Hr , using Refrigerant R22/R 407 C, Pure polyester Powder coated GI Steel housing, having Nominal Air Flow: 5780 CMH/ 3400 CFM. Hermetically sealed scroll compressor, Propeller type condenser fan, Microprocessor Based controller with LCD display, Non-woven polyester media enclosed by HDPE Mesh Filter	3	set			0.00	INR Zero Only
11	Recess mounted IP54 Protocol non-hygroscopic peripheral lights having LED lamp and sigma - digital ballast	16	Nos			0.00	INR Zero Only

12	Air conditioning Work Outside the LAB by competent agency (Ducting and insulation)	1	LOT			0.00	INR Zero Only
13	Electrical Wiring work inside the LAB	1	LOT			0.00	INR Zero Only
14	Air Handling Unit For Dirty Corridor only) - Constructed out of 0.6mm Pre-coated GI Outer Skin and Inner Skin: 0.6mm Plain GI having total Panel thickness: 50mm thick injected with 40kg / cum density, CFC free PUF insulation, having Extruded Thermal Break aluminum profile frame work, its Material of Drain pan should be : 20G SS-304 with 12mm thick chemically cross linked fire retardant Polyurethane	1	set			0.00	INR Zero Only
15	Part-B						
16	MS Structure consisting of: () Bar, Net Bolts, MS Base and Top Plates, MS Hollow Pipes Columns, MS Hollow Pipes Truss and MS Hollow Pipes Perins of various sizes) Including Welding , drilling , fitting , Machines , Net Bolts , Anchor Fasteners, Hooks , MS Washers , Rivets and etc. complete with application of two codes of RED OXIDE Primer and Two Codes of Metal Paint					5500.00	0.00 INR Zero Only
17	0.6mm PPGL Corrugated Roofing Sheet With Riggs complete with rivets, Self tapping and self screw			1425.00	Kg		0.00 INR Zero Only
18	Civil Works : Making Of MS Column			12.25	Cum		0.00 INR Zero Only
19	Installation of Ceiling Mounted self propelled Non Motorized Mechanical Ventilators			4	Nos		0.00 INR Zero Only
20	Note:- Rates should be quoted inclusive of all Taxes, GST etc.						
Total in Figures						8.00	INR Zero Only
Quoted Rate in Words							INR Zero Only

TECHNICAL SPECIFICATION FOR BSL-2 LAB ROOMS WITH SUPPORTING INFRASTRUCTURE

SCOPE OF WORK: to Plan, supply and install BSL-3 Laboratory , with objectives of complete environment control and in accordance with the specifications, bill of quantities, including necessary Turnkey works.

1. SELF LOADING WALL & CEILING CLADDING SYSTEM

1) The Wall Cladding system will be based on a technological, modular unit designed to self-stand and to furnish interior spaces in controlled bacterial environments, in a flexible and functional manner. The Inner surface of a Wall surface should be created with high technology ANTIBACTERIAL pre coated SURFACE.

System should offer total ease of cleaning and sanitization of the inner surfaces, it should be designed avoiding sharp angles and corners; adjacent surfaces should be molded flushed by means of connecting elements. System should afford the maximum versatility at the planning stage and flexibility during erection, ensuring openness to future alternations and trouble –free maintenance. During the installation of first the structural parts and subsequently the finishing elements, the system should ensure perfect integration of technical networks and allows ample operational flexibility on the construction site.

The clean, dry installation method should enable optimum programming of the various work phases, allowing optimization of the installation of technical systems and any necessary alterations to be made – right up to checking and final testing of the installed systems – before the modules are sealed.

System should comprise of:

1. A self-loading sub frame load bearing structure.
2. Perimeter finishing panel.
3. Absolutely no Sealing gaskets (the appearance of Lab should be completely joint free, only permitted joints will be light fittings and accessories. No joint in walls and ceiling should be protruded, in order to make LAB inner surfaces completely free of infection all panels and joints should be flushed to one level.

System should assure the maximum independence from the surrounding environment because it should be composed of a sub frame made of specially designed Galvanized steel framework specifically manufactured for the self-standing structure and designed to create the necessary technical voids to house utility networks and pipe/cable drops. Self-loading, sub frame comprising of:

PPC steel fabricated Horizontal guides and rails sized to support the self-loading modules and prearranged for the future attachment of the connecting profile.

Horizontals made of galvanized steel pillars/rails with broad cross section and dual cavity, with geometry designed to achieve exceptional rigidity.

Perimeter finishing panels composed as follows: One side of the self-loading system should be clad with 60 mm thick PUF panels, which s other side is finished in ANTIBACTERIAL FLEXIBLE SURFACE:

- The result should be a durable and uniform bacteria static material that should be easy to clean and extremely hygienic.
- Internal balancing core in 40-50 mm. thick PUF Core material with suitable design to ensure the maximum rigidity.
- Interposition of 0.5 mm gauge PPGI sheet lamination between outer cladding and balancing core..
- Reaction to fire class 1.

The panels should be supplied with specially designed steel/PVC electrical conduit pipes inserted at pre-determined intervals that allow them to be clipped to the system self-loading sub frame by means of a clip interlocking system, these electrical conduits will be used for MV/LV electrical supplies.

In order to create a smooth uninterrupted surface between adjacent panels, thereby preventing the risk of the accumulation of dust and bacteria in gaps, the panel should be installed in an apparently single full height floor-to ceiling piece.

Continuous electrical conductivity of the partition modules for the scope of earth bonding or in order to create a Faraday cage effect should be obtained by interconnecting sub-structural elements with jumper leads.

CEILING

The hermetic ceiling for sterile rooms should be a self-load bearing structure in heavy gauge extruded PP Galvanized steel profiles with durable coating; The ceiling panels are mounted, interlocked with each other through tongue and groove joints. (Same as wall material), but in corrugated profiles, this corrugated design not only provides greater rigidity but helps in heat dissipation too. The Ceiling should be free of any apparent joint including gaskets, the ceiling will be both horizontal and ceiling and coving at the sides, entire ceiling structure will be of self-supporting type. It should be supported on the walls of same PUF panels, in such a manner that the flexibility is achieved even in complete suspension system.

2. FLOORING -ANTISTATIC CONDUCTIVE

A floor screed should be provided, flat to within a tolerance of +/- 3mm over any 3-metre area. Onto this sub floor, a self-leveling compound should be laid prior to laying of the floor finish. Copper grounding strips (0.05mm thick, 50mm width) should be laid flat on the floor in the conductive adhesive and connect to copper wire of grounding. The floor finishes in the operating room should be 2mm Conductive PVC tiles, laid on a semi conductive adhesive base. The floor finish should terminate at the room perimeter passing over a concealed cove former and continuing up the wall for 100mm. All joints should be welded with electrodes of the same compatible material to provide a continuous sealed surface. The floor should have an electrical resistance of 2.5x10 to 10 6 Ohms, as per DIN 51953 ATM F-150 or NFPA 99, B1 class of fire resistance and should meet UL standard 779. Fulfills product requirements as per EN 649.

3. HERMETICALLY SEALED Clean room DOOR SYSTEM.

To maintain sterility and correct Negative air pressure in the Clean room, all doors should be single leaf multi Hinged and hermetically sealed type. The door should meet following specifications:
International quality and safety requirements.

Noise level of movement should not be more than 60 decibel.

-Environment temperature should be -20 °C to +55° C.

The door frame should be made of high quality and robust design. Door panel should be made of PUF filled PPGI sheets that can withstand high abrasion. To ensure efficient sealing of the doors frames should be provided.

The door should seal on all four edges in the closed position & should be surface installed type.

The door frames should have Heavy duty concealed fixings that are adjustable during installation to ensure a 100% hermetic seal is achieved.

Vision panels, 300mm x 300 mm should be provided in the doors. The doors Installed in "Lab 3 and extraction room, Emergency EXIT door, doors in Dirty corridor towards shower room" should have opening arrangements only on one side of the Door to achieve absolute sterility, Doors should not be equipped with arrangements that it can be opened from the undesired direction.

All other doors will have opening arrangements and hardware on both sides of the doors.

CONSTRUCTIONAL FEATURES OF CLEAN ROOM DOORS

Structure frame and panels should consist of an Outer skin: 0.35 mm Pre- coated GI and an Inner Skin: 0.35 mm Plain GI, Door Panel thickness should be Minimum 40mm thick injected with 40kg / cum density, CFC free PUF insulation
Frame work: Extruded Thermal Break aluminum profile combined with PP GI frames
Gaskets and sealings: Heavy duty sealing arrangement as per clean room specs

LIGHT :

It should be fitted flush with the ceiling in the clean room. It should be suitable to the required illumination in LAB. Peripheral lights and clean room luminaires fitted in the frame, LED lamps, should have highly spectacular anodized Aluminum reflectors and optical antiglare system for adjustable light distribution. Luminaire cover made of highly resistant, disinfectant proof laminated safety glass with fine grained surface, glass pane with white powder coated steel frame. Luminaires' body made of sheet steel, white, powder coated supplied ready for connection. The reflectors should be of high quality, cleanable and non-deteriorating. Dimmable LED lamps of reputed companies to be used and diffuser should be constructed with opaque acrylic diffuser material in powder coated aluminum frames/ SS-304 frames. It should have flicker less design with color. Recess frames should be gas tight. The fitting should be flush with the ceiling and should be removable form top or bottom. Lighting units should be properly sealed with the ceiling by means of fillers and beadings so that all lighting units are airtight with ceiling panels. The light fitting should be uniformly and aesthetically distributed on the ceiling to provide uniform illumination in the OR. Peripheral lighting should be done according to IP65 protocol.

LAB CONTROL PANEL-

Control panel should be user friendly and ease of operating and maintaining purpose.

The touch screen typed Control Panel should be stationed in the sterile field. The Control Panel should be configured to incorporate the service required by the staff in the Lab. It should be mounted flush in the Lab wall. Hands free telephone set with memory card.

DISTRIBUTION BOARD AND ELECTRICAL WIRING, CONDUITING WITH FIXTURES INSIDE THE LAB COMPLEX

Electrical Distribution Board along with UPS, Transformers, Mains, Relays, Circuit prLABective equipment, for all circuits shall be installed in the remote cabinet. All electrical wiring should be terminated to the connectors mounted

on rail and labeled with indelible labels. Individual fuse and miniature circuit breakers should protect all internal circuits. Complete schematic diagram drawing description should be enclosed with the equipment.

Laying of PVC conduits, Modular Switch Boxes, Modular Switches-sockets, Power and Light wiring including Earthing wire for all the lighting controls, Pendant and other equipment fixtures and fittings inside the theatre Wiring with low leakage current wires of FRLS wires should be as per requirements. Wiring for 250 volts single phase and neutral 6/16 Amps switched socket outlet with 4 sq.mm and 2.5 sq.mm PVC insulated copper conductor 1100 volts stranded flexible wires should be concealed with conduit. Installation of all electrical cabling must be of IS: 1554 (As per latest amendment) standard and wiring as per IS: 732 standard and proper earthing of LAB and other accessories in the LAB room as per standard guidelines of BIS. Fittings should be sealed on accordance with the standard IP54. Earthed equipment bonding of all exposed metal work should be provided.

SCRUB STATION

Compact Surgical Scrub sink -1Bays should be designed for use in LAB complex providing personnels with a convenient sink for pre-LAB scrub up. The Scrub Sink should be made of 1.5mm thick AISI-304 Stainless Steel and top surface(Counter). The scrub sink should be provided with a front access panel which should be easily removed for access to the water controlled valve, waste connections, stoppers and strainers. Thermostatic mixing, valve control should be located behind the access panel and maintain constant water temperature. All units should have reduced splash resistant front. It should have manual foot operation mode.

PASS BOX:

A Hatch (Pass box) should be provided. Each Hatch should be equipped with two doors and the door should be operated electro mechanically. The Hatch should be designed in such a way that only one door should be opened at one time. The UV light should be so installed that it is kept on while both the doors are closed, this UV light has to be automatically turned off in case of opening of either of the doors. There shall be indicators on both sides of the LAB so that the door open/close status can be monitored from both ends. The material of construction should be Stainless steel of LABgrade; it should preferably be a SS Sandwiched panels design.

Magnehelic Gauge: It should have an undistorted plastic face for ease of read. It should be designed for quick response to pressure changes with no delay in asserting critical situations. Pointer should prevent damage if set points are crossed. Range 0-60 Pascals. High accuracy, due to diaphragm in vertical position. Size 4inch.

HVAC SYSTEM

100 percent fresh and treated air should be supplied in each CLEAN room to prevent cross contamination of air from clean and dirty areas. The Treated air should be supplied in these clean room duty filtered and at a desired temperature of 18-21 degree centigrade. Suitably sized and properly insulated air ducts should be strategically placed outside of these rooms, which will be connected to clean room SUPPLY air Diffusers.

The air supplied in the clean rooms then will be extracted out of the rooms through a heavy duty extraction Fan Filter Unit which will ensure elimination of pollutants before the air gets discharged in the atmosphere. This will be achieved by a UV chamber and H 14 Grade HEPA Filter section. A well balanced and in line fan will be installed in these extractors for effective maintenance of negative Air pressure in Clean Room.

First class aluminum extrusions should be used for supply and return grills body and with high grade Powder coated aluminum extruded sheet for blades.

The air treatment system should comprise of following:

Air supply unit: The air will be supplied to the Clean room after proper filtration, supplying air to provide temperature range of 19-22 degree Celsius.

CONSTRUCTIONAL FEATURES OF Supply UNIT STRUCTURE FRAME & PANELS

Outer skin: 0.6mm Pre-coated GI

Inner Skin: 0.6mm Plain GI

Panel thickness: 50mm thick injected with 40kg / cum density, CFC free PUF insulation

Frame work: Extruded Thermal Break aluminum profile

Material of Drain pan: 20G SS-304 with 12mm thick chemically cross linked fire retardant Polyurethane foam insulation.

Unit Base Frame: Heavy Gauge GI

DX COOLING COIL (R-410a Gas):-

Coil Casing: GI

Tube Material: Imported special grade copper tube

Efficiency of Fine-Filter(EU-5): 99 % down to 5 micron

Efficiency of HEPA-Filter(H-14): 99.999 % down to 0.3 micron

Type of filter: Flange type

Ducting and insulation: The ducting and insulation will be designed in such manner that chances of air leakages is completely eliminated, besides providing heat insulation and air volume transfer as per ASME.

Air cooled Air conditioning Unit:

Nominal Cooling Capacity: 102000 Btu/Hr, 25704 K Cal/Hr.

Refrigerant: R22/R 407 C

Housing: Pure polyester Powder coated GI Steel.

Nominal Air Flow: 5780 CMH/ 3400 CFM.

Compressor: Hermetically sealed scroll

Condenser: Air Cooled

Condenser Fan Type: Propeller

Controller: Microprocessor Based with LCD display

Filter: Non-woven polyester media enclosed by HDPE Mesh .

Ducting and insulation: The ducting and insulation will be designed in such manner that chances of air leakages is completely eliminated, besides providing heat insulation and air volume transfer as per ASME.

Tube Dia (inch/mm): 3/8"

Thickness of tube (mm): 0.5mm

Header Material: Copper

Fins Material & Thickness: Special grade aluminum blue fins Chemical salt fog spray 1.5 times long life instead of plane aluminum fins alloy-sine wave and staggered pattern/ 0.13mm

Fins Spacing (FPI): 11-12

Face velocity across coil: 500 FPM

Expansion of tubes for perfect bonding of copper tubes with fins: Hydraulically

Testing Pressure: 21 kg/sqcm (300psig) pneumatically dipped in water for 2 hours

FAN:-

Fan Section: With imported DIDW centrifugal Backward Curved Blower

Fan make: Nicotra/ Kruger(AMCA certified)

MOTOR:-

Motor make: ABB /BHARAT BULEE/HAVELLS/CROMPTON/MARATHON

Motor Protection: IP 55

Electrical Characteristics: 415 V/3 Phase/50 HZ AC Supply

Rated efficiency: IE-2

Drive set: Taper lock drive set (statically & dynamically balanced) with V-belts

FILTER :- (combo type)

Make Of Filters: Spectrum/Merchair or EQ

Media of Filters: Nonwoven Synthetic type supported with wire mesh

Efficiency of Pre-Filter(EU-4): 90 % down to 10 micron

Efficiency of Fine-Filter(EU-5): 99 % down to 5 micron

Type of filter: Flange type

Mixing Box: should be Provided

Strip Heater: should be Provided

Exhaust Unit: The air will be extracted out of the Clean room creating a negative pressure of -15 to -20 pascals, this extracted air will be properly treated to decontaminate the air by passing it through the UV Chamber and H14 Grade HEPA filter units, before it gets discharged into the atmosphere

CONSTRUCTIONAL FEATURES OF AIR Extraction/Discharge UNIT

STRUCTURE FRAME & PANELS:-

Outer skin: 0.6mm Pre- coated GI

Inner Skin: 0.6mm Plain GI

Panel thickness: 50mm thick injected with 40kg / cum density, CFC free PUF insulation

Frame work: Extruded Thermal Break aluminum profile

Material of Drain pan: 20G SS-304 with 12mm thick chemically cross linked fire retardant Polyurethane foam insulation.

Unit Base Frame: Heavy Gauge GI

UV Chamber (Gas Type):-

The UV chamber should work on advanced Oxidation Process in which Hydrogen Peroxide is added in presence of UV light to generate (OH). The chamber should be a sealed proof properly Insulated chamber in which air from clean room is passed at a relatively slow rates by means of baffle obstruction where UV light is installed

FAN Section :-

Fan Section: With imported DIDW centrifugal Curved Blower

Fan make: Nicotra/ Kruger(AMCA certified)

MOTOR:-

Motor make: ABB /BHARAT BULEE/HAVELLS/CROMPTON/MARATHON

Motor Protection: IP 55

Electrical Characteristics: 415 V/3 Phase/50 HZ AC Supply

Rated efficiency: IE-2

Drive set: Taper lock drive set (statically & dynamically balanced) with V-belts

FILTER :- (combo type)

Make Of Filters: Spectrum/Merchair or EQ

Media of Filters: Nonwoven Synthetic type supported with wire mesh

Efficiency of Pre-Filter(EU-4): 90 % down to 10 micron

Specification of Fabricated Steel Roof

SIZE: 17 Meter x 14 Meter(appx)

DESIGN WIND SPEED:

Wind speed to be calculated as per Moderate damage risk zone B (speed 33 to 39 m/s). Structure must be designed for seismic Zone 5.

ROOF:

The roof shall be provided in two way slope with **0.6mm** thick(TMT) PPGI corrugated sheet fixed on to the frame work of trusses and purlins using self-tapping self-drilling (STSD) screws with suitable washers. The roof-sheeting junction will be covered using 0.60mm thick PPGI ridge cover. Roof slope shall be 1:4 approx. The roof shall be done with corrugated Pre Painted Galvanized Steel Sheets and Pre Painted Galvanized Steel Sheet Ridge Cover with thickness of 0.50 mm conforming to **IS 14246:2013**. These corrugated Pre Painted GI Sheets are laid over a frame work of trusses, column and purlins fixed using suitable fasteners. A pre painted galvanized Steel Sheet ridge cover of size 305x305 mm is to be fixed on top junction of the roof using suitable fasteners.

ROOF STRUCTURAL FRAME WORK:

The roof shall be laid over a frame work of trusses, purlins and columns fixing using suitable fasteners. The trusses shall be made using ISI marked rectangular hollow sections of sizes affirming to latest **IS**. The trusses are provided at a distance of 2.44 or as necessary according to site conditions and standards and shall be supported on truss columns made using ISI marked rectangular hollow steel sections of sizes as per IS: 4923:1997 (Reaffirmed 2013) amendment, fixed with each using 6 mm thick MS end plates and nuts and bolts at top level. The columns shall be welded with thick MS end Plate and shall be fixed to the foundation bolts through this plate. The purlins shall be made using ISI marked rectangular hollow steel sections as per IS: 4923:1997 (reaffirmed 2013) provided on the trusses at a max. Pitch as prescribed in IS, fixed and flushed with the top level of trusses with the help of thick MS end plates and nut/bolts

ROOF PROJECTION:

The roof shall have minimum projection of 0.40 m from the eaves wall in case of no verandah in front and 0.30 m from the gable walls. Purlins will also be provided on the roof at the eaves and at gable roof extension (outside the structure) made from ISI marked RHS section of sizes as per IS: 4923:1997 (Reaffirmed 2013).

VERANDAH:

Existing Verandah (walk Path) shall be covered up to 1.525 m in width on all four side of the Building. The PPGI roof over the verandah shall be provided along the roof of the structure. The purlins provided at Verandah are made using ISI marked rectangular hollow steel sections of size 66x33 mm and are fixed and flushed with the top level of the truss extension member with the help of 5mm thick MS end plates and 10mm nut/bolts. The Verandah columns are made using ISI marked rectangular hollow steel sections of size 66x33 mm(appx sizes) fixed with the help of 5mm thick MS end plates and 10mm nuts/bolts at the top level and at leveled base by using 5mm thick MS end plates and 4 nos. 12 mm dia, 305 mm long foundation bolts.

VENTILATORS:

It is proposed to have 3 Nos self-balanced, non-motorized, heat extractor mechanical Ventilators.

(NOTE: The sizes mentioned above may vary according to the availability due to Pandemic situation.