



GOVERNMENT OF INDIA

CENTRAL PUBLIC WORKS DEPARTMENT

INDEX

Name of work: *Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.*

NITNo: - 30/EE-E/BCED/ CPWD/2026-27

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It is certified that this document contains five parts i.e. Part A, Part B, Part C and Part D, containing Page nos. 01 to 92 including Index and Excluding Schedule of Quantity.

This NIT amounting to 48,48,703/- (Rupees Forty Eight Lakh Forty Eight Thousand Seven Hundred and Three) Only is approved.

Assistant Engineer (El) (P)
BCED, CPWD
Salt Lake, Kolkata-64

Executive Engineer (El)
BCED, CPWD
Salt Lake, Kolkata-64



CENTRAL PUBLIC WORKS DEPARTMENT

Notice Inviting e-Tender

The Executive Engineer, Barasat Central Electrical Division, Central Public Works Department, Salt Lake, Kolkata-64 (Telephone No.: 033-23347347) on behalf of President of India online Percentage Rate tenders from approved and eligible registered Contractors of CPWD in appropriate Category of Building and Roads for the following work:

NIT No.	:	30/EE-E/BCED/ CPWD/2026-27
Name of Work	:	Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.
Estimated cost	:	₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)
Earnest Money	:	₹ 96,974.00
Performance Guarantee	:	5 % of tendered value or Estimated cost Put Tender, whichever is higher.
Security Deposit	:	2.5% of Tendered Value
Period for completion	:	04 (Four) Months
Last date & time for submission of bids	:	On 18.08.2026 up to 15:00 Hrs.
Date & Time of opening of Bids	:	On 18.08.2026 at 15:30 Hrs.

The bid forms and other details can be obtained from the website www.etender.cpwd.gov.in.

Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata



PART-A



CPWD-6

CPWD

**Government of India
Central Public Works Department**

**NOTICE INVITING TENDER
CPWD-6 FOR E-TENDERING**

1. Online percentage rate bids are invited behalf of President of India from CPWD enlisted contractor of appropriate class in Building and Roads category fulfilling eligibility criteria laid down in NIT, for the work of **“Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.”**

The enlistment of the contractors should be valid on the last date of submission of bids.

In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

- 1.1 The work is estimated to cost ₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)
- 1.2 This estimate, however, is given merely as a rough guide.
- 1.2.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids. For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.
2. Agreement shall be drawn with the successful bidders on prescribed Form No. **CPWD 7/ 8** (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **04 (Four) Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. (i) The site for the work is available.
(ii) The architectural and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.



7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
9. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee including e- Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks (drawn in favour of **“The Executive Engineer, Barasat Central Division-I, CPWD”** payable at **Kolkata**) shall be scanned and uploaded on the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or ₹ 20 lakh, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee including e- Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.

Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, who has deposited EMD with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 3.30 P.M. on 18.08.2026.

10. The bid submitted shall become invalid and e-Tender processing fee (if applicable) shall not be refunded if:
 - (i) The bidder is found ineligible.
 - (ii) The bidder does not upload scanned copies of all the documents stipulated in the bid document.



- (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
- (iv) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/ below on the total amount of the tender or any section/ subhead in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
11. The contractor whose bid is accepted will be required to furnish performance guarantee at specified percentage of the tendered amount as mentioned in schedule E and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the sub-contractors, if any engaged by the contractor for the said work within the period specified in Schedule F.
12. **The description of the work is as follows:**
- Name of work:** "Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore."
- Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.



14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/ Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Housing and Urban Affairs. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bids for the work shall remain open for acceptance for a period of 30 (thirty) days from the date of opening of bids in case of single bid system. Further
 - (i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidder/ contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of: -
 - (a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid



and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

(b) Standard C.P.W.D. Form 7/8 or other Standard C.P.W.D. Form as applicable.

20. For Composite Bids

20.1.1 The Executive Engineer in charge of the major component will call bids for the composite work. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.

20.1.2 The bid document will include following three components:

Part A: - CPWD-6, CPWD-7/8 including schedule A to F for the major component of the work, Standard General Conditions of Contract for CPWD 2014 as amended/ modified up to previous day of the last date of submission of tender.

Part B: - General/ specific conditions, specifications and schedule of quantities applicable to major component of the work.

Part C: -Schedule A to F for minor component of the work (competent authority under clause 2 and clause 5 shall be same authority as mentioned in schedule A to F for major components), General/ specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.

20.1.3 The bidders must associate himself, with agencies as per NIT conditions.

20.1.4 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.

20.1.5 After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE in charge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH in charge of minor components. One such signed set of agreement shall be handed over to EE/ DDH in charge of minor component(s).

EE of major component will operate Part A and Part B of the agreement. EE/DDH in charge of minor component(s) shall operate Part- C along with Part A of the agreement.

20.1.6 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.

20.1.7 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.

20.1.8 The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-Charge of relevant component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-Charge of relevant component(s).



- 20.1.9 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-Charge of relevant specialized component(s).

The new agency/ agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-Charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.

- 20.1.10 The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE-in-charge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the new contractor associated by him.

- 20.1.11 Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer-in-Charge of the discipline of minor component directly to the main contractor. The CMB shall be maintained independently by Engineer-in-Charge of major and minor components.

- 20.1.12A. The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-Charge of major component after record of completion certificate of all other components.

- 20.1.12B. Final bill of whole work shall be finalized and paid by the EE of major component.

Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.

21. The intending bidders are required to update their profile in CPWD e- tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/ uploading tender can be resolved through the concerned Executive Engineer/ Assistant Engineer (Phone no 033 23347347, e- mail Id eeebd884@gmail.com) or ERP helpline no. 18001803286 or E-mail: cpwd.support@techmahindra.com. The e- tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata



INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF BID DOCUMENT

The Executive Engineer, Barasat Central Electrical Division, Central Public Works Department, Salt Lake, Kolkata-64 (Telephone No.: 033-23347347) invites on behalf of President of India online Percentage Rate tenders from approved and eligible registered Contractors of CPWD in appropriate Category of Building and Roads for the following work:

Sl. No.	NIT No.	Name of work & Location	Estimated cost put to tender	Earnest Money	Period of completion	Last date & time of submission of bid, copy of receipt of deposition of original EMD and other documents as specified in the NIT	Time & date of opening of technical bid
1	2	3	4	5	6	7	8
1	30/EE-E/BCED/ CPWD/2026-27	Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.	₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)	₹ 96,974.00	04 (Four) Months	on 18.08.2026 up to 15:00 Hrs.	on 18.08.2026 at 15:30 Hrs.

- The intending bidder must read the terms and conditions of **CPWD-6** carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- This information and instructions for bidders posted on website shall form part of bid document.
- The bid document consisting of Plans, Specifications, Schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
- But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand draft or Banker's Cheque or Fixed Deposit



Receipts or/ and Bank Guarantee including e- Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favour of **Executive Engineer, Barasat Central Division-I, CPWD**; receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/ AE), CPWD and other documents as specified.

5. Those contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered/update their profile beforehand. The necessary training materials including the videos with step-to-step process are available on download section of <https://etender.cpwd.gov.in>.
6. The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations/ transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instruction available on download section of <https://etender.cpwd.gov.in>.
7. On opening date, the contractor can login and see the bid opening process. After opening of bids, he will receive the competitor bid sheets.
8. Contractor can upload documents in the form of JPG format and PDF format.
9. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour and the moment rate is entered, it turns sky blue.

In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO).

However, if a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/ below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

10. The Technical Bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the technical bid shall be communicated to them at a later date.
11. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
12. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.



List of Documents to be scanned and uploaded within the period of bid submission:

1. Treasury challan/ Demand draft/ Pay order or Banker's Cheque/ Deposit at Call Receipt/ Fixed Deposit Receipt of a Scheduled Bank/ Bank Guarantee of any Scheduled Bank against EMD. EMD deposit to be drawn in favour of Executive Engineer, Barasat Central Division-I, CPWD only acceptable. No abbreviated term will be accepted.
2. Copy of receipt for deposition of original EMD to division office of any EE, CPWD. Scanned copy of original Bank Guarantee including e-Bank Guarantee of any commercial Bank against EMD.
3. Enlistment Order of the Contractor in CPWD in appropriate Class of Building & Road category.
4. Valid Electrical Contractor License or undertaking that "I/ We shall either obtain valid electrical license at the time of execution of electrical work or associate an approved and eligible contractor of CPWD in appropriate class having valid electrical contractor license".
5. Email & mobile no. of the firm/ agency on the letter head of firm/ agency (For making correspondence).
6. GST registration Certificate, if already obtained by the bidder.

If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking along with bid documents:

"If work is awarded to me, I/we shall obtain GST registration certificate as applicable within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/we shall be responsible for any delay in payments which will be due towards me/us on account of the work executed and/or for any action taken by CPWD or GST department in this regard".

7. **An affidavit on ₹ 100.00 stamp paper duly attested by notary is to be uploaded as regard to that I/ we have not been debarred suspended for tendering in CPWD till the last date of submission of bid.**
8. Undertaking on structural stability and soundness as per prescribed format **Form 'F'** in the proforma given on page no. 15.
9. ERP Training Certificate.
10. ESIC & EPF registration certificate or proof of applying thereof.
11. **ANY OTHER DOCUMENT SPECIFIED IN THE NIT.**

**Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata**



SECTION-I

BRIEF PARTICULARS OF THE WORK

1. Salient details of the work for which bids are invited are as under:

Sl. No.	Name of work	Estimated cost	Period of completion
1	Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.	₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)	04 (Four) Months

2. The work site is situated at Regional Centre for National Security Guard at New Town, Rajarhat, Kolkata, W.B.

3. General Features and major components of the work are as under:

(a) The project consists of following buildings.:

Sl. No.	Name of Building/ Scheme	Approx. Plinth area and length of Boundary wall
A	Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.	

4. The work shall be executed according to General condition of contract 2023 (**Construction works**) with **up-to-date Amendments** for Central P.W.D available separately at printer's outlets or bidder may download from CPWD Website www.cpwd.gov.in. The bidder may obtain the address of outlets from Executive Engineer.

Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata



FORM 'F'

UNDERTAKING ON STRUCTURAL STABILITY AND SOUNDNESS OF ALREADY COMPLETED BUILDINGS AND INFRASTRUCTURE PROJECTS

I/we undertake and confirm that any building/ infrastructure constructed by our firm/ partnership firm/company has not suffered any failure, making it unfit for intended use, either due to structural design and defects or due to use of sub-standard materials or execution of sub-standard work, poor workmanship or any other reason during the last 25 (twenty-five) years.

I/we, further, undertake that if such information comes to the notice of CPWD, then Engineer-in-Charge shall be free to terminate the bid/ agreement and to forfeit the entire amount of earnest money deposit, performance guarantee and security deposits.

I/we, also undertake that in addition to above, the Engineer-in-Charge shall be free to debar us forever from tendering in CPWD.

The decision of Engineer-in-Charge or any higher authority shall be final and binding.

Signature of notary
with seal

Signature of bidder or an authorized person
of the firm with stamp

Note: Affidavit to be furnished on a 'Non-judicial' stamp paper of ₹ 200/- (scanned copy of the notarized affidavit to be uploaded at the time of submission of bid).



On non-judicial stamp paper of minimum ₹ 100

(Guarantee offered by Bank to CPWD in connection with the execution of contracts)

**Form of Bank Guarantee for Earnest Money Deposit/ Performance Guarantee/ Security Deposit/
Mobilization Advance**

1. Whereas **The Executive Engineer (E), Barasat Central Electrical Division, CPWD** on behalf of the President of India (hereinafter called "The Government") has invited bids under NIT No. **30/EE-E/BCED/ CPWD/2026-27** for ***Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.***"

The Government has further agreed to accept irrevocable Bank Guarantee for ₹..... (Rupees..... Only) valid up to..... (date)* as Earnest Money Deposit from..... (name and address of contractor) (herein after called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR**

Whereas **The Executive Engineer (E), Barasat Central Electrical Division, CPWD** on behalf of the President of India (herein after called "The Government") has invited bids under NIT No. **30/EE-E/BCED/ CPWD/2026-27** for ***"Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore."*** The Government has further agreed to accept irrevocable Bank Guarantee for ₹..... (Rupees..... Only) valid up to.... (date)*as Performance Guarantee/ security Deposit/ Mobilization Advance from..... (name and address of contractor) (hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

2. We, (Hereinafter referred to as "the Bank") hereby undertake to pay to the Government an amount not exceeding ₹..... (Rupees..... only) on demand by the Government within 10 days of the demand.
3. We, (Indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Government stating that the amount claimed as required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding ₹ (Rupees only).
4. We, (Indicate the name of the bank) further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of



the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in- Charge on behalf of the Government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

6. We, (indicate the name of the Bank)....., further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
8. We, (Indicate the name of the Bank) undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This guarantee shall be valid up tounless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to ₹ (Rupees.....) and unless a claim in writing is lodged with us within the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Date

Authorized Signatory
Name
Designation
Staff code No.

Witnesses:

1. Signature

Name and address

2. Signature.....

Name and address

* The Performance Guarantee shall be submitted by the contractor on format as per GCC and shall be initially valid up to the stipulated date of completion plus minimum 6 months beyond that.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/ Security deposit/ mobilization advance, as the case may be.



INFORMATION AND INSTRUCTIONS FOR EXECUTIVE ENGINEER FOR e-TENDERING

- (i) The Engineer-in-Charge/ DDH of any divisions/ projects of CPWD or any other officer designated by CPWD Directorate from time to time, are authorized to receive the EMDs. These authorities should receive the original EMD for their tenders or tenders of any other division/ projects.
- (ii) The NIT approving authority/ Tender inviting authority at the time of issue of NIT also fills and upload the following prescribed format of receipt of deposition of original EMD along with NIT: -

Receipt of deposition of original EMD	
(Receipt No. / Date.....)	
1. Name of work:	Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.
2. NIT No.	30/EE-E/BCED/ CPWD/2026-27
3. Estimated cost:	₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)
4. Amount of Earnest Money Deposit:	₹ 96,974.00
5. Last date of submission of bid:	18.08.2026 up to 15:00 Hrs.
(*To be filled by Tender inviting authority/NIT approving authority at the time of issue of NIT and uploaded along with NIT)	
6. Name of Contractor:	#
7. Form of EMD:	#
8. Amount of Earnest Money Deposit:	#
9. Date of submission of EMD	#
Signature, Name and Designation of EMD receiving officer along with Office stamp	#
(# To be filled by EMD receiving EE/ DDH)	

- (iii) The Authority receiving EMD in original form examines the EMD deposited by the bidder and issues receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting authority. The receipt can also be issued by any subordinate gazette authority as authorized by the Engineer-in-Charge/DDH.
- (iv) The authority receiving original EMD also intimates tender inviting authority about deposition of EMD by the agency by email/fax/telephonically.
- (v) The original EMD receiving authority releases the EMD to unsuccessful bidders after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier, after verification from the e-tendering portal website (<https://etender.cpwd.gov.in>>closedTender>all) that the particular contractor is not L-1 tenderer and work is awarded.
- (vi) The tender inviting authority calls for original EMD of the L-1 tenderer from EMD receiving authority immediately.

**Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata**



C.P.W.D.- 7

GOVERNMENT OF INDIA CENTRAL PUBLIC WORKS DEPARTMENT

STATE: - West Bengal
BRANCH: - B&R

CIRCLE: - SE-Barasat
DIVISION: - BCED, BCD-I

Percentage Rate Tender & Contract for Works

(A) Tender for the work of: *Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.*

- (i) To be uploaded by 15:00 hours on 18.08.2026 to/ upload at E-Tendering website etender.cpwd.gov.in or www.cpwd.gov.in.
- (ii) To be opened in presence of tenderers who may be present at 15:30 hours on 18.08.2026 in the office of Executive Engineer (E), Barasat Central Electrical Division, CPWD, Salt Lake, Kolkata.

TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the President of India within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

I/We agree to keep the tender open for 30 days from the due date of its opening in case of single bid system from the date of opening of technical bid in case tenders are invited on 2/3 bid / system for specialized work and not to make any modification in its terms and conditions.

A sum of ₹ 96,974.00 is hereby forwarded in ~~cash~~ / receipt treasury challan / deposit at call receipt of a scheduled bank / fixed deposit receipt of scheduled bank / demand draft of a scheduled bank bank guarantee issued by a scheduled bank as earnest money.

I/We have deposited EMD for the prescribed amount of in the office of concerned Executive Engineer as per the bid document.

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a Commercial Bank, is scanned and uploaded (strike out as the case may be). If I/ We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/ We agree that President of India or the successors in office shall without prejudice to any
AE(P)(E) Addition: NIL Correction: NIL Overwriting: NIL Deletion: NIL EE (E)



other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/ We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/ We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back-to-back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for tendering in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/ Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/ We am/ are authorized to communicate the same or use the information in any manner prejudicial to the safety & integrity of the State.

Dated

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of ₹.....*..... (Rupees.....*.....)

The letters referred to below shall form part of this contract agreement: -

a)

b)

c)

d)

For & on behalf of the President of India.

Signatures ...*...

Dated:

Designation ...*...

To be filled by*....EE

AE(P)(E)

Addition: NIL

Correction: NIL

Overwriting: NIL

Deletion: NIL

EE (E)

**PROFORMA OF SCHEDULES**

(Separate Performa for Civil, Elect. & Hort. Works in case of Composite Tenders)

SCHEDULE 'A'

Schedule of quantities (as per PWD-3)

As per page 127 to 130

SCHEDULE 'D'Extra schedule for specific requirements/
document for the work, if any.

As attached in tender documents

SCHEDULE 'E'

Reference to General Conditions of contract.

CPWD General Condition of Contract for
Construction works 2023 with amendments issued
up to last date of submission of bid.

Name of work:

Renovation of controlled environment plant growth
facility at Biotechnology unit ICAR, CRIJAF,
Barrackpore.

Estimated cost of work:

**₹ 48,48,704.00 (Electrical ₹ 26,26,295.00
+ Civil ₹ 22,22,409.00)**

(i) Earnest money:

₹ 96,974.00 (to be returned after receiving
performance guarantee)

(ii) Performance Guarantee:

**5 % of tendered value or Estimated cost Put
Tender, whichever is higher.**A bid will be treated as abnormally low if the quoted bid
amount is lesser than 80% of the estimated cost put to
Tender.In case of abnormally low bids as defined above, the bidder shall be
required to submit Additional Performance Guarantee (APG) in
addition to the Standard Performance Guarantee (PG). The amount
of Additional Performance Guarantee (APG) shall be equivalent to
the difference between the 80% amount of ECPT and quoted
amount. (e.g. if ECPT is A and quoted amount is 0.70A then the
amount of APG shall be (0.80A - 0.70A)

(iii) Security Deposit:

2.5% of tendered value.

SCHEDULE 'F'GENERAL
RULES &
DIRECTIONS:

Officer inviting tender:

The Executive Engineer (E), Barasat
Central Electrical Division, CPWD,
Kolkata.Maximum percentage for quantity
of items of work to be executed
beyond which rates are to be
determined in accordance with
Clauses 12.2 & 12.3:

See below

**Definitions:**

2(vi)	Engineer-in-Charge	The Executive Engineer, Barasat Central Electrical Division, CPWD, Kolkata.
2(viii)	Accepting Authority	Superintending Engineer, Barasat, CPWD, Nizam Palace, Kolkata.
2(x)	Percentage on cost of materials and labour to cover all overheads and profits.	15%
2(x)(a)	Standard Schedule of Rates	MARKET RATE/DSR 2025
2(xi)	Department	Central Public Works Department
9(ii)	Standard CPWD contract Form GCC 2023, CPWD Form 7/ 8 as modified & corrected up to	CPWD General Condition of Contract for Construction works 2023 with amendments issued up to last date of submission of bid.

Clause 1

- (i) Time allowed for submission of Performance Guarantee, programme chart (Time and progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board or proof of applying thereof from the date of issue of letter of acceptance 07 days
- (ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above 03 days

Clause 2

Authority for fixing compensation under clause 2. Superintending Engineer, Barasat, CPWD, Nizam Palace, Kolkata.

Clause 2A

Applicable Clause 2A No.

Clause 3

Applicable as modified/ as per amendment up to date till the date of acceptance of tender.

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start 10 days

Sl. No.	Description of Milestone (Physical)	Time Allowed in days (from date of start)	Amount to be with-held in case of non-achievement of milestone
1	2	3	4
Not Applicable			

Time allowed for execution of work.

04 (Four) Months

**Clause 5.4**

Schedule of rate of recovery for delay in submission of the modified programmed in terms of delay per day basis.

Sl. No.	Contract value	Recovery per day basis
(i)	Works costing up to ₹ 20 Crore	₹ 500/-

Authority to decide:

- | | |
|--|--|
| (i) Extension of time | Executive Engineer (E), BCED, CPWD, Kolkata or successor thereof. |
| (ii) Rescheduling of mile stones | Superintending Engineer, Barasat, CPWD, Nizam Palace, Kolkata. |
| (iii) Shifting of date of start in case of delay in handing over of site | Superintending Engineer, Barasat, CPWD, Nizam Palace, Kolkata. |

PROFORMA OF SCHEDULE clause 5 Schedule of handing over the site:

Part	Portion of site	Description	Time period for handing over reckoned from date of issue of letter of intent
Part A	Portion without any hindrance	Full site	05 (Five) days
Part B	Portion with encumbrances	NA	NA
Part C	Portion dependent on work of other agencies	NA	NA

Clause 6

Computerised Measure Book (CMB)/ Electronic Measurement Book (EMB)

- | | |
|--------------------------|-----|
| (i) Mode of measurement: | CMB |
|--------------------------|-----|

Clause 7

Gross work to be done together with net payment/ ₹ 10.00 lakh
adjustment of advances for material collected, if any,
since the last such payment for being eligible to interim
payment

Clause 7A

Whether clause 7A shall be applicable

Yes

No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-Charge.

**Clause 8A**

Authority to decide compensation on account of Superintending Engineer, Barasat, CPWD, contractor fails to submit completion plans Nizam Palace, Kolkata.

Clause 10A

List of mandatory machinery, tools and plants & testing Equipment to be deployed by the contractor at site, this equipment shall be available in the test room at site.

1. Earth tester
2. Insulation Tester
3. Steel/Aluminium Ladder 1.5 m to 8 m.
4. Chase cutting machines.
5. Electrical wire drawing equipment.
6. Torque wrench for nut/ bolt/ screws.
7. Conduit die set.
8. Pipe vice.
9. Bench vice.
10. L.T. Meggar 500/ 1000 volts.
11. Tong Tester.
12. Multimeter.
13. Hydraulically operated & hand operated crimping machine.
14. Portable Ordinary drilling machine.
15. Portable Hammer drilling machine.
16. Overhead conduit puller.
17. Vernier caliper.
18. Screw gauge.
19. Required other T&P for completion of work.

Clause 10B(ii)

Whether Clause 10B(ii) shall be applicable

No

Clause 10C

Component of labour expressed as percent of value of work:

Applicable/Not Applicable

Clause 10CC

Applicable/ Not Applicable

Not Applicable

Clause 11	Specification to be followed for execution of work:
For Civil items of work	As per Civil Component
For Electrical & Mechanical of work	General Specifications for Electrical for Works as applicable and amended up to date. And also, as per direction of the E-in-C.

Clause 12	Construction Work	
12.2 & 12.3	Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work (including foundation work)	100%



Clause 16	Competent Authority for Deciding reduced rates:	
	For Civil items of work	Superintending Engineer-Barasat, CPWD, Kolkata or successor thereof or Higher authority.
	For Electrical & Mechanical items of work	Superintending Engineer-Barasat, CPWD, Kolkata or successor thereof or Higher authority.
Clause 18	List of mandatory machinery, tools & plants to be deployed by the contractor at site.	As attached

Clause 19		Labour laws to be complied by the contractor as per OM No. DG/CON/325 dated 05-05-2022.
Clause 19C	Authority to decide penalty for each default	Executive Engineer (E), BCED, CPWD, Salt Lake, Kolkata or successor thereof.
Clause 19D	Authority to decide penalty for each default	Executive Engineer (E), BCED, CPWD, Salt Lake, Kolkata or successor thereof.
Clause 19G	Authority to decide penalty for each default	Executive Engineer (E), BCED, CPWD, Salt Lake, Kolkata or successor thereof.
Clause 19K	Employment of skilled / semi-skilled workers.	Applicable

- Clause 25: Constitution of Dispute Redressal Committee (DRC)**
- (i) Conciliator: **Special Director General (Kolkata) or successor thereof.**
 - (ii) Arbitrator appointing authority: **Superintending Engineer-Barasat, CPWD, Kolkata or successor thereof.**
 - (i) Place of Arbitration: **Kolkata.**

Clause 32**Requirement of Technical Representative(s) and Recovery Rate**

Sl. No.	Requirement of Technical staff		Minimum experience (Years)	Designation of Technical staff	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 36(i)
	Qualification	Number (of Major + Minor Component)			
1	Graduate Engineer or Diploma Engineer	1 of major component	2 or 5 respectively	Project Manager cum planning/ quality/ site/ billing Engineer	₹ 15,000/- per month per person

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 years “relevant experience with a reputed construction co.” can be treated at par with Graduate Engineers for the purpose of such deployment subject to condition that such diploma should not exceed of 50% of requirement of degree engineers.

AE(P)(E) Addition: NIL Correction: NIL Overwriting: NIL Deletion: NIL EE (E)

**Clause 38**

i)	Schedule/ statement for determining theoretical quantity of cement & bitumen on the Basis of Delhi Schedule of Rates 2023 printed by C.P.W.D.	
ii)	Variations permissible on theoretical quantities	
a)	Cement:	
	For works with estimated cost put to tender not More than ₹ 25 lakh.	3% plus/minus. (Three percent)
	For works with estimated cost put to tender more than ₹ 25 lakh	2% plus/minus. (Two percent)
b)	Bitumen all works.	2.5% plus & nil on Minus side
c)	Steel Reinforcement and structural steel sections For each diameter, section and category	2% plus/minus (Two percent)
d)	All other materials	

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of Item	Rates in figures and words at which recovery shall Be made from the Contractor	
		Excess beyond Permissible variation	Less use beyond permissible variation
1.	Cement	NIL	Not allowed
2.	Steel Reinforcement		
3.	Structural Sections		
4.	Bitumen issued free		
5.	Bitumen issued at stipulated fixed rice		



APPENDIX – XVII

Reference of disputes and amount claimed for each dispute to the Conciliator. [Refer to Clause 25]

To
The ADG/SDG
.....(Region).....
.....

Subject: Reference of disputes and amount claimed for each dispute to the Conciliator for settlement of disputes relating to agreement number:
.....

Dear Sir,

In terms of clause 25 of the aforesaid agreement, particulars of which are given below. I/We hereby refer my/ our disputes and amount claimed for each dispute to you for settlement in your capacity as Conciliator.

1. Name of applicant
2. Whether applicant is Individual / Proprietorship Firm /Partnership Firm /Company
3. Full address of the applicant
4. Name of the work and contract number for which arbitration is sought
5. Name of the Division which entered into contract
6. Contract amount
7. Date of contract
8. Stipulated date of start of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made:
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of claim made to Engineer-in-Charge:
17. Date of receipt of decision from Engineer-in-Charge:

I/We certify that the information given above is true to the best of my / our knowledge. I/We enclose the statement of claims with amount of each claim.

Yours faithfully,

Signature of the applicant
(Only the person/authority who signed the
Contract should sign here)

Copy to:

1. The Chief / Superintending Engineer
2. The Executive Engineer..... Division



APPENDIX – XVIII
Notice for appointment of Arbitrator
[Refer to Clause 25]

To
The Chief Engineer/ Superintending Engineer
..... (Zone or Circle)
.....

Subject: Notice for appointment of Arbitrator for adjudication of disputes relating to agreement
number:

Dear Sir,

In terms of clause 25 of the aforesaid agreement, particulars of which are given below.
I/We hereby give you notice to appoint an Arbitrator for adjudication of disputes mentioned below.

1. Name of applicant
2. Whether applicant is Individual / Proprietorship Firm
/Partnership Firm /Company
3. Full address of the applicant
4. Name of the work and contract number for which
arbitration sought
5. Name of the Division which entered into contract
6. Contract amount
7. Date of contract
8. Stipulated date of start of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made:
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of reference made to SDG/ADG for conciliation, if
applicable:
17. Date of termination of conciliation proceedings:
18. I/We hereby give consent for appointment of Arbitrator of
MoHUA. Waiver agreement as per Appendix-XIX is
enclosed. or I/We do not give consent for appointment of
Arbitrator of MoHUA



I/We certify that the information given above is true to the best of my / our knowledge. I/We enclose the following documents

1. Statement of claims with amount of each claim.
2. "Agreement of waiver of Section 12(5) of the Arbitrator and Conciliation Act, 1996 in Appendix – XIX.

Yours faithfully,

Signature of the applicant
(Only the person/authority who signed the
Contract should sign here)

Copy to:

1. The Executive Engineer..... Division



APPENDIX – XIX

**Agreement towards waiver of Section 12(5) of Arbitration & Conciliation Act 1996
[Refer to Clause 25]**

1. Whereas certain disputes have arisen between M/s.....
(claimants) and M/s (respondents) relating to agreement
No.....
2. And whereas the parties are aware that Shri..... is on the
cadre of CPWD; presently on deputation as Arbitrator, Ministry of Housing and Urban
Affairs, Government of India.
3. I/We agree for the appointment of Shri..... as
the sole Arbitrator for adjudication of the disputes, and we hereby waive the applicability
of Section 12(5) of the Arbitration & Conciliation Act, 1996.

Yours faithfully,

Signature
(Only the person/authority who signed the
Contract should sign here)

Name

Date:

(The name of the Arbitrator, Ministry of Housing and Urban Affairs, Government of India may be
enquired from the Engineer-in-Charge, if required)



(Proforma for encashment of BG to be issued 14 days before its expiry)

To
The Manager
..... (Name and address of bank)
.....
.....

Subject: Request for encashment of Bank Guarantee number dated
for Rs..... Valid up to towards earnest money deposit /
performance guarantee / security deposit / mobilization advance (as applicable).

Name of contractor:

Dear Sir,

The above-mentioned Bank Guarantee number dated is valid up to
..... in terms of paragraph 2 of the said Bank Guarantee, the Government of India
hereby demands a sum of Rs..... (Rupees
..... only) payable under this Bank Guarantee since this amount
is required to meet the recoveries due from (Name of the contractor)
..... The amount shall be paid latest by (give date) By
transfer to account number

The aforesaid Bank Guarantee is being sent to you through (name and
designation) along with this letter.

Enclosure: Bank Guarantee

Yours faithfully,

Name of Executive Engineer
.....Division, CPWD
..... Landline number
.....Mobile number

Copy to:(Name & address of the contractor)

Executive Engineer



(Proforma for extension of BG to be issued 30 days before its expiry)

To

..... (Name and address of contractor)

.....
.....

Subject: Extension of Bank Guarantee number Dated issued by
..... (Name of Bank)

Name of Work

.....
Agreement Number

Dear Sir,

The Bank Guarantee number dated
submitted by you for the above-mentioned work as security deposit/performance guarantee/ mobilization
advance/ earnest money deposit (as applicable) is valid up to

The validity of the aforesaid bank guarantee needs to be extended because
..... (Give reasons)
.....

You are, therefore, requested to get the validity of the said Bank Guarantee extended up to
..... and submit the same to this office within 15 days from the issue of this letter failing
which it shall be uncashed without further notice.

Yours faithfully,

Executive Engineer
.....Division, CPWD

[Note for EE: If extended Bank Guarantee is not received by the prescribed date, action for encashment
must be initiated].



PART-B (Electrical & Mechanical Works)



GENERAL AND COMMERCIAL CONDITIONS

1. This section covers the various commercial conditions applicable and to be read in connection with the conditions of contract of the standard form (CPWD-7/ 8) of the department (CPWD) forming part of the tender papers. In the event of any discrepancy between these two, the requirements of the former will be followed.
2. These additional conditions and additional specifications are applicable to all E&M works in general. For specific tenders some of the E&M services may not be a part of the particular tender. In such cases the conditions and specifications which are not related to the works or components thereof mentioned in the schedule of work shall not apply for that particular tender.
3. All the E & M works shall be carried out as per direction and to the entire satisfaction of the Engineer-in-charge.
4. The contractor has to submit all the drawings to the Engineer – in – charge of the works for approval from the competent authority i.e. location of fittings and fixtures, switch boards, power plug etc. with wiring diagram & Layout drawing of all works before execution or procurement of materials.
Unless otherwise specified in the following conditions, the work shall, in general, be carried out as per following specifications:
 - (i) CPWD General Specifications for Electrical Works – Part-I (Internal), 2023, as amended up to date.
 - (ii) CPWD General Specifications for Electrical Works – Part-II (External), 2023, as amended up to date.
 - (iii) CPWD General Specifications for HVAC -2024 as amended up to date.
 - (iv) Relevant BIS specifications amended up to date.
 - (v) Indian Electricity Act 2003 and Indian Electricity Rules 1956 amended up to date.
 - (vi) Indian electricity rules 1956 amended up to date.
 - (vii) Commercial and additional conditions and specifications for E & M work for this tender.
 - (viii) Any other relevant act or rules and local byelaws.
5. If the specifications for any item or its component are not available in the CPWD specifications cited above, relevant BIS specification as amended up to date shall be followed, whether or not the specific reference of a particular BIS specification has been made in this specification/ tender document.
6. Wherever any reference to any Indian Standard specification occurs in the document relating to this contract the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the date of opening of tenders.
7. All materials should conform to relevant BIS specifications wherever the same exists in absence of stipulation in this tender document.
8. Where manufacturers furnish specific instructions/ recommendations relating to the materials used in this job and/or their installation, covering points not specifically mentioned in these documents, these instructions shall be followed in all cases and shall be deemed to be included in the schedule of work whether they have been specifically mentioned or not.



9. Manufacturer's catalogue/ literature on installation, testing, maintenance and troubleshooting of major equipment shall be submitted to the department while handing over the installation.
10. MATERIALS TO BE USED IN THE WORK:
- 10.1 All materials used in the work shall be new and of good quality, conforming to the relevant specifications as per good Engineering practice.
- 10.2 All the materials proposed to be used in the work should be got approved from Engineer in Charge before use in work.
- 10.3 The materials to be supplied/ provided by the contractor in execution of the work should be ISI marked, wherever applicable and of make as specified in the agreement. Where the make of any particular material is not specified in the contract document, the material shall be supplied as per makes desired by the Engineer-in-charge.
- 10.4 It will be the responsibility of the contractor/ bidder to ensure use of genuine materials in the work. The department reserves the right to get (any/ all materials/ components) inspected by the manufacturer or their authorized representatives at any stage of the execution of work. If any of the materials, equipment supplied and used in work is found spurious at any stage, then the department reserves the right to ask the contractor to replace it by genuine one and make suitable recovery and/ or withheld suitable amount till it is done, even if any payment against that material is already made.
- 10.5 The department may ask for any valid document like manufacturer's test certificate, document for purchase of the material, document for import/ shipment of imported materials etc. as deemed fit by the engineer-in-charge to ascertain genuineness of material supplied by/ used in the work by the contractor. The contractor shall remain bound to submit all such documents to the department failing which payment may not be made or if already paid may be recovered/ withheld from subsequent running account payment.
- 10.6 Copies of all purchase documents for all equipment, accessories, fittings, fixtures etc. which carry guarantee/ warranty shall be handed over to the department in suitable form so that proper guarantee of materials are available to the department.
- 10.7 All the equipment and their components and all the materials to be used in the work shall be suitable for the environmental conditions at the location of the work.
- 10.8 The materials to be supplied in this work shall be scheduled in such a way that milestones are achieved and no shortfall is there. At the same time materials should be brought at sight in phases in such a manner so that they are not brought much in advance at site and dumped in work site for long period before installation and guarantee/ warranty of the materials are available for full period i.e. from the date of beneficial use of the material/ equipment as per tender conditions. If the materials/ equipment are supplied at site much before actual use in work, the department shall not remain bound to accept and make payment for such items of work involving the said materials/ equipment. The decision of the engineer in charge will be final and binding on all.
- 10.9 Dismantle materials, if any, should be returned to the department unless otherwise anything in contrary has been specifically stated in the tender document/ BOQ.
11. RATES:
- 11.1 Unless otherwise provided in the schedule of quantities of the work the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account.



- 11.2 The rates for all items of work shall, unless clearly specified otherwise, include cost of all labours, materials and other inputs involved in the execution of the item irrespective of whether they have been specifically mentioned in the tender document or not.
- 11.3 This being an indivisible works contract, GST, Excise Duty etc. are not payable separately. The rates tendered shall be firm and inclusive of all taxes, duties, cess and levies as applicable (except service tax), and all charges for packing, forwarding, insurance, freight and delivery, installation, testing and commissioning at site, watch and ward etc. including temporary constructional storage, risks, overhead charges, general liabilities/ obligations and clearance from local bodies and State Fire Services, as applicable. Nothing extra shall be paid. However, fees payable to the local bodies / authorities for such clearance etc. shall be borne by the department.
- 11.4 GST/Service Tax, as payable, will be considered by the Department for reimbursement on actual basis on production of documentary evidence.
- 11.5 Octroi exemption certificate may be issued by the department if required by the contractor. However, the department is not liable to reimburse the octroi duty in case exemption certificates are not honored by the concerned authorities.
- 11.6 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (including works contract tax but excluding service tax), octroi, duties and levies and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc. at site i/c temporary constructional storage, risks, overhead charges, general liabilities/obligations and clearance from local authorities. The fee for the inspection of installation by government authorities shall be reimbursed by the department on production of receipts. The contractor has to, however, initially make the payment. Likewise service tax applicable shall be initially paid by the contractor and shall be reimbursed to him by the department after verification of payment receipts etc.
- 12 **COMPLETENESS OF TENDER:**
All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.
- 13 **STORAGE AND CUSTODY OF MATERIALS:**
The agency has to make his own arrangement for watch and ward of the stores. Their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.
- 14 **ACCIDENT:**
The department (CPWD) shall not have any responsibility or liability in case of any accident injury to the personnel to the contractor at work site or to the general public at the work site due to mishandling of equipment by the personnel of the contractor or any other similar reason. The responsibilities and liabilities for such accidents and incidents shall be borne in full by the contractor.
- 15 **AFTER SALES SERVICE:**
The contractor shall ensure adequate and prompt after sales service in the form of maintenance personnel and spares as and when required with a view to minimize the break down period. Particular attention shall be given to ensure that all spares are easily available during the normal life of the installation.



16 REMOVAL OF SURPLUS MATERIALS AND TOOLS:

After completion of work the agency shall remove his men, materials and debris etc. from site.

17 QUALITY OF WORK AND WORKMANSHIP:

- 17.1 The contractor shall be entirely responsible and answerable for all the works done by him regarding quality, adherence to the laid down specifications, terms and conditions, warranty/ guarantee etc. and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement.
- 17.2 The contractor is advised to visit the site before quoting for his tender to apprise himself about the site environments and other conditions. Drawings and inventories can be seen in the office of the Engineer – in – charge.

18 SITE ORDER BOOK:

The contractor or his authorized representative shall sign the site order book and comply with the remarks entered them in by the representative of the department.

19 WATCH AND WARD:

- 19.1 The contractor will make his own storage of his own materials. The watch and ward of the materials and of the installations would be responsibility of contractor till the work is completed/ handed over to the department. Nothing extra shall be paid to the contractor on this account.
- 19.2 Making payment to the contractor in any form against supply of materials/ equipment/ components or execution thereof shall not absolve the contractor of his responsibility of watch and ward of the equipment/ materials etc. and their satisfactory functioning until the same is taken over by the department after successful installation, testing, commissioning and running in period.
- 19.3 No separate storage space will be provided to the contractor for storage of his materials and equipment to be brought at site and used in execution. The available open site space may however be used by the contractor for storage purposes in which case he may build up temporary store at available site space at his own cost.

20 VARIATION IN QUANTITY:

Quantities shown against each item of work or supply are tentative which may vary on either side (plus or minus). This variation shall, in general, be governed by clause no. 12 of the clauses of contract of CPWD form 7/ 8. The contractor should ensure from the Engineer-in-charge and from the site condition the actual quantity required/ to be used/ to be supplied before bringing the materials at site. In case the actual quantity of material required at the site is less than the stipulated quantity, the contractor cannot claim to supply entire quantity stipulated in the schedule of quantities of work (Schedule – A) as well as cannot demand for payment thereof. The contractor shall therefore, be very careful about the quantity of materials to be supplied/ brought at site. The decision of the Engineer-in-charge in this regard shall be final and binding on the part of the contractor. Even if initial payment for supply of materials is made in any form for bringing material at site and if it is found at later stage that the actual requirement is less as per site requirement or as per decision of the Engineer-in-charge, the contractor shall have to take back the additional quantity brought/ supplied at site and necessary adjustment shall be made from his next bill on this account. No claim in this regard shall be entertained.



21 NATURAL CALAMITY:

No payment will be made to the contractor for any damage caused by rain, snow fall, floods, dampness, fire, sun or any other natural cause whatsoever during the execution of work. The damage to the work due to above reason, if any, shall have to be made good by the contractor at his own cost and no claim on this account shall be entertained.

22 INSPECTION AND TESTING:

- 22.1 The Engineer-in-charge or his authorized representative may inspect any material at manufacturers' works and may witness routine tests as per relevant Indian Standard Specifications or other relevant specifications at manufacturers' works.
- 22.2 The contractor shall give in writing advance notice to the Engineer-in-charge and arrange for such inspection/ presence for testing at manufacturers work. The TA/ DA etc. of the departmental personnel who will be deputed to witness the tests etc. shall be borne by the Department.
- 22.3 The Engineer-in-charge or his authorized representatives shall have, at all the reasonable times, access to the contractor's premises or works or other works where manufacturing/ fabrication shall be done and shall have the power, at all reasonable times, to inspect and examine the materials and workmanship during its manufacture or fabrication.
- 22.4 Inspection of imported materials at foreign works shall however not be carried out by the department. These materials shall be inspected and tested at site. Manufacturers' original test certificates and document of import/ shipment should be provided to the department along with the materials without which no payment should be made to the contractor.
- 22.5 The contractor shall arrange for all the materials and labour required in connection with inspection of equipment or for any testing to be carried out at his works/ manufacturers' works or at site of installation. Notice of such inspection/ presence for testing shall be given by the contractor to the Engineer-in-charge at least fifteen days in advance.
- 22.6 Notwithstanding approval for such tests/ inspection of equipment/ components by the Engineer-in-charge or his authorized representative, the contractor shall be required to perform site tests as desired by the Engineer-in-charge and prove the correctness of ratings and performance of equipment/ components and materials supplied and/ or installed by him as per contract specifications and conditions at his own cost.
- 22.7 The Engineer-in-charge reserves the right to reject any equipment/ machinery/ material should it, on tests after installation, be found not to comply with contract specifications or its performance is not satisfactory.
- 22.8 Final inspection and testing will be done by the Engineer-in-charge or his authorize representative as per details to be indicated by the Engineer-in-charge.
- 22.9 It shall be the responsibility of the contractor to get the installation inspected and passed by the local authorities concerned, as may be required by the local bye laws. The contractor will extend all help including test facilities to the representatives of the local bodies. In case the contractor fails to make desired facilities available during inspection, the department reserves the right to provide the same at the risk and cost of the contractor. The observation of the local authorities will be promptly attended by the contractor. The installation will be accepted by the department only after receiving clearance from the local bodies/ fire authorities. The inspection charges leviable by the local/ statutory authorities for the inspection shall however, be borne by the department.



23 DEFECT LIABILITY PERIOD:

All the equipment shall be guaranteed for a period of minimum 12 months from the date of taking over the installation by the department against unsatisfactory performance or break down due to defective design, workmanship of material. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-Charge in this regard shall be final.

24 COMPLETION DRAWING AND MANUAL:

In addition to the mode and form of submission of completion drawings and manuals as stipulated in the relevant CPWD Specifications for various sub-heads of E&M works, the contractor shall also submit soft copy of the completion drawings in CD/ DVD.

25 POWER SUPPLY AND WATER SUPPLY:

No Power & Water Supply shall be provided by the department for the purpose of E&M work.

26 WORKS TO BE DONE BY THE CONTRACTOR

- 26.1 Unless otherwise mentioned in the tender documents, the following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost – whether specifically indicated in the schedule of quantity/ work or not:
- 26.2 Preparation of all layout, working drawings for execution of the work (E&M) components and submission to the Engineer-in-charge for approval within 15 days from the scheduled date of commencement of the work.
- 26.3 Foundations for equipment/ structures/ pumps including vibration isolation spring/ pads.
- 26.4 All minor building works necessary for installation of equipment such as making of openings in walls/ floors, either of RCC or brick masonry, foundation trench for fuel line and cable, making of opening in walls or in floors and restoring them to their original condition/ finish and necessary grouting etc. as required.
- 26.5 Dismantling of brick wall, if any, for inserting/ positioning/ placement of equipment, Control panel/ Diesel Tanks or for taking ducting/ cable tray/ pipes and rebuilding/ making good the same to its original position/ finish for the same nothing extra shall be paid by the department.
- 26.6 Making good all damages caused to the structure during installation and restoring the same to their original finish.
- 26.7 Supply and installation of all necessary angle/ channel/ flat iron supports and brackets etc. for installation of the Cabling/ electric Panels/ pumps/ accessories on floor/ wall/ Shaft/ terrace and at other places, as may be necessary including their installations in position.
- 26.8 Responsibility to ensure safety of all materials against pilferage and damage till the installation is handed over to the department.
- 26.9 All scaffolding as may be necessary for installation of Exhaust piping/ Cabling/ Electric Panels /Lightning arrestor/ exhaust pipe/ wet riser and sprinkler pipes/ ducts and all other equipment and their sub-assemblies/ accessories on floor/ wall/ Shaft/ terrace and at other places during erection work and subsequent removal.



- 26.10 Painting of all exposed metal surfaces of equipment's and components with appropriate/ approved colour as required and as desired by the Engineer – in - charge.
- 26.11 All electrical works including cables/ wires, earthing etc. as specified in Schedule of work.
- 26.12 Small wiring, inter-connection etc. inclusive of all materials and accessories necessary to comply with the regulations as well as proper and trouble-free operation of the equipment.
- 26.13 Closing of the cable entry points in sub-station against seepage of water rodents etc.
- 26.14 Approval / clearance of the complete installation shall be obtained by the contractor from CPCB/ State Pollution Control Board / Local Bodies / Central Electricity Authority (CEA)/ other licensing authorities wherever required. However, application shall be made by the Department and any statutory fee, as applicable, shall be paid by the department directly to the government authorities concerned.
- 27 Date of taking over of the installation and date of acceptance:
- 27.1 The date of taking over of the installations under any sub-head of E&M works shall be the date of taking over the complete building (s) after due completion of the entire composite work and after complete test and trial run of all the major equipment under all sub-heads of E&M works to the entire satisfaction of the engineer-in-charge.
- 27.2 Subject to the guarantee clause, date of taking over the installation after stipulated period of trouble-free operation of all the E&M works shall be the date of acceptance.
- 27.3 The appointment of Arbitrator shall be governed by the relevant clause of CPWD General Condition of Contract. The condition of contracts shall be governed by GCC, CPWD.

**Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata**



ADDITIONAL CONDITIONS FOR INTERNAL ELECTRICAL WORKS

- 1.0 The Department shall not issue any T & P and nothing extra shall be paid on account of this.
- 1.1 The main contractor should engage an eligible agency having valid registration in CPWD in appropriate class under category internal & external electrical installations / appropriate class under composite category for execution of electrification work. The firm should possess valid electrical contractor license. In case the main contractor himself meets the above criteria, he shall be allowed to execute this sub-head of work after due verification by the Engineer-in-Charge of Electrical Works. Care shall be taken by the contractor while handling and installing the various equipment and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.
- 1.2 The tenderer shall guarantee among other things, the following vis-à-vis specifications.
- a.) Quality, strength and performance of the materials used.
- b.) Satisfactory operation during the maintenance period.
- 1.3 **DEFECT LIABILITY PERIOD:**
All the equipment shall be guaranteed for a period of minimum 12 months from the date of taking over the installation by the department against unsatisfactory performance or break down due to defective design, workmanship of material. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-Charge in this regard shall be final.
- 1.4 **EXTENT OF WORK:**
- 1.4.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department.
- 1.4.2 Minor building works necessary like making of opening in walls or in floors and restoring to their original condition, finish and necessary grouting etc. as required to be undertaken.
- 1.4.3 Maintenance (Routine & preventive) for one year from date of completion and handing over.
- 1.5 **Cooperation with other agencies:**
The successful tender shall co-ordinate with other contractors and agencies engaged in the construction of the building and exchange freely all technical information so as to make the execution of this work contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any existing portion of the building has to be dismantled and re-done for want of cooperation and coordination by the successful tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the successful tenderer himself. Water proofing of pits shall not be damaged under any circumstances.



1.6 Verification of correctness of material at Destination:

All materials and equipment supplied by the contractor shall be new. They shall be of such design, size and materials as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site. The contractor shall have to produce all the relevant records to certify that the genuine material from the manufacturers has been supplied and erected.

(a) Materials and equipment to be used in the work shall be inspected by the Departmental officers. Such inspection will be of following categories:

(i) Inspection of materials/equipment to be witnessed at the Manufacturer's premises in accordance with relevant BIS/Agreement Inspection Procedure. (ii) To receive materials at site with Manufacturer's Test Certificate(s). (iii) To inspect materials at the Authorized Dealer's Godowns to ensure delivery of genuine materials at site. (iv) To receive materials after physical inspection at site.

(b) Similarly, for fabricated equipment, the contractor will first submit dimensional detailed drawings for approval before fabrication is taken up in the factory. Suitable stage inspection at factory also will be made to ensure proper use of materials, workmanship and quality control.

1.7 INTERPRETING SPECIFICATIONS / Order of Preference:

Should there be any difference or discrepancy between the description of items as given in the Schedule of Quantities, technical specifications for individual items of work (including additional and commercial conditions) and IS Codes etc., the following order of preference shall be followed:

- a) Schedule of quantities
- b) Commercial and Additional conditions, technical specifications for this work
- c) General Conditions of Contract for CPWD Works
- d) Drawings (if any approved by the Engineer-in-charge)
- e) CPWD General Specifications for electrical works
- f) Relevant IS or any other international code in case IS code is not available.

~~1.8 Executive Engineer (Elect.) shall be the Engineer in Charge as far as electrical works are concerned. Separate tender form for electrical component is appended with his tender. It will be obligatory on part of the main contractor to sign the tender documents for all the component.~~

1.9 The main agency shall be responsible for all acts of commissions and non-commissions of the electrical contractor or sub-contractor engaged by him, even with approval of department.

1.10 Approval of the Engineer-in-charge shall be taken well in advance for all the materials to be used in the work by the contractor.

1.11 Running payment for Electrical/ Mechanical components shall be made by the EE (E) directly to the main Contractor. The main contractor shall make the payment to associated Contractor within 15 days of receipt of each running account payment.

1.12 **Payment terms:** On account payments for part work as assessed by the Engineer – in-charge for the applicable items in the Contract shall be payable at part rates not exceeding the percentage indicated against the stages of work mentioned below:

**For Feeder Pillar & UG Cable**

<i>S. no.</i>	<i>Stage of work</i>	Percentage allowed
i	After initial inspection (wherever specified) and delivery at site in good condition on pro-rata basis i/c submission of test report of materials wherever required.	70 %
ii	On completion of pro-rata installation	20%
iii	On testing, Commissioning and handing over.	10 %

For Wiring

<i>S. no.</i>	<i>Stage of work</i>	Percentage allowed
i	After completion of conduiting, switch box fixing etc. on pro rata basis i/c submission of test report of materials wherever required.	40 %
ii	After drawing of wires on pro rata basis i/c submission of test report of wires wherever required. .	40%
iii	On completion of testing of wiring	10 %
iv	On Commissioning and handing over.	10 %

For MCBDB, MCB, MCCB etc.

<i>S. no.</i>	<i>Stage of work</i>	Percentage allowed
i	After initial inspection (wherever specified) and delivery at site in good condition on pro-rata basis. i/c submission of test report of materials wherever required.	65 %
ii	On completion of pro-rata installation	25%
iii	On testing, Commissioning and handing over.	10 %

For DG set & AMF Panel etc.

<i>S. no.</i>	<i>Stage of work</i>	Percentage allowed
i	After initial inspection (wherever specified) and delivery at site in good condition on pro-rata basis i/c submission of test report of materials wherever required.	70 %
ii	On completion of pro-rata installation	20%
iii	On testing, Commissioning and handing over.	10 %

For Earthing etc.

<i>S. no.</i>	<i>Stage of work</i>	Percentage allowed
i	On completion of pro-rata installation	70%
ii	On testing, Commissioning, submission of earth resistance report and handing over.	20 %
iii	On successful handing over.	10 %

For other items, the part rates will be decided by the Engineer-In-Charge of the work and shall be binding on the contractor.

Sl.No	Description of item	Warranty/Guarantee after handing over to Department/Client
1	LED luminaries	5 years
2.	PCB and compressor of Air condition unit	5 years
3.	All other item	1 year

Security Deposit shall be released after one year except LED light fittings, Split Type Air Conditioner which shall be released after completion of warranty period:



Sl. No	Description of item	Condition of Withheld
1	LED luminaries	5% of tendered value for total used LED luminaries to be withheld as security till completion of warranty period.
2	PCB and compressor of Air condition unit	Additional 2.5% (Other than normal security deposit 2.5%) of tendered value for total used Split Type Air Conditioner to be withheld as security till completion of warranty period.

- 1.13 The main contractor shall be responsible for coordinating the activities of all works and will ensure progress of works as per laid down programme.
- 1.14 The Associated electrical Contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-charge and will comply with the remarks therein.
- 1.15 The contractor shall make his own arrangement at his own cost for electrical / General Tools and plants required for the work.
- 1.16 The connections, inter-connections, earthing and inter-earthing shall be done by the contractor wherever required to be done for energization of the installation and nothing extra shall be paid on this account.
- 1.17 The contractor must be able to work on concrete slabs / walls as and when required and in complete co-ordination with the civil works. Cutting of chases in the plastered wall shall in no case be allowed. The contractor shall fix conduits and boxes in the walls soon after the brick work is completed and finish the chase to rough surface with proper cement sand mixture. Only in exceptional cases e.g. where cutting of plastered surface cannot be avoided it will be contractor's responsibility to ensure that plastering is done to match the original finish at no extra cost.
- 1.18 The contractor shall remove all the debris due to the electrical works from the site as soon as the work is completed
- 1.19 The rupturing capacity of the MCB's shall be 10 KA. The MCB's shall have ISI marked.
- 1.20 All the MCCBs shall be rated for $I_{cs}=I_{cu}$
- 1.21 The copper wire to be used on this work shall be FRLS type.
- 1.22 Make of MCB/MCCB shall be the same as the make of MCB DB.
- 1.23 The Electrical works shall be carried out by the contractor, side by side with the progress of the civil works.
- 1.24 The Contractor shall on demand by the Engineer-in-charge, furnish the proof to the satisfaction of Engineer-in-charge regarding purchase of Wires, MCBs, MCBDB, Fittings, accessories and other items, from the manufacturers authorized outlets.
- 1.25 Cutting of brick walls shall be with chase cutting machine only. All repairs and patch works shall be neatly carried out to match the original finish and to the entire satisfaction of the Engineer in Charge.
- 1.26 All the sub main and circuit wiring includes loose wire for connections inside switch boxes and MCB DB s. No payment for these loose wires shall be made. However, wires/Cables within the cubicle panel will be measured and paid under relevant item of work.



- 1.27 The connection between incoming switch/ isolator and bus bar shall be made with suitable size of thimble and cable at no extra cost.
- 1.28 Copper conductor of insulated cables of size 1.5 Sq.mm and above shall be stranded and terminals shall be provided with crimped lugs
- 1.29 All MS pulling box cover should be of phenolic laminated sheet of thickness not less than 3mm and for which nothing extra shall be paid on the account.
- 1.30 All sub-main shall be terminated in the main board with suitable copper lugs and thimbles for which nothing extra will be paid on this account.
- 1.31 All hardware items such as screws, thimbles, GI wire etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same have not been specifically mentioned.
- 1.32 All hardware items such as nuts/ bolts/ screws/ washers etc. to be used in work shall be zinc/ cadmium plated iron.
- 1.33 Any conduit which is not be wired by the contractor shall be provided with GI fish wire for wiring by some other agency subsequently. Nothing extra shall be paid for the same.
- 1.34 While laying conduit, suitable size junction boxes shall be provided for pulling the wire as per the decision of the E-in-C.
- 1.35 Materials to be used in work are to be ISI marked wherever applicable. The make of the materials has been indicated in the list of acceptable makes. No other makes will be acceptable. For items for which acceptable makes are not mentioned in the tender document, Engineer-In-Charge shall decide the make before bringing the material to the site by the contractor. The materials to be used in the work shall be got approved by the Engineer in Charge/ his representative before its use at site. The E-in-C shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not acceptable.
- 1.36 Quantity of various items as specified in tender document may changes during construction stage as per site condition/ client's requirement, the successful bidder is advised to verify the actual requirement of items including fittings, fixtures before bringing the material to the site.
- 1.37 In case the same item(s) appear more than once in the schedule of work/ BOQ under the same sub head or among the different subhead of works, the lowest rate quoted for that item (s) shall be considered for the particular item(s) wherever appeared in any part of BOQ/ Schedule of works for the purpose of tender evaluation although web generated e-price bid may incorporate different quoted rate for same item(s) as per the quoting pattern of the tenderer. The tendered amount thus worked out shall be final & shall be binding on the contractor.
- 1.38 All statutory deductions like WCT, Labour welfare cess etc. shall be made from the bills.
- 1.39 Testing: All testes prescribed in these General Specifications, to be done before, during and after installation, shall be carried out, and the test results shall be submitted to the Engineer-in-charge in prescribed Performa, forming part of the Completion Certificate.



- 1.40 Commissioning on Completion: After Completion of the work, it shall be ensured that the installation is tested and commissioned.
- 2 Completion Plan and Completion Certificate:
For all works completion certificate after completion of work shall be submitted to the Engineer-in-charge.
- 3 **The contractor shall submit the completion plan separately in triplicate within 30 days of the completion of work. In case, the contractor fails to submit the plan, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of ₹ 25,000.00/-**
- 4 **Wiring System**
- (i) Wiring shall be done only by the looping system. Phase/ live conductors shall be looped at the switch box. For point wiring, neutral wire/earth wire looping for the 1st point shall be done in the switch box; and neutral/ earth looping of subsequent points will be made from point outlets.
- (ii) In wiring, no joints in wiring will be permitted anywhere, except in switch box or point outlets, where jointing of wires will be allowed with use of suitable connector.
- (iii) The wiring throughout the installation shall be such that there is no break in the neutral wire except in the form of linked switchgear.
- (iv) Light, fans and call bells shall be wired in the 'lighting' circuits. 15A/16A socket outlets and other power outlets shall be wired in the 'power' circuits. 5A/6A socket outlets shall also be wired in the 'power' circuit
- (v) Colour Coding: Following colour coding shall be followed in wiring:
Phase: Red/Yellow/Blue. (Three phase wiring)
Live: Red (Single phase wiring) Neutral: Black
Earth: Yellow/Green.
- 5 The work shall in general be carried out as per:

GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS PART-I INTERNAL 2023 amended up to date and
GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS PART-II EXTERNAL 2023.
- 6 **For Power wiring 3x4 sq. mm shall be drawn in 25 sq. mm conduit and 6x4 sq. mm shall be drawn in 32/40 mm conduit.**
- 7 **Release of Performance Guarantee and Security Deposit:**
Security deposit shall be released after completion of defect liability and Labour Clearance issued by the Competent Authority and Performance Guarantee shall be released after successful completion of work.

**Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata**

**LIST OF PREFERRED MAKES**

Name of Work: Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.

Preferred makes of materials to be used in the work are as under. In case of nonavailability of these makes, the Engineer-in-charge may allow use of alternative BIS makes of materials in the work. Non-BIS marked materials may be permitted by the Engineer-in-charge.

Sl. No	Description of item	Make
1	FRLS/HFFR PVC insulated Copper wire (ISI marked)	Finolex/RR Kabel/KEI/Havells /Polycab/ Gloster
2	MCB/MCBDB/Loose wire box/SMDB(MCB and MCBDB shall be of same make)	Schneider Electric / Legrand / Hager/ Lauritz Knudsen / ABB / Havells
3	Modular Switch /Socket/ AC starter etc	Legrand (Myrius)/ Schinder (Unika Pure) / ABB(IVIE)/Cabtree (Murano) or equivalent
4	PVC Conduit (ISI marked) medium class & PVC accessories	AKG/ Precision /BEC/Polycab//Anchor/ Konstruct
5	Moulded Case Circuit Breaker (MCCB) Thermal release /Microprocessor based (Ics=Icu=100%)	Schneider Electric / Legrand / Hager/Lauritz Knudsen / ABB / Havells
6	Air conditioner	Ogeneral/Daikin/Mitsubishi/Samsung/Bluestar/LG/G odrej/Voltas/Panasonic / Carrier
7	1.1kV grade Aluminium armored UG cable(ISI Marked)	KEI/Gloster/Havells/Finolex/Polycab
8.	LED Luminaire(other than PAR/LED grow light)	Havells/Philips/Crompton/Orient/Bajaj
9	Feeder Pillar / Panel	Green Galaxy / SK Engineering Works / Amit Projects & Controls / Mahendra Electricals / Electro Allied Products (EAP) / AC Power Systems / Legrand / L&T / ABB
10.	PAR/Led grow lights	LightKrafts/Canara Lighting/Lytit/Nexsel Tech
11	Geyser	Jaguar/Usha/AO smith/ Bajaj.
12.	Cat 6 cable	Dlink / Amp/Molex/Rit/Finolex / RR Kabel / KEI/ Havells / Polycab
13.	Exhaust Fan / Wall Fan	Usha / Havells / Crompton / Khaitan
14.	Fire Extinguisher (To be ISI marked)	Lifeguard/safeguard/Safex/Ceasefire/Minimax / Flame Klog
15.	PVC Angle Holder (To be ISI marked)	Anchor / Havells / Similar Reputed Make
16.	Any Other Item	To be Decided by the E-in-Charge

Note: ~~NIT authority reserves the right to add or delete any materials and Brands in the list of approved materials/brands.~~ Unless otherwise specified in the tender document, all the materials which are ISI marked shall be used in the work and if the ISI marked materials are not available, materials conforming to ISI shall be used, and for materials which are neither BIS marked nor confirm to BIS, the manufacturers specification shall be used with prior approval of Engineer-in-charge.

Executive Engineer (E)
Barasat Central Electrical Division
CPWD, Salt Lake, Kolkata



PART- C

(Civil Work)

**PROFORMA OF SCHEDULES**

(Separate Performa for Civil Works in case of Tenders)
(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities (as per PWD-3) :

Page No. C-1 to C-6

SCHEDULE 'B'

Schedule of materials to be issued to the contractor:

Sl. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of Issue
1	2	3	4	5
-----NIL-----				

SCHEDULE 'C'

Tools and plants to be hired to the contractor as required for the purpose of execution and completion of work

Sl.No.	Description	Hire charges per day	Place of Issue
1	2	3	4
-----NIL-----			

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any: As attached in tender documents.

SCHEDULE 'E'

Reference to General Conditions of contract.		GCC for CPWD works – 2023(Construction) as amended/modified upto last date of submission of tender.
Name of work		Renovation of Controlled Environment Plant Growth and Acclimatization Facility at Biotechnology Unit, ICAR-CRIJAF, Barrackpore SH: Civil Work
Estimated cost of work		Rs. 22,22,409.00
(i)	Earnest money	Included in schedules of Electrical component
(ii)	Performance Guarantee	Included in schedules of Electrical component
(iii)	Security Deposit	2.5 % of tender value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:		
Officer inviting tender :		Executive Engineer, Barasat Central Electrical Division, CPWD, Barasat
Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3:		As prescribed in Electrical component.
Definitions:		
2(vi)	Engineer-in-Charge (For Civil Work) :	Executive Engineer, Barasat Central Division-II, CPWD, Barasat or successor thereof.
	Engineer-in-Charge (For E&M Work) :	Executive Engineer (EI), Barasat Central Electrical Division, CPWD, Salt Lake, Kolkata or successor thereof.

AE(P)(E)

Addition: NIL

Correction: NIL

Overwriting: NIL

Deletion: NIL

EE (E)



2(vii)	Director General/CPWD Directorate	It includes Director General/ Special Director General (Kolkata)/ SE-Barasat
	Successor	Any authority as notified by the CPWD Directorate before, during or after execution of work/ Agreement
2(viii)	Accepting Authority:	As per PART-A
2(x)(a)	Percentage on cost of materials and labour to cover all overheads and profits :	15%
2(x)(b)	Standard Schedule of Rates	DSR'23
2(xi)	Department	Central Public Works Department
2(xvi)	Extra item	Those Item which are not available in the contract a. Non-schedule Extra items are those items which are not available in the standard scheduled of Rates specified in schedule F b. Scheduled Extra items are those items which are available in the standardschedule of Rates specified in Schedule F
2(xvii)	Completion cost	The completion cost includes gross amount of work done, amount of extra items and deviations and escalation admissible as per agreement etc.
9(ii)	Standard CPWD contract Form GCC 2023 (Construction)	GCC 2023(Construction), CPWD Form 7 as modified & corrected upto last date of submission of tender (whether correction vide latest circulars are incorporated or not in this document)

Clause 1

(i)	Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or Proof of applying thereof from the date of issue of letter of acceptance :	As prescribed in Electrical component.
(ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above :	As prescribed in Electrical component.

Clause 2

Authority for fixing compensation under clause 2 :	As per PART-A
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Clause 2A

Whether Clause 2A shall be applicable	N.A.
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Clause-3: Applicable as modified/as per amendment upto date till the date of acceptance of tender

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start	As prescribed in Electrical component.
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Clause 5.2 Delay due to reasons beyond the control of both parties

Nature of Hindrance Register	As per OM No. DG/MAN/394 Dated: 28/01/2020
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Mile stone(s) as per table given below: - As prescribed in Electrical component.

Time allowed for execution of work	As prescribed in Electrical component.
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Authority to decide :

(i)	Extension of time and authority to convey the decision of shifting of milestone	:	As prescribed in Electrical component.
(ii)	Authority to decide rescheduling of mile stone	:	As prescribed in Electrical component.
(iii)	Shifting of date of start in case of delay in handing over of site	:	As prescribed in Electrical component.

Proforma of Schedule Clause 5 schedule of handing over the site

Part A	Portion of Site	Description	Time period for handing over reckoned from date of issue of letter of intent
Part-A	Portion without any hindrance	Full site	As per Electrical component.
Part-B	Portion with encumbrances	NA	As per Electrical component.
Part-C	Portion dependent on work of other agencies	NA	As per Electrical component.

Clause 6

Computerized Measure Book (CMB)/ Electronic Measurement Book (EMB)

(i) Mode of measurement: CMB/~~EMB~~

Clause 7

Gross work to be done together with net payment/adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	As per PART-A
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Clause 7A

Whether Clause 7A shall be applicable -	As per PART-A
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Clause 10A: List of testing equipment to be provided by the contractor at site lab.

Sl. No.	Name of Equipment	Numbers
1	Excavators (various sizes)	1 No.
	Equipment for hoisting & lifting	
1	Tower Crane	NIL
	Equipment for Concrete work	
1	As per agreement item	One or more as per site requirement

AE(P)(E) Addition: NIL Correction: NIL Overwriting: NIL Deletion: NIL EE (E)



2	Concrete pump (Desirable)	1 No.	
3	Concrete Transit Mixer	As per site requirement	
4	Concrete mixer (diesel)	1 No.	
5	Concrete mixer (electrical)	1 No.	
6	Needle vibrator (electrical)	2 Nos.	
7	Needle vibrator (petrol)	2 Nos.	
8	Surface vibrator	2 Nos.	
	Equipment for Building work		
1	Bar bending Machine	1 No.	
2	Bar cutting machine	1 No.	
3	Drilling machine	Nil	
4	Wall grooving machine for chase cutting	2 Nos.	
5	Welding machine i/c transformer	2 Nos.	
6	Rig machine	NIL	
7	Cube testing machines	1 No.	
8	M.S. pipes	As per requirement but not less than 2.5 times plinth area of a typical floor or as directed by Engineer-in- Charge	---
9	Steel shuttering		---
10	Steel scaffolding		---
11	Grinding/polishing machines	1 No.	
	Equipment for transportation		
1	Tippers	As per site requirement	
2	Trucks		
	Pneumatic equipment		
1	Air compressors (diesel)	1 No.	
	Dewatering equipment		
1	Pump (diesel)	1 No.	
2	Pump (electric) (Desirable)	1 No.	
	Power equipment		
1	Diesel Generator	1 No.	

Clause 10C
~~Component of labour expressed-~~
~~as percent of total value of component of work~~

Not Applicable
 25%

Clause 10CA

Not Applicable

Clause 10CC

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Not Applicable

Clause 11

Specifications to be followed for execution of work	CPWD Specifications 2019 volume -I & II with correction slips upto last date of submission of bid.
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Clause 12



Type of work:	Construction Work
The completion cost includes the gross of extra item(s) and deviation(s) and escalation amount admissible as per agreement etc. The completion cost shall, in no case, exceed 1.5 times of contract amount.	
Clause 12.2 & 12.3 Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work.	100%

Clause 16

Competent Authority for deciding reduced rates	Superintending Engineer, Barasat Circle, CPWD, Barasat or successor thereof.
	Sub-standard work must be got rectified and if necessary, may be redone. Acceptance of sub-standard work at reduced rate should be done only under exceptional circumstances. Total value of quantities of items at agreement rate for which the Superintending Engineer accepts sub-standard work in a contract shall not exceed 5% of the Contract value. In case, total value of such items exceeds 5%, prior approval of SDG(Kolkata) will be necessary. The decision of Superintending Engineer regarding quantum of reduction as well as justification thereof in respect of rates for substandard work that may be decided will be final and would not be open to arbitration under clause 25 of the agreement.

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:-

1	Cube testing machine.	As per requirement and directed by the Engineer-in-Charge
2	Weight balance of required capacity with required brass and iron weight	
3	Mixture Machine for cement concrete or cement mortar.	
4	Slide calipers and screw gauge for measuring thickness	
a	Plumb bob, Steel tape, Vernier Calipers, Spirit level, wire gauge disc, screw driver, Moisture meter.	
b	All T & P required for wood work at site for doors & windows.	

Clause 19	Labour laws to be complied by the contractor as per OM No. DG/CON/Construction2023/08 dated 05-03-2024.
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Clause
25

Clause 19A	No person below the age of fourteen years shall be employed on the work.	No person below the age of fourteen years shall be employed on the work. However Adolescent Persons can be employed on non-hazardous works/process as per OM DG/CON/Construction 2023/05 dated 08-02-2024.
Clause 19B	Payment of Wages	(i) The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as defined in the C.P.W.D. Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971 and Gazette Notification 19.01.2017, S.O 188 (E) extra ordinary part 2 - sec. 3 (ii) amended time to time. Thus higher of the wages either notified by Govt. of India, Ministry of Labour and/or that notified by the local administration of the State Govt. both relevant to the place of work and the period of reckoning shall be paid by the contractor to the labourer. (V) The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, '1923, Industrial Disputes Act, '1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act '1970, Gazette Notification 19.01.2017, S.O 188 (E) extra ordinary part 2 - sec. 3 (ii) and er the modifications thereof or any other laws relating thereto and the rules made there under from time to time as per OM DG/CON/Construction 2023/06 dated 01-03-2024
Clause 19C	Authority to decide penalty for each default	Executive Engineer, BCD-II, CPWD, Nizam Palace, Kolkata or successor thereof.
Clause 19D	Authority to decide penalty for each default	Executive Engineer, BCD-II, CPWD, Nizam Palace, Kolkata or successor thereof.
Clause 19G	Authority to decide penalty for each default	Executive Engineer, BCD-II, CPWD, Nizam Palace, Kolkata or successor thereof.
Clause 19K	Employment of skilled / semi-skilled workers.	Applicable as per DG/CON/304 dated 15.10.2018



(a)	Conciliator	-	As per PART-A
(b)	Arbitrator Appointing Authority	-	As per PART-A
(c)	Place of Arbitration	-	As per PART-A

Clause 32: Requirement of Technical Representative(s) and recovery Rate: As per PART-A

Clause 38: As per PART-A

(i)	(a)	Schedule/ statement for determining theoretical Quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2021 with up to date Correction slips.	DSR 2023 with correction slips up to the last date of submission of tender	
(ii)	Variations permissible on theoretical quantities:	Variations	Recoveries proposed	
			Plus side	Minus Side
a	Cement for works with estimated cost put to tender not more than Rs. 25 lakh.	$\pm$ (plus / minus) 3 % (Three percent)	Nil	Not Permitted
b	For works with estimated cost put to tender more than Rs 25 lakh.	$\pm$ (plus / minus) 2 % (Two percent)	Nil	Not Permitted
c	Bitumen all works	+ (plus) 2.5% (Two point five percent) only and nil on – (minus) side.	Nil	Not Permitted
d	Steel reinforcement and structural steel sections for each diameter, section and category	$\pm$ (plus / minus) 2% (Two percent) only	Nil	Not Permitted
e	All other materials-	NIL	Nil	Not permitted
f	Schedule / statement for determining theoretical consumption of Red Brick work on the basis of Calcutta Schedule of Rate 1994 may be followed.			



GENERAL TERMS & CONDITIONS

1. The work shall be carried out as per description of item given in the “Schedule of Quantities”, General conditions, Special conditions, BIS/IRC Specifications and CPWD Specifications 2019 Vol. I & II (with upto date correction slips) unless and otherwise specified in individual item or items in the schedule of quantity of the work.
2. The order of preference regarding applicability of various specifications and special condition shall be as given below:
 - a) Nomenclature of items given in the schedule of quantities in the tender.
 - b) Particular Specifications
 - c) Special conditions.
 - d) General Conditions
 - e) Contract & Clauses as per Standard CPWD form 2023 with up to date.
 - f) C.P.W.D. Specifications 2019 volume I to II with up-to-date correction slips.
 - g) IRC specifications. Wherever these specifications are referred for this work, the latest one at the time of issue of the tenders shall be taken into consideration
 - h) I.S. Codes or specifications. Wherever I.S. code is to be referred for this work, the latest one at the time of issue of the tenders shall be taken into consideration.
 - i) Directions of Engineer-in-charge shall be applicable where none of the above are to be applied.
3. The contractor(s) shall inspect the site of work before tendering and acquaint himself with the site conditions and no claim on this account shall be entertained by the department.

The contractor(s) shall also see the approaches to the site in case any approach from main road is required at, site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost. No extra payment whatsoever shall be made on this account.
4. The contractor(s) shall get himself acquainted with nature and extent of the work and satisfy himself about the availability of materials from kiln or approved quarries for collection and conveyance of materials, suitable location for construction of godown, store, camp, transport facilities the extent of leads and lifts.
5. The contractor shall quote the percentage above or below the estimated cost in figures and words accurately so that there is no discrepancy in figures and words and total amount. If only percentage is written and above or below not quoted, then it will be assumed that rates / percentage quoted is below the estimated rates. The percentage rate quoted by the contractor shall include cost of materials, labour i/c all leads, lifts and depths etc. unless & otherwise specified in the nomenclature of item or items.
6. The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the controlling authority of the area.



7. All the materials such as stone aggregate, screening materials, sand, bricks, cement and pipes etc. to be used in the work, shall have to be got approved from the Engineer-in-charge or his authorized representative prior to use in the work failing which work shall not be measured & paid for.
8. The contractor shall construct suitable Godown / stockyard at the site of work for safe storing of materials, like cement, bitumen and other materials, against damage by sun, rain, dampness, fire, theft etc at his own cost. He shall also employ watch & ward personnel(s), for plants and machinery and other materials issued and arranged by him at his own cost and no extra payment shall be made on this account.
9. No tools & plants or machinery shall be supplied by the department.
10. The contractor shall make his own arrangements for electricity and water required for the execution of the work and nothing extra shall be paid for the same. However, for electrical connection, Engineer-in-charge shall recommend the application to concerned authority for Electrical connection if required. Necessary payment shall be made by the contractor directly to the department concerned. In case the concerned authority fails to sanction the electric connection or delays the sanction of electric connection, the contractor shall make his own arrangements by providing diesel generators of adequate capacity at his own cost.
11. For water supply, contractor shall make his own arrangement including boring of tube well, if necessary, and nothing extra shall be paid by the Department for arrangement of water or on its treatment as per requirements laid down in IS: 456 / 2000 Para 5.4 or CPWD Specification 2019 Volume-I to II with upto date correction slips.
12. Roadside proper accommodation for labour / workmen, as per contract labour regulation Act, shall be provided by the contractor at his own cost & nothing extra shall be paid by the department.
13. Unserviceable materials shall have to be removed and disposed off to places as decided by the Engineer-in-charge.
14. The contractor shall at all time carry out the works on the road in a very systematic manner without interference to the flow of traffic and consistent with the satisfactory & timely execution of the work. For all works, the contractor shall maintain a passage for traffic either along a part of the existing carriage-way under improvement or along temporary diversion constructed close to the road for this purpose as directed by Engineer-in-Charge for which nothing extra shall be paid.
15. The contractor shall also provide necessary barricade, informatory boards, lights and flagmen at either end of the execution area and at such intermediate points as required & as directed by the Engineer-in-charge at no extra cost.
16. The work shall have to be executed in Kolkata areas. Contractor(s) should inspect the site, so as to apprise himself / themselves of the site condition, before tendering. Being a Kolkata area there could be some restriction by Security agencies and the contractor has to follow and no extra claim on this account shall be entertained by the department.
17. The Executive Engineer by prior notice in writing to the contractor may reduce/increase the scope of work. In case of deviation in quantities, no extra claim except as otherwise provided in General



Conditions of Contract 2023 shall be entertained by the department.

18. The contractor(s) shall submit “ Time & Progress chart ” for execution of work in different reaches showing activities distinctly along with Bar-Chart within fifteen days of the letter of acceptance of work in direct relation to the time stated in the contract document for completions of items of the works as per different milestone fixed indicating the forecast of date of commencement and date of completion of various items / activities kilometer wise from start point to end point of road as per agreement for adherence during execution.

If any time, it appears to the Engineer-in-charge that the actual progress of work does not confirm to the approved programme referred above, the contractor shall produce a revised programme showing the modifications to the approved programme by additional inputs to ensure completion of the work within the stipulated time.

In case the contractor fails to achieve individual milestone as specified in Schedule F, action shall be taken as per clause 5 & other relevant clauses of the General Conditions of Contract 2023.

19. The item of concreting/premixing shall be started / executed strictly under prior written approval of the Executive Engineer at appropriate time indicating the quantities and reaches / length and shall be liable for any consequences of wastage / damage / loss / non-payment etc.
20. The contractor has to deploy necessary Tools & Plants in required numbers to ensure smooth & timely execution of work, at his own cost & risk as per the requirement of work at different stages. The decision of Engineer-in-charge shall be final regarding use of particular T & P(s) at a particular time(s) & the contractor has to adhere the same strictly. The Contractor shall be responsible for further running and maintenance and safety of all T&P. No claim whatsoever, for any loss or damage or idle Plant & Machinery, due to insurgency, accidents, theft prevailing at site, availability of materials, availability of land, suitable location for construction of Godown, stores and camp, transport facility including local conditions or other reasons shall be entertained by the Department.
21. The rates of materials shall be inclusive of all taxes such as Sale Tax, Royalty, Octeroi etc. and contractor shall be liable to pay the same direct to the concerned department. No claim on this account shall be entertained by the department.
22. In case of any calamity or injury to any labour / workmen etc. or loss / wastage of materials due to nature or insurgency, contractor shall have to bear the cost of compensation and no claim to this effect shall be entertained by the department.
23. The contractor shall keep himself ready for execution of any item / items of work / part of the item of work on emergent notice given by the Engineer-in-charge on day to day basis during rainy season.
24. Unless otherwise specified in the schedule of quantities, the rates for all items of the work shall be considered as inclusive of pumping out or bailing out water if required for which no extra payment will be made. This will include water encountered from any source, such as rains, floods, sub-soil water table being high, due to any other cause whatsoever.
25. Royalty / Octeroi at the prevalent rates and all other incidental expenditure shall have to be paid by the contractor, on all the boulders, road metal, stone aggregate, river bed shingle, earth, sand, bajri etc., collected by him for the execution of the work direct to the concerned Revenue Authority of the



State or Central Government. The rates mentioned in the documents relating to this contractor are deemed to include all such expenditure and nothing extra shall be paid on this account.

26. The contractor shall maintain in good condition all work executed till the completion of the entire work entrusted to the contractor under this contract & nothing extra shall be paid on this account.
27. The work shall be executed and measured as per metric dimensions given in the schedule of quantities, drawings etc. (FPS units wherever indicated are for guidelines only).
28. The tenderer shall abide by the rules and regulations of respective State Value Added Tax / Works Contract Tax Act etc. Necessary deductions on account of taxes shall be made on the gross value of the work done from the bills of the contractor as per the provisions of above stated Acts. Necessary certificates for tax deduction at source shall be issued to the contractor by the Engineer in Charge. The decision of the Engineer in Charge regarding quantum of tax deducted at source shall be final and binding on the contractor.
29. Necessary permit etc. for utilization of forest produce would be obtained by the contractor directly from the Forest Authority. Necessary Forest Royalty Clearance Certificate (FRCC) from the Forest Authority shall be submitted by the Contractor to the Engineer-in-Charge along with the Bills for the work. Engineer-in-Charge reserves the right to deduct any sum considered reasonable towards forest royalty from the Running Accounts Bills of the Contractor, in the event on non-submission of FRCC. In case the contractor does not submit FRCC a sum considered reasonable towards payment of forest royalty would be deducted by the Engineer-in-Charge from the final bill of the work and credited to the Government accounts. The Engineer-in-Charge would determine the quantum of materials consumed on which such royalty is payable and also the rate of royalty payable. The decision of the Engineer-in-Charge shall be final and binding on the matter.
30. All test registers and material at site register shall be maintained by the Contractor which will be reviewed by the Officers of CPWD at regular intervals. These registers shall be issued to the contractor by the Engineer-in-Charge. Contractor shall be responsible for safe custody of all the test registers.
31. The contractor shall provide at his own cost suitable weighing and measuring equipments /instruments as may be necessary at site for checking purposes. All such equipments /instruments shall be got tested for calibration in advance from laboratory approved by the Engineer-in- Charge. All the expenditure to be incurred for testing of samples, e.g., packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.
32. The work has to be carried out at different stretches and nothing extra will be payable on account of shifting of T&P, Machinery, Labour and materials etc.



GENERAL REQUIREMENT OF THE TENDERER

Name of Work: **Renovation of Controlled Environment Plant Growth and Acclimatization Facility at Biotechnology Unit, ICAR-CRIJAF, Barrackpore SH: Civil work**

- 1 The tenderer is advised to read and examine the tender documents for the work and the set of drawings available with Engineer-in-charge. He should inspect and examine the site and its surroundings by himself before submitting his tender.
- 2 Separate schedule of quantity is included in this tender for Civil items of work. If the tenderer wants to offer any unconditional rebate on their rates, the same should also be offered in the respective components of civil schedule separately. The contractor shall quote the percentage rates in figures and words accurately so that there is no discrepancy in rates written in figures and words.
- 3 Time allowed for the execution of work is **04 Months**
- 4 The contractor(s) shall submit a detailed program of execution in accordance with the master programme/milestone within ten days from the date of issue of award letter.
- 5 Contractor has to arrange and install required plant and machinery during the urgency of work and nothing extra will be paid on this account.
- 6 Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of CPWD specifications and guidelines given in the relevant paras.
- 7 The contractor (s) shall make his own arrangements for electricity and water required for the execution of work.
- 8 All materials to be used in the work of this NIT shall be arranged by the contractor himself.
- 9 Contractor has to engage specialized agencies for specialized items of works such as structural glazing, ACP, water proofing, RCC overhead tank, sewage treatment plant, truss fabrication and other specialized items if mentioned in the tender documents.
Approval of the specialized agencies for each specialized work shall be obtained from the Engineer-in-Charge within one month of award of work. Even if, such specialized items of work shall be executed by the specialized agencies, the work shall be deemed to be executed by the tenderer for all purposes and the responsibility of the quality of items of works executed etc. shall continue to be that of the tenderer only.
- 10 Contractor has to deploy required Plant and machinery on the project. Minimum number of plant and machinery to be deployed by him is indicated in NIT.. In case the contractor fails to deploy the plant and machinery whenever required and as per the direction of the Engineer-in-charge, he (Engineer-in-charge) shall be at a liberty to get the same deployed at the risk and cost of the



contractor.

- 11 The contractor shall submit the running bills in the shape of the c-MB in pages of A-4 size as per the standard format of department and shall act as per modified clause 6 of CPWD-7
- 12 Contractor has to provide reinforcement cover blocks made of approved proprietary pre packed free flowing mortars.
- 13 The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time.
- 14 The contractor should either himself meet the eligibility conditions for the respective E&M & Horticulture packages or otherwise he will have to associate an agency meeting the eligibility requirements. The proposal for associate agency for all packages of E&M and Horticulture shall be submitted within one month from the date of award for verification and approval of the Department. Consent letter of such proposed agencies for association along with verifiable completion certificates of the work/ registration/approval documents as the case may be, duly attested by the applicant, valid Electrical Contractor's license, duly attested by the applicant and self-attested GST registration documents in respect of the associated agencies shall also be submitted along with the proposal.



Additional Conditions for Cement

- 1 The contractor shall procure PPC conforming to IS: 1489 (Part 1) as required in the work from reputed manufacturers of cement such as ACC, Ultratech, Vikram, Shree Cement, Ambuja, Jaypee Cement, Century Cement & J.K. Cement or from any other reputed cement manufacturer having a production capacity not less than 1 million tons per annum as **approved by SDG (Kolkata)/Superintending Engineer – Barasat, CPWD, Kolkata.**
- 2 The 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. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected, and it shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer- in-charge to do so.
- 3 The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer- in- charge. The cement godown of the capacity to store a minimum of 2000 bags of cement or decided by NIT approving authority in case less than 100 MT cement is required for work, shall be constructed by the contractor at site of work for which no extra payment shall be made.
- 4 Double lock provision 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 keys 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 godown by the Engineer-in-Charge at any time.
- 5 The cement shall be got tested by the Engineer-in-charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the cement required for testing including its transportation cost to testing laboratories. All expenditure to be incurred for testing of samples e.g., packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.
- 6 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause 38 of the contract and shall be governed by conditions laid therein. In case the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made after ensuring structural soundness and stability on the basis of testing. In case of excess consumption, no adjustment shall be made.
- 7 The cement brought to the site and the cement remaining unused after completion of the work shall not be removed from site without the written permission of the Engineer-in-charge.
- 8 The damaged cement shall be removed from the site immediately by the agency on receipt of a notice in writing from the Engineer-in-charge. If he does not do so within 3 days of receipt of such notice, the Engineer-in-charge shall get it removed at the cost of the contractor.



Special Conditions for Steel Reinforcement Bars.

The contractor shall procure only TMT bars of Fe 500 D or more grade from steel producers such as SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and JSW Steel Ltd or their authorized dealers.

2. TMT bars shall meet the provisions of IS 1786: 2008 (Indian Standard specifications for high strength deformed steel bars and wires for concrete reinforcement) pertaining to Fe 500 D or more grade of steel.
3. The contractor shall have to obtain manufactures certificate stating the process of manufacture, chemical composition and test sheet giving results of each mechanical test applicable to the materials and submit and furnish to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work. Each test certificate shall indicate the number of cast to which it applies, corresponding to the number or identification mark to be found on the material.
4. Steel bars brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use. Samples of each confinement shall be taken and got tested by the Engineer-in-charge for chemical composition and physical properties (including bend and re-bend test) as per the provisions in this regard in the relevant BIS codes from any Govt. or approved laboratory. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, the same shall stand rejected and it shall be removed from the site of work by the contractor at his cost within a week time of written orders from the Engineer-in-charge to do so.
5. The steel reinforcement shall be brought to the site in bulk supply of 30 tonnes or more or as directed by the Engineer-in-charge.
6. The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent distortion & corrosion, and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.
7. For checking nominal mass, tensile strength, bend test, re-bend test etc. specimens of sufficient length shall be cut from each size of the bar at random at frequency not less than that specified below:

Size of bar	For consignment below 100 tonnes	For consignment over 100 tonnes
Under 10 mm dia bars	One sample for each 25 tonnes or part thereof	One sample for each 40 tonnes or part thereof
10 mm to 16 mm dia bars	One sample for each 35 tonnes or part thereof	One sample for each 45 tonnes or part thereof
Over 16 mm dia bars	One sample for each 45 tonnes or part thereof	One sample for each 50 tonnes or part thereof

8. All the expenditure to be incurred for testing of samples, e.g., packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.
9. If the quantity of steel actually used in the work is found to be more than the theoretical quantity of steel including authorised variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that at any stage or after the completion of the work the quantity of steel used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in clause 38). The cost of quantity of steel so less used shall be recovered from the contractor at rate as specified in schedule 'F'. Decision of the Engineer-in-Charge in regard to theoretical quantity of steel which should have been actually used and recovery of the rate specified shall be final and binding on the contractor. In case the contractor brings surplus quantity of steel the same after completion of the work will be removed from the site by the contractor at his



own cost after approval of the Engineer-in-Charge.

10. The standard sectional weights referred to as in Table 5.4 under para 5.3.4 in CPWD specifications for works 2019 Vol. 1 will be considered for conversion of length of various sizes of MS bars, Tor steel bars and TMT bars into standard weight.
11. Records of actual sectional weight shall also be kept dia-wise & lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as derived actual weight.
12. If the derived weight as in para 10 above is lesser than the standard weight as in para 9 above, the derived actual weight shall be taken for payment.

If the derived actual weight is found more than the standard weight then the standard weight as worked out in para 9 above shall be taken for payment. In such case nothing extra shall be paid for the difference between the derived actual weight and the standard weight.

13. Mixing of different type of steel/different grades of steel shall not be allowed in the same structural members as main reinforcement to satisfy clause 26.1 of IS:456.
14. Tolerances on Nominal Mass (individual sample) shall be as under:-

Sl. No.	Nominal size mm	Tolerances on the Nominal Mass, percentage
1	Upto and including 10	-8%
2	Over 10 upto& including 16	-6%
3	Over 16	-4%



ADDITIONAL CONDITIONS

1. Unless otherwise provided in the Schedule of quantities the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account. Payment for centring, shuttering, however if required to be done for floor to floor heights greater than 3.5 m. shall be admissible at rates arrived at in accordance with clause-12 of the agreement if not already specified.
2. The contractor shall make his own arrangements for obtaining electrical service connection if required and make necessary payments directly to the department concerned.
3. Other agencies doing works related with this project will also simultaneously execute the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for laying/burying in the work pipes, cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for other agencies. Conduits for electrical wiring/cables will be laid in a way that they leave enough space for concreting and do not adversely affect the structural members. Nothing extra over the agreement rates shall be paid for the same.
4. Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. the contractor shall be bound to follow all such restriction/instructions and nothing extra shall be payable on this account.
5. (a) The building work will be carried out in the manner complying in all respects with the requirements of relevant by laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-Charge and nothing extra will be paid on this account.

(b) Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to bye-laws and specifications of the Municipal Body/Corporation where C.P.W.D. specifications are not available. The contractor should engage licensed plumbers for the work and get the materials (fixtures/fittings) tested by the Municipal Body/Corporation Authorities wherever required at his own cost.

(c) The contractor shall comply with proper and legal orders and directions of the local or public authority or municipality and abide by their rules and regulations and pay all fees and charges which he may be liable.
6. The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.
7. Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been in built in the items and nothing extra shall be payable (or) extra cement considered in consumption on this account.



8. Testing of materials:
 - (a) Samples of various materials required for testing shall be provided free of charge by the contractor. Testing charges, if any, shall be borne by the agency. However in case samples fail in testing, the testing charges if any shall also be borne by the contractor. All other expenditure required to be incurred for taking the samples, conveyance, packing etc. shall be borne by the contractor himself.
9. The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless and otherwise given in writing by the Engineer-in-charge.
10. The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by department or procured by the contractor and nothing extra shall be payable to the contractor on their accounts.
11. The full nomenclature of items shall be adopted in preparing abstract of final bill in the measurement book and also in the bill form for final bill.



ADDITIONAL SPECIFICATIONS

1.0 GENERAL

- 1.1 The work shall be executed and measured as per metric dimensions given in the Schedule of quantities, drawings etc.(F.P.S. units wherever indicated are for guidance only).
- 1.2 The following modifications in the above specifications and some additional specifications shall however apply:
 - i) All stone aggregate and stone ballast shall be of hard stone variety to be obtained from approved quarries at **Pakkur** any other source to be got approved by the Engineer-in-Charge.
 - ii) Sand to be used for cement concrete work, mortar for masonry and plaster work shall be of standard quality. Sand shall be obtained from **Ganges/Hooghly** any other source to be got approved from the Engineer-in-Charge and screened as required. The same shall consist of hard siliceous material. It shall be clean sand.
- 2.0 Wherever any reference to any Indian Standard Specification occurs in the documents relating to this contract the same shall be inclusive of all amendments issued their to revision thereof if, any, upto the date of receipt of tenders.
- 3.0 Unless otherwise specified in the schedule of quantities the rates for all items of the work shall be considered as inclusive of pumping out or bailing out water if required for which no extra payment will be made. This will include water encountered from any source, such as rains, floods, and sub-soil water label being high due to any other cause whatsoever.

3.1 Brick Work.

Bricks shall be obtained from kilns at 24 Parganas (North) or any other source to be got approved by the Engineer-in-Charge.

**PARTICULAR SPECIFICATION****1. EARTH WORK**

Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machineries and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.

1. RCC WORK

The work shall be done as per CPWD specifications.

2.1 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in clause 38) the cost of quantity of cement so less used shall be recovered from the contractor at the rate as specified in schedule 'F'. Decision of the Engineer-in-Charge in regard to the quantity of cement which should have been actually used as per the schedule and recovery at the rate specified shall be final and binding on the contractor.

2.2 For non-scheduled items, the decision of the Superintending/Chief Engineer regarding theoretical quantity of the cement which should have been actually used shall be final and binding on the contractor.

2.3 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-Charge.

2.4 In case the contractor brings surplus quantity of cement the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer-in-Charge.

2.5 Cement register for the cement shall be maintained at site.

Cement bags shall be stored in separate godowns to be constructed by the contractor at his own cost as per sketch (which is only indicative and actual size will depend on the site requirements) given in CPWD specifications with weather proof roofs and walls. Each godown shall be provided with a single shutter door with two locks. The key of one lock shall remain with Engineer-in-charge or his authorized representative and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is issued from the godown according to the daily requirements with the knowledge of both parties and proper account for the same is maintained in the standard proforma.

PROFORMA FOR THE CEMENT REGISTER**PARTICULARS OF RECEIPT**

Date of receipt	Quantity received	Progressive total	Date of issue	Quantity issued	Items of work for which issued
1	2	3	4	5	6

**PARTICULARS OF ISSUE**

Qty. returned at the end of the day	Total issued	Daily balance in hand	Contractor's initial	JE's initial	Remarks (AE/EE's periodical check)
7	8	9	10	11	12

2.6 DESIGN MIX CONCRETE:

The contractor shall be required to submit two separate design mix of concrete with and without using plasticizers/admixtures, separately. The decision of the engineer-in-charge to specify the design mix of concrete based on above shall be final.

2.6.1 Coarse aggregate: As per CPWD Specifications

2.6.2 Fine Aggregate: As per CPWD Specifications.

2.6.3 Water: It shall conform to requirements laid down in IS:456: 2000 and CPWD specifications.

2.6.4 Cement: Cement arranged by the contractor will be PPC (in bags) conforming to IS: 1489-Part-I. If for any reasons, cement other than that specified in this para for example OPC of grade 43 or higher grade is brought to site by contractor, the issue, payments rate as well as the quantity to be used in the design mix concrete will remain unchanged.

2.6.5 Slump: Design slump should be clearly specified in the mix design.

2.6.6 Admixtures shall not be used without approval of Engineer-in-charge. Wherever required, admixtures of approved quality shall be mixed with concrete as specified. The admixtures shall conform to IS: 9103. The contractor shall not be paid anything extra for admixture required for achieving desired workability without any change in specified water cement ratio for RCC/CC work.

2.6.7 The concrete mix design/laboratory tests with and without admixture shall be got done by contractor at his own cost and will be carried out by the contractor through one of the following laboratory/Test houses:

- IIT Kharagpur, IIT Guwahati, NIT Gangtok, NIT Durgapur
- Jadavpur University, Kolkata.
- Bengal Engineering and Science University, Shibpur
- North Bengal Engineering College, Jalpaiguri.

The various ingredients for mix design / laboratory tests shall be sent to the test houses through the Engineer-in-Charge and the samples of such aggregate & cement shall be preserved at site by the department

2.6.8 The contractor shall submit the mix design report from any of above approved laboratory for approval of Engineer-in-Charge within 30 days from the date of issue of letter of acceptance of the tender. No concreting shall be done until the mix design is approved by the Engineer-in-charge. In case of white portland cement and the likely use of admixtures in concrete with PPC/white portland cement the contractor shall design and test the concrete mix by using trial mixes with white cement and/or admixtures also for which nothing extra shall be payable.

2.6.9 In case of change of source or characteristic properties of the ingredients used in the concrete mix during the work, a revised laboratory mix design report conducted at laboratory established at site shall be submitted by the contractor as per the direction of the Engineer-in-Charge.

**2.7 APPROVAL OF DESIGN MIX**

The mix design for a specified grade of concrete shall be done for a target mean compressive strength $T_{ck} = F_{ck} + 1.65 s$.

Where F_{ck} = Characteristic compressive strength of 28 days

s = Standard deviation which depends on degree of quality control

The degree of quality control for this work is “good” for which the standard deviation (s) obtained for different grades of concrete shall be as below:

Grade of Concrete	For “Good” quality of control
M 25	4.00
M 30	5.00
M 35	5.00
M 40	5.00

Of the six specimen of each set three shall be tested at seven days and remaining three at 28 days. The preliminary tests at seven days are intended only to indicate the strength to be attained at 28 days

- 2.8 All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.
- 2.9 The batching plant shall conform to IS:4925. It shall have the facilities of presetting the quantity to be weighed with automatic cutoff when the same is achieved. Concreting at places may have to be resorted to through concrete pump for which nothing extra shall be paid.
- 2.10 All other operations in concreting work like Mixing, Slump, Laying Placing of concrete, compaction curing etc. not mentioned in this particular specification for Design Mix of concrete shall be as per CPWD specification.

2.11 WORK STRENGTH TEST**TEST SPECIMEN**

Work strength test shall be conducted in accordance with IS: 456 on random sampling. Each test shall be conducted on six specimens, three of which shall be tested at 7 days and remaining three at 28 days.

TEST RESULTS OF SAMPLE

The test result of the sample shall be the average of the strength of three specimen. The individual variation shall not be more than 15 percent of the average. If more, the test results of the sample are invalid. 90% of the total test shall be done at the laboratory established at site by contractor and remaining 10% in the laboratory of CPWD or in any other laboratory as directed by the Engineer-in-Charge.

Lot size: As per CPWD Specification with up-to-date correction slip

- 2.12 STANDARDS OF ACCEPTANCE- As per CPWD specifications/IS 456 Code



- 2.13 In case of rejection of concrete on account of unacceptable compressive strength governed by para “Standard of Acceptance” as above the work for which samples have failed shall be redone at the cost of contractors. However, the Engineer-in-Charge may order for additional test (like cutting cores, ultrasonic pulse velocity test, load tests on structure or part of structure etc.) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The contractor shall take remedial measures necessary to retain the structure as approved by the Engineer-in-Charge without any extra cost. However, for payment the basis of rate payable to contractor shall be governed by the 28 days cube test results.
- 2.14 Only MS centering/shuttering and scaffolding material unless & otherwise specified shall be used for all RCC. Work to give an even finish of concrete surface. However marine ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor on approval by the Engineer-in-Charge.
- 2.15 Necessary arrangements shall be made for field tests and all required equipment's shall be arrange by establishing field lab by the Agency for mandatory tests of the materials as specified in CPWD specifications or as per direction of Engineer-in-Charge. No extra payment shall be paid on this account.

2. READY MIX CONCRETE (RMC)/BATCH MIX CONCRETE FROM RMC PRODUCER

The contractor shall arrange Ready Mix Concrete (RMC) from the approved RMC producing plants as given in the list of preferred makes.

The contractor shall, within a period of 15 days of award of the work, submit text of MOU proposed to be entered between purchaser (the contractor) and supplier (RMC producer) to the Engineer-in-Charge for his approval. The contractor shall draw the MOU with approved RMC producer and submit to the Engineer-in-Charge within a week of such approval. The contractor will not be allowed to use ready mix concrete without completion of above stated formalities.

Notwithstanding the approval granted by the Engineer-in-Charge in aforesaid manner or provisions in CPWD specifications 2019, the contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc.

The Engineer-in-Charge will reserve right to inspect at any stage and reject the concrete if he is not satisfied about quality of product at the user's end.

The Engineer-in-Charge reserves the right to exercise control over the: -

- (i) Ingredients, water and admixtures purchased, stored and to be used in the concrete including conducting of tests for checking quality of materials, recording of test result and declaring the materials fit or unfit for use in production of mix.
- (ii) Calibration check of the RMC plant.
- (iii) Weight and quantity check on the ingredients, water and admixture added for batch mixing.
- (iv) Time of mixing of concrete.
- (v) Testing of fresh concrete, recording of results and declaring the mix fit or unfit for use. This will include continuous control on the workability during production and taking corrective action, if required.



- (vi) For exercising such control, the Engineer-in-Charge shall periodically depute his authorized representative at the RMC plant. It shall be responsibility of the contractor to ensure that all necessary equipment, manpower & facilities are made available to the Engineer-in-Charge and/or his authorized representative at RMC plant.
- (vii) The contractor shall arrange for sending an SMS on the mobile No. of authorised representative of Engineer-in-Charge as soon as the RMC is despatched from the plant, giving details such as time of despatched, grade of concrete, tipper registration number etc.

The contractor should therefore draw MOU/agreement with RMC producer very carefully keeping in view all terms and conditions/specifications forming part of this document.

All required relevant records of RMC shall be made available to the Engineer-in- Charge or his authorized representative. The Engineer-in-Charge shall as require, specify guidelines & additional procedures for quality control & other parameters in respect of materials, production & transportation of concrete mix which shall be binding on the contractor & the RMC plant. Only concrete as approved in design mix by the Engineer-in-Charge shall be produced in RMC plant and transported to the site.

3.1 QUALITY CONTROL OF READY MIXED CONCRETE

It shall be the responsibility of the contractor to ensure that RMC producer provides all necessary testing equipments and takes all necessary measures to ensure quality control of ready mixed concrete. In general, the required measures shall be: -

(i) Control of purchased material quality

RMC producer shall ensure that all the materials purchased and used in the production of concrete confirm to the stipulation of the relevant standards and the requirements of the concrete mix design and quality control procedures. This shall be accomplished by visual checks, sampling and testing, certification from material supplier and information/date from materials supplier. Necessary equipment for the testing of all materials shall be provided and maintained in calibrated condition at the plant by the RMC producer.

(ii) Control of material storage

Adequate and effective storage arrangement shall be provided by RMC producer at RMC plant for reliable transfer and feed systems, drainage of aggregate, prevention of freezing or excessive solar heating of aggregate, prevention from contamination etc.

(iii) Record of mix design and mix design modification

RMC producer shall ensure that record of mix design and mix design modification is readily available in his computer at RMC plant for inspection of Engineer-in-Charge or his authorized representative at any time. Any modification in mix design shall be done only after the approval of the Engineer-in-Charge.

(iv) Transfer and weighing equipment

RMC producer shall ensure that a documented calibration procedure is in place. Proper calibration records shall be made available indicating date of next calibration due & corrective action taken. RMC producer shall ensure additional calibration checks whenever required by the Engineer-in-Charge in writing to contractor. RMC producer shall also maintain a daily production record including details of customers to whom RMC was supplied including details of mixes supplied. Record shall also be



maintained of materials used for each day's production including water and admixtures.

The accuracy of measuring equipment shall be within + 2% of quantity of cement & + 3% of quantity of aggregate, admixture and water being measured.

(v) Maintenance of Plant, Truck Mixers and Pumps

Plant, Truck Mixers and Pumps should be well maintained so as to not hamper any operation of production, transportation and placement of concrete.

(vi) Production of concrete at RMC producing plant

- (a) Weighing (correct reading of batch date and accurate weighing): -For each load, printed or graphical records shall be made of the weights of the materials batched, the estimated slumps, the total amount of water added to the load, the delivery ticket numbers for that load and the time of loading the concrete into the truck.
- (b) Adequate testing equipments at the plant including equipment for measuring surface moisture content of aggregates shall be provided by the RMC producer.
- (c) Making corresponding adjustments at the plant automatically to batched quantities to allow for observed measured or reported changes in materials or concrete qualities.
- (d) Sampling of concrete, testing, monitoring of results.
- (e) Diagnosis and correction of faults identified from observation/complaints.
- (f) Control of designed and the prescribed mixes: a quality control system shall be operated to control the strength of designed mixes to the required levels. The system shall include continuous analysis of results from cube tests.
- (vii)** Ready mix concrete shall be arranged in quantity as required at site of work. The ready-mix concrete shall be supplied as per the pre-agreed schedule approved by Engineer-in-Charge. Noting extra shall be payable on this account.
- (viii)** The Engineer-in-Charge reserves the right to approve RMC producing plants not mentioned in the list of approved RMC plants if they fulfil all the necessary conditions.
- (ix)** In case of rejection of concrete for which cubes have failed to achieve the requirement of acceptance criteria as per the CPWD specification, the work done using that RMC shall be rejected and the work shall be redone at the cost of the contractor, however, the Engineer-in-Charge may order for additional tests (like ultrasonic pulse velocity and rebound hammer test etc.) to be carried out at the cost of contractor to ascertain, if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The contractor shall take remedial measures necessary to retain the structure as approved by the Engineer-in-Charge without any extra cost. However, for payment, the basis of rate payable to contractor shall be governed by the 28 days cube test result and reduced rates shall be regulated in accordance with para 5.4.10.5 D (D-3) of CPWD specifications 2019.

Laying of RMC concrete-All ready mixed designed concrete shall be laid with the help of concrete pump of adequate capacity.

3.2 Transportation, placing and Compaction of Concrete

Mixed concrete from the RMC shall be transported to the point of placement by transit mixers and placed in position through concrete pumps and/or steel closed bottom buckets capable of carrying



minimum 0.6 cum concrete is proposed to be transported by transit mixer, the mixing speed shall not be less than 4 rev/min. of the drum nor greater than a speed resulting in a peripheral velocity of the drum 70 m/minutes at its largest diameter. The agitating speed for the agitator shall neither be less than 2 rev/min nor more than 6 rev/min of the drum. The numbers of revolution for a uniform mix, after all ingredients, have been charged into the drum unless tempering water is added, all rotation after 100 revolutions shall be at agitating speed of 2 to 6 rev/min and the number of such rotations shall not exceed 250. The general construction of transit mixer and other requirement shall conform to IS: 5892.

4 PRE-CAST RCC WORK

- 4.1 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks, flats etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Engineer-in-Charge before taking up the work.
- 4.2 Pre-cast units shall be clearly marked to indicate the top of member and its locations.
- 4.3 Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.

5 FORM WORK

Basically, only steel shuttering shall be adopted in general. However, a combination of steel and shuttering ply conforming to I.S: 848-1974 and I.S: 5539 may be allowed by the Engineer-in-Charge in consideration of the special request of the contractor to maintain quality and speed of the work. In such cases the use of shuttering ply shall be permitted only for circular columns, beam sides and bottom and in other locations wherever it is felt necessary on account of difficulty in using steel shuttering in such locations. But in other areas like slab, rectangular/square columns etc. steel shuttering shall be invariably used. However, no extra payment or deduction will be admissible or made for use of shuttering ply.

To maintain the quality and speed the contractors have to arrange and bring the following minimum quantities steel cantering shuttering with necessary steel vertical props, horizontal and diagonal bracing before execution of the following items of work.

i. Foundation and footings.	= 500 sqm.
ii. Beams.	= 1200 sqm.
iii. Columns.	= For 100 nos.
iv. Slabs	= 1500 sqm
v. Steel Props	= 800 nos.

The aforesaid quantities of shuttering materials should be kept at site for execution of the columns, suspended floors and beams at the upper floor levels.

6 Bricks work.

- (a) The Common Burnt Clay Bricks shall conform to IS: 1077 and shall be hand moulded or machine moulded. They shall be free from nodules of free lime, visible cracks, flaws warpage and organic matter, have a frog 100 mm in length 40 mm in width and 10 mm to 20 mm deep on one of its flat sides. Bricks made by extrusion process and brick tiles may not be provided with frogs. Each



brick shall be marked (in the frog where provided) with the manufacturer's identification mark or initials.

- (b) Fly Ash Lime Bricks (FALG Bricks) : The Fly Ash Lime Bricks (FALG Bricks) shall conform to IS 12894. Visually the bricks shall be sound, compact and uniform in shape free from visible cracks, warpage, flaws and organic matter. The bricks shall be solid and with or without frog on one of its flat side. Fly Ash: Fly ash shall conform to IS 3812

Note: This item will be operated only for load bearing structure upto 2 storeys and for nonload bearing walls 23 cms thick for multi-storeyed buildings.

- (c) Clay Fly Ash Bricks: The clay fly ash bricks shall conform to IS 13757. The bricks shall be sound, compact and uniform in shape and colour. Bricks shall have smooth rectangular faces with sharp and square corners. The bricks shall be free from visible cracks, flaws, warpage, nodules of free lime and organic matter, the bricks shall be hand or machine moulded. The bricks shall have frog of 100 mm in length 40 mm width and 10 to 20 mm deep on one of its flat sides. If made by extrusion process may not be provided with frogs. Fly Ash shall conform to grade I or grade II of IS 3812.
- (d) Calcium Silicate Bricks: The bricks shall conform to IS 4139. The Calcium silicate bricks shall be sound, compact and uniform in shape. Bricks shall be free from visible cracks, warpage, organic matter, large pebbles and nodules of free lime. Bricks shall be solid and with or without frog. The bricks shall be made of finely grounded sand siliceous rock and lime. In addition limited quantity of fly ash conforming to IS 3812 may be used in the mix. These bricks are also known as Fly Ash Sand Lime bricks in the construction industry.
- (e) Brick Bats: Brick bats shall be obtained from well burnt bricks.
- (g) Mechanized Autoclave Fly Ash Lime Brick: These bricks shall be machine moulded and prepared in plant by appropriate proportion of fly ash and lime. The autoclave fly ash bricks shall conform to IS 12894. Visually, the bricks shall be sound, compact and uniform shape, free from visible cracks, warpage and organic matters. The brick shall be solid with or without frog, and of 100/80 mm in length, 40 mm width and 10 to 20 mm deep one of its flat side as per IS 12894. The brick shall have smooth rectangular faces with sharp corners and shall be uniform in shape and colour. Fly ash shall conform to IS 3812 and lime shall conform to class 'C' hydrated lime of IS 712.

6.1.2 Classification Bricks/Brick tiles shall be classified on the basis of their minimum compressive strength as given below:

TABLE 6.2

Class Designation	Average compressive strength			
	Not less than		Less than	
	N/mm ²	(kgf/cm ²)	N/mm ²	(kgf/cm ²)
12.5 (125)	12.5	125	15.0	150
10 (100)	10	100	12.5	125
7.5 (75)	7.5	75	10	100
5 (50)	5	50	7.5	75
3.5 (35)	3.5	35	5.0	50

The bricks shall have smooth rectangular faces with sharp corner and shall be uniform in colour and emit clear ringing sound when struck.



7 SANITARY INSTALLATIONS, WATER SUPPLY AND DRAINAGE

The work of water supply and sanitary installations shall be got executed by the agency as approved by Engineer-in-Charge.

- i. The entire plumbing drawing and sanitary installation drawing/ details shall be submitted by the contractor and got approved by the Engineer-in-Charge before the execution.
- ii. The entire responsibility for the quality of work will however rest with the building contractor only.

The work of water supply, internal sanitary installations and drainage etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the contractor shall produce necessary completion certificates from such authority after completion of work.

All water tanks, taps, sanitary, water supply and drainage pipes fittings and accessories etc. shall conform to the bylaws and specifications of the Municipal Body/Corporation where CPWD specifications are not available.

The contractor shall engage licensed plumbers for the work and the materials (fixtures/fittings) tested by the local Municipal Body/Corporation wherever required at his own cost. Nothing extra shall be paid/reimbursed for the same.

The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.

The work in general shall be carried out as per CPWD specifications. Rate includes all materials, labour and all the operations mentioned in the respective items unless and otherwise specifically mentioned.

The contractor shall give a satisfactory performance test of the entire installation (s) before the work is finally accepted and nothing extra shall be payable to the contractor on this account.

The contractor shall be responsible for all the protection of sanitary, water supply fittings and fixtures against pilferage and breakage during the period of installation until the completion / handing over of the work.

The contractor shall submit completion plans for water supply internal sanitary installations and building drainage work within thirty days of the date of completion. These plans are to be submitted on drawings prepared preferably through computers (1 original copy + 3 photocopies) on suitable scales to show the general arrangement and desired details.

8. WATER PROOFING TREATMENT

The contractor shall associate himself with the specialized firm, to be approved by the Engineer-in-charge in writing, for water proofing treatment for basement/lower ground floor, underground tank and on roofs. A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted in the prescribed proforma attached with tender document shall be given by the specialized firm, for a period of 10 years from the date after the maintenance period prescribed in the contract, which shall be counter signed by the contractor as token of overall responsibility. In addition, 10% (ten percent) of the cost of water proofing items shall be retained as guarantee to watch the performance of the work done. However, half of this retained amount will be released after five years, if the performance of the work done is found satisfactory. If, however any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of intimation. In case it is not attended to, the same will be got done by another agency at the risk and cost of the contractor. This guarantee



deposit can however be released in full if a bank guarantee of equivalent amount for 10 years is produced and deposited with the department by the contractor.

9. Water Supply & Sanitary Installation:

A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma attached with tender document for performance of water supply & sanitary installation work. In addition, 5% (Five percent) of the cost of water supply & sanitary installation items shall be retained as guarantee to watch the performance of the work done. Which shall be released after 02 (Two) year to be reckoned from the date after the expiry of maintenance period prescribed in the contract, if the performance of the work done is found satisfactory.

10. Guarantee for external finishing walls with smooth exterior paint.

The work of external wall finishing work as per item shall be guaranteed for a period of 5 (Five) years as per enclosed guarantee bond against non-uniform coloring flaking Workmanship and defective finishing. On notification by the Engineer- In – Charge of any Compliance to be performed under this guarantee by the contractor. The contractor shall immediately supply labour/ material and rectify all the defects notified by the Engineer – In –Charge to perform this guarantee at no additional cost and to ensure that the defects are fully rectified. In addition extra 2% (two percent) of the amount of the external finishing work as per relevant item of the agreement shall be withheld on this account which shall be refunded under expiry of the guarantee period if no defects are observed in the said period if the defects have been rectified in pursuant in the agreement to the entire satisfaction of the Engineer – In - Charge.

The materials shall be Premium Acrylic Smooth Exterior paint with silicone additives “Snowcryn 1– XT, Of M/s Snowcem India Ltd. or equivalent like (a) Weather Coat Smooth “ of M/s Berger Paint India Ltd (b) “ Dulux – Weather Shield” of M/S . ICI (India) Paints (c) Apex Ultima“of M/s Asian Paints.

The base for painting (Acrylic) be prepared by cleaning, scaling mosses etc. with wire Brushes and cleaning with water etc. complete for which no extra payment shall be made

11. ALUMINIUM WORK:

11.1 Before commencement of the work, the contractor shall co-relate all relevant structural, architectural, detailed drawings of aluminum doors, windows etc. and service drawings and shall satisfy himself that the information available there form is complete and unambiguous. The contractor shall be responsible for any error/omission owing to any discrepancy in the drawings, which has been overlooked by him and or had not been brought to the notice of the Engineer-in-Charge before execution.

11.2 MATERIAL:

11.2.1 Inspection of materials or works: All materials brought to the site by the contractor for use in the work, as well as fabricated components shall be subject to inspection and approval by Engineer-in-Charge. The contractor shall be required as directed by the Engineer-in-Charge, to get necessary



tests carried out on materials components at his own cost from the laboratories/test houses, approved by the Engineer-in-Charge.

11.2.2 Manufacturer's Test Certificate: The contractor shall, if required by the Engineer-in-Charge, produce manufacturer's test certificates for any material or particular batch of materials supplied by him. The tests carried out shall be as per relevant specifications/Indian Standard Code.

11.3 Aluminium Sections:

11.3.1 Aluminium sections to be used for doors, windows, ventilators, fixed glazing etc. shall be manufactured by reputed companies such as Hindalco, Jindal, Indian Aluminium Company, NALCO satisfying the design and specification criteria of relevant components and shall be subject to approval of the Engineer-in-Charge.

11.3.2 The aluminium extruded sections shall conform to IS Designations HEIWP/HVIWP alloy, with chemical composition and technical properties as per I.S: 733 and IS: 1285.

11.3.3 For sectional weight, tolerance limits shall be (-) 0.5%.

11.3.4 Approval of samples: No work shall commence before samples are approved. Samples of un-anodised as well as anodized and electro coloured aluminium sections, neoprene gaskets, thermal barrier sections, glass, screws, hardware and any other material or components requiring approval of samples in opinion of Engineer-in-Charge shall be submitted for his approval. These samples will be retained as standards of materials and workmanship till the completion of work. Anodising and electro colouring of aluminium section and fabrication shall be got done from the factory as approved by the Engineer - in - Charge.

11.4 Fabrication:

11.4.1 Contractor shall prepare detailed shop drawings of his proposal using suitable sections based on architectural design/drawings, adequate to meet the requirement/specifications laid down in this tender document. These detailed shop drawings shall be got approved from the Engineer-in-Charge before taking up the fabrications. Actual measurement of each opening shall be measured before fabrication of framework. Aluminium shall be fabricated in the factory to the extent possible and feasible, only adjustment, joining, assembling and fixing shall be done at the site of work.

11.4.2 All hard ware used shall conform to the relevant specifications and as per samples approved by the Engineer-in-Charge. Design, quality, type, number and fixing of hardware shall be in accordance with architectural drawings and as approved by the Engineer-in-Charge.

11.4.3 All doors, windows, ventilators and glazing etc. shall be made completely leak proof against water and air using neoprene gaskets and silicon sealants to the satisfaction of the Engineer-in-Charge.

11.4.4 The frames shall be as per architectural drawings and the corners of the frame shall be true to right angles. Both fixed frames and openable shutter frames shall be fabricated out of sections which have been cut to length, mitred and mechanically jointed for satisfactory performance. All members shall be accurately machine milled and fitted to form hairline joints. The jointing accessories such as cleats, brackets, screws etc. shall be of such materials as not to cause any bimetallic action. Nothing extra shall be paid for jointing accessories.



11.4.5 Mixed joints of the doors, windows, ventilators, shutters and frames shall be either corner crimped or fixed with self tapping stainless steel screws of approved make and quality to heavy duty extruded aluminium cleats and sealed with silicon sealant, for which nothing extra shall be paid.

11.4.6 Verticals of the frame shall be embedded in the floors, wherever required upto 50mm including cutting and making good of the floor, for which nothing extra shall be paid.

11.5 Fixing.

11.5.1 The screws used for fixing aluminium frames to masonry walls/RCC members and aluminium members to another aluminium members shall be stainless steel of approved make and quality. Threads of machine screws used shall conform to IS : 4218.

11.5.2 The gap between frames and sill, jamb or soffit, shall be filled with approved polysulphide sealant to ensure complete water tightness. The sealant shall be of such approved colour and composition that it would not stain the masonry/RCC work. It should not set or flow and shall not set hard or dry out under any conditions of weather. The silicon sealant shall be used as required and shall match the colour of the aluminum sections. Any excess sealant shall be removed/cleared. Nothing extra shall be paid for the above.

11.5.3 Fixing of glass panes should be designed in such a way that replacing damaged/ broken glass panes is easy without having to remove or damage any members or interior finishing materials.

11.6 Anodizing/Electro Coloring:

11.6.1 Aluminum sections shall be anodized as per IS: 7088 - 1973. Anodising to be done as per Grade AC-15 and shall not be less than 15 microns thick when measured as per IS: 6012, and electro colour with colour fastness rating no.8 of IS: 1868. Colour anodizing shall be done only by electro color process. No visual variation in colour shall be permitted.

11.6.2 The anodic coating shall be properly sealed by steam or by boiling in deodorized water as per IS: 1868 and or IS: 6057. Sealing quality shall be tested in accordance with the relevant standards. Nothing extra shall be paid on that account.

11.6.3 The contractor shall satisfy himself by 100% checking in the factory that the thickness of the anodic coating is found to be minimum 15 microns and sealing quality appropriate everywhere. The testing shall be done by 'Eddy current method' as per IS: 6012. The Eddy Current Method uses a probe that contains a coil. This probe/coil is driven by a high-frequency oscillator to generate an alternating high-frequency field. If thickness is found substandard, the material shall be rejected. Requisite tests shall also be carried out at site as instructed by the Engineer-in-Charge. Contractor shall arrange all the equipment's required for these tests at site. Nothing extra shall be paid for the same.

11.6.4 All anodized aluminum works shall conform to relevant IS standards relating to materials, workmanship, fabrications, finishing, erection, installation etc. In this connection, IS codes including IS: 1868 - 1982, IS: 733 - 1983, IS: 1948-1961, IS: 7088-1973, 6012-1970, IS: 1285-1975, IS: 740-1975 are considered relevant and applicable.



11.6.5 A thick layer of clear transparent lacquer based on methacrylates or cellulose styrate shall be applied on the anodised sections, before they are brought at site. The lacquer shall be removed after installations are complete or as an alternative, the exposed surface of the aluminium sections shall be provided with gummed paper tape protection. After fixing and assuring of proper functioning of doors, windows etc., such protective layer shall be cleaned out/removed. Nothing extra shall be paid for above to the contractor.

11.7 Glazing:

11.7.1 All glass panes shall be retained within aluminium framing by use of exterior grade neoprene gaskets even though PVC gaskets may be mentioned in the schedule. No water leakage shall occur on the interior even if water penetrates exterior gradeneoprene gaskets. Use of glazing or caulking compounds around the perimeter of glass will not be permitted. All fixed glass panes shall be supported by setting blocks. There shall be no whistling or rattling. Before installation of glass, contractor shall ensure the following: (a) All glazing rebates shall be square, to plumb, true to plane, dry and free from dust, (b) Glass edge shall be clean and cut to exact size, (c) glazing shall provide such thermal expansion and contraction of components, as will be caused by the temperature variations inside and outside without causing buckling stress on glass, detrimental effect on structural elements and components.

11.7.2 Samples of typical glazing shall be made and got approved by the Engineer-in-Charge before mass installation taken in hand.

11.7.3 Glass in doors, windows, ventilators and fixed glazing etc. shall be of Modi, Atul, Triveni, Asahi, Saint Gobain, Pilkington make as approved by the Engineer-in-Charge.

11.7.4 4mm (10.00 kg/sqm) thick glass panes shall be provided for openings not exceeding 0.5 sqm. Openings exceeding 0.5 sqm. in size shall be provided with 5.5 mm. to 6.00 mm thick (13.75 kg. to 15 kg/Sqm.) glass panes unless specified otherwise.

11.7.5 Panel inserts shall be exterior grade boiling water proof particle board of Novapan, Bhutan Board, Kitlam, Green Lam make.

11.7.6 Fitting and fixture shall be of best quality of Classic, Adarsh as approved by the Engineer-in-Charge.

11.8 Protection and Cleaning

After erection and removal of protective layer, all aluminium works including glass panes shall be washed with a suitable thinner and water to give a uniform clear appearance free from any marks and/or blemishes.

11.9 Measurements:

11.9.1 For aluminium framework, the length of each member of the frame shall be measured correct to half centimeter along the center line of the member. The weight shall then be calculated on the basis of unit weight specified in the manufacturer's catalogue. The weight shall also be calculated on the basis of the unit weight of the corresponding sections specified in the approved drawings.

11.9.2 For purpose of payment, the least of the two weights calculated as per 5.9.1 above shall be considered subject to the condition that actual weight per meter of the respect sections is not less than the weights calculated above. In case the actual weight per meter is less, the payment then shall be made on the basis of actual weight per meter.



- 11.9.3 For glazing and fixed laminated inserts, actual length and breadth of glass/laminated board shall be measured correct to half a centimeter and area calculated in square meters correct to two places of decimal.
- 11.9.4 Weight of cleats, angles, brackets, packing pieces, separators, nuts, bolts, washers, screws and other fixtures etc. which shall be required for fabrication and erection of aluminium work shall not be considered for the purpose of payment.
- 11.9.5 Rate: The rate shall include the cost of labour & materials incurred in all the operation described above.

12.0 Wood Work

The samples of species of timber to be used shall be deposited by the contractor with the E.E. before commencement of the work. The contractor shall produce cash vouchers and certificate from standard kiln seasoning chemically pressure treatment plant operators about the timber section to be used on the work having been kiln seasoned chemically pressure treated by them, failing which it would not be to accept as kiln seasoned & chemically pressure treated.

- 12.1 Factory made shutter, as specified shall be obtained from factories to be approved by the Engineer-in-Charge and shall conform to IS: 2202 (Part-I) 1977. The contractor shall inform well in advance to the Engineer-in-Charge the names and address of the factory where from the contractor intends to get the shutters manufactured. The contractor will place order for manufacture of shutters only after written approval of the Engineer-in-Charge in this regard is given. The contractor is bound to abide by the decision of the Engineer-in-Charge and recommend a name of another factory from the approved list in case the factory already proposed by the contractor is not found competent to manufacture quality shutters. Shutters will, however, be accepted only, if this meet the specified tests. The contractor will also arrange stage-wise inspection of the shutters at factory by the Engineer-in-Charge or his authorised representative. Contractor will have no claim if the shutters brought at site are rejected by Engineer-in-charge in full lot due to bad workmanship/quality. Such shutters will not be measured and paid and the contractor shall remove the same from the site of work within 7 days after the written instructions in this regard are issued by Engineer-in-charge or his authorised representative.

13. STEEL WORK:

- 13.1 The steel doors, windows, ventilators and composite units shall be got fabricated in workshop approved by the Chief Engineer concerned.
- 13.2 The M.S. plate clamps 15x6mm. Thick for holding arrangements are to be provided and added as per site conditions. The rate is inclusive of the cost of such clamps.
- 13.3 All welded steel work shall be tested for quality of weld as laid down in IS: 822-1970 before actual erection, unless otherwise specified in the nomenclature of the item.



15. MARBLE STONE SLAB WORK

14.1 The marble stone slab work wherever specified in this contract / tender documents, the thickness should be considered as 16 mm in place of 18 mm and correspondingly the thickness of bed mortar shall be 24 mm.

14.2 Flooring work is to be executed as per flooring pattern shown in Arch. Drawings and as per direction of Engineer-in-Charge for which nothing extra will be paid.

14.3 The size of tiles/marble stone/Granite stone in dado/skirting is to be provided as shown in Architectural drawings.

15 (a) WARRENTY CARD WHEREEVER APPLICABLE AS PER DIRECTION OF ENGINEER IN CHARGE

Wherever applicable, the product which comes with manufacture:-

Such warranty/guarantee shall be available by the agency should be handed over to the Engineer-in-charge as a documentary proof.

(b) GURANTEE BOND WHEREEVER APPLICABLE AS PER DIRECTION OF ENGINEER IN CHARGE

(i) GURANTEE BOND FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS:-A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma.

(ii) GURANTEE BOND IN RESPECT OF ALUMINIUM DOORS, WINDOWS VENTILATORS, STRUCTURAL GLAZING & ALUMINIUM COMPOSITE PANEL WORKS :-A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma.

(iii) GUARANTEE BONDS FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF ACRYLIC PAINT WORKS:-A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma.

(iv) GURANTEE BOND FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER SUPPLY AND SANITARY INSTALLATIONS :-A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma.

16.0 : FLOORING

- i) The rate of items of flooring is inclusive of Providing Sunken Flooring in Bathrooms, Kitchen, W.C., etc. and nothing extra on this account is admissible.
- ii) All the work in general shall be carried out as per CPWD Specifications 2019.
- iii) The vitrified tiles shall be double charged. The tiles shall be of specified colors as shown in the drawings and will be laid in pattern as per architectural drawings. Nothing extra shall be paid for laying tiles in specific pattern. The tiles shall be of first quality of approved make.



- iv) Proper gradient shall be given to flooring for toilets, verandah, kitchen, courtyard etc. so that the wash water flows towards the direction of floor trap. Any reverse slop if found, shall be made good by the contractor by ripping open the floor/grading concrete and nothing shall be paid for such rectifications.
- v) The flooring and skirting will be executed as per pattern shown in the Architectural drawings and as per approval of Engineer-in-Charge and nothing extra shall be payable on this account.
- vi) Samples of flooring material are to be deposited well in advance to the Engineer-in-Charge for approval. Approved samples should be kept at site with the Engineer-in-Charge and the same shall not be removed except with the written permission of Engineer-in-Charge. No payment whatsoever will be made for these samples.
- vii) The rate shall include the cost of all materials and labour involved in all the operations. Nothing extra shall be paid for use of cut/sawn tiles in the work.



SPECIAL CONDITIONS

1. The contractor shall not store/dump construction material or debris on metalled road.
2. The contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
3. The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.
4. The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precaution that the vehicle is properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air/contaminate air.
5. The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
6. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to dust emission.
7. The contractor shall ensure that C&D waste is transported to the C&D waste site only and due record shall be maintained by the contractor.
8. The contractor shall compulsorily use of jet in grinding and stone cutting.
9. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
10. The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
11. The contractor shall ensure that the DG sets comply emission norms notified by MoEF.
12. The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 kmph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
13. The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.
14. No extra payment shall be done for leveling course, if required any, to match finished level of floorings of different materials and thickness as per direction of Engineer-in-Charge.
15. During the execution of work, the finished items i/c tile works, granite work, marble work, kota stone and all other items shall be protected from damages/scratches/broken/dicolour etc. by using suitable materials as per direction of Engineer-in-Charge till the completion/handing over of building to user department.



16. Contractor shall provide for use of CPWD the following during entire period of the work.
- (i) CCTV camera IP based on site Project Monitoring System with minimum 06 Dome/Bullet cameras.
 - (ii) Temporary site office of 01 rooms having minimum size of 15x10ft including required furniture's, A/C & attached toilet for department for monitoring the project.
17. No extra payment will be made for operation/activity mentioned at Sl. No. 1 to 16 above.
18. Contractor shall prepare the structural design & detailing of Structural Glazing, ACP works, Entrance gate and vetted from government engineering collage like Jadavpur University, Kolkata, Bengal Engineering and Science University, Shibpur or any other Government Engineering Collage with the approval of Engineer-in-charge. No, additional payment will be made on this account.



Special Conditions to comply directives of Hon'ble National Green Tribunal and EIA Guidance Manual

The contractor shall not store/dump construction material or debris on metalled road.

The contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.

The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.

The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precaution that the vehicles are properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air/contaminate air.

The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.

The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relating to dust emission.

The contractor shall ensure that C&D waste is transported to the C&D Waste site only and due record shall be maintained by the contractor.

The contractor shall compulsorily use of wet jetting rendering and stone cutting.

The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.

The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.

The contractor shall ensure that all DG sets comply emission norms notified by MoEF.

The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced to a large extent by reducing the speed of a vehicle to 20 km/ph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.

The contractor shall ensure that the construction materials covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.

14. The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects. The NIT approving authority shall carry out cost benefit ratio analysis of the same.

**LIST OF PREFERRED MAKES FOR CIVIL WORKS**

Approved makes of materials to be used in the work are as under. In case of non-availability of these makes, the Engineer-in-charge may allow use of alternative BIS makes of materials in the work. Non-BIS marked materials may be permitted by the Engineer-in-charge if BIS make is not available.

No.	Material description	Approved Manufacturer / Brand Name
1	Ready Mix Concrete Plant.	Ultratech Ready Mix Concrete Plant, ACC Ready Mix Concrete Plant, Maruti Ready Mix Concrete Plant.
2	Cement (PPC)	ACC, Ultratech, Vikram, Shree Cement, Ambuja, Jaypee Cement, Century Cement & J.K. Cement.
3	White Cement	Birla White, J.K. White.
4	TMT bars – Fe 500D or more	SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd. and JSW Steel Ltd
5	Water proofing compounds, admixtures, plasticizer, super plasticizer, curing compounds	Fosroc, ROFF/Dr. Fixit (Pidilite Industries), Garware, STP Ltd., Sika, BASF, Ardex Endura & Perma Construction Aids Pvt. Ltd.
6	Integral water proofing compound with cement (for plaster & mortar)	Fosroc: Conplast 421, Dr. Fixit: LW+, Sika: Sikacim, Asian Paint: SmartCare Vitalia & equivalent product of BASF, Garware, STP Ltd., Ardex Endura & Perma Construction Aids Pvt. Ltd.
7	Water proofing compound for bathroom/ toilet /balcony & other wet areas	Fosroc: Bush Bond, STP Ltd.: Shalcrete, CICO: Tapecrete, Dr. Fixit: Pidifine 2K, Garware, Sika: Topseal 107, Asian Paints: Damp Block 2K & equivalent product of BASF, Ardex Endura & Perma Construction Aids Pvt. Ltd.
8	Crystalline water proofing compound	Fosroc: Bushbond TGP, Dr. Fixit: Dr. Fixit Krystalline, Sika: Sika 101h, Garware, Asian Paints: SmartCare & equivalent product of BASF, Ardex Endura, STP Ltd., Perma Construction Aids Pvt. Ltd.
9	Grouts, Tile Adhesive	Laticrete, STP Ltd., Kajaria, Garware, BASF, Perma, Ardex Endura, Wurth, JK White.
10	Structural steel	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd. (RINL), JSW Steel Ltd., Jindal Steel & Power Ltd.
11	Polycarbonate sheet	GE Plastic, LEXAN & MG Polyplast, DPI Daylighting.
12	Profile steel sheet	Ezydeck of TATA, Lloyd Superdeck, JSW, Jindal
13	Particle board	Action TESA, Merino, Archidply & Orion Doors
14	Laminates	Action TESA, Vibrant Laminate Pvt. Ltd., Greenlam, Century Ply, Merino, Archidply, Virgo & Orion Doors
15	Flush door shutters	Duro, Century, Durian, Archidply, GreenPly, JAYNA (Jain Wood Industries), Jain Doors Pvt. Ltd., GREENPANEL. Note: Only ISI marked flush door shutters to be used.
16	Fire rated doors	Signum fire protection, ASES (Agni Suraksha), Saint Gobain, Shakti Metdoor, NAVAIR, Promat, Thrislington, Pacific, Sukri & Bhawani. If fire rated glass is integral part of fire rated door than it should be of one of the following makes: Pyroguard, Saint Gobain, Asahi India, Pilkington & Schott.
17	False ceiling system	Armstrong, USG Boral, Saint Gobain, Aerolite, Diamond ceilings, Interarch, Hi-steel of PR Ceiling Products, Hunter



		Douglas.
18	Plywood / Veneer	GreenPly, Century, Merino, Durian, Archidply, GREENPANEL & Orion Doors
19	Melamine polish	Asian Paints melamine gold, Garware, Wudfin of Pidilite & Timbertone of ICI Dulux.
20	Floor spring & door closer	Godrej, Dormakaba, Dorset & Kich.
21	Aluminium section	Hindalco, Jindal & Indian Aluminium Co.
22	Anodized aluminium hardware (Heavy Duty)	Kilong, Alualpha, Classic & Ebco.
23	Clear/Float/Frosted/Toughen Glass/ Refractive Glass	Saint Gobain, AIS, Gold Plus & Modiguard
24	Stainless steel railing, Accessories etc.	Jindal, Dormakaba, Kich, GEZE, Godrej & Hardwyn.
25	SS fittings for doors & window	Jindal, Dormakaba, Kich, Dorset, Godrej, Ozone & Define
26	Silicon based water repellent/weather sealant	GE Plastics, Wurth, STP Ltd., Dow Corning, Waker, BASF & Pidilite (Dr. Fixit/Roff).
27	Poly-Sulphide Sealant	Fosroc, STP Ltd., Pidilite (Dr. Fixit/Roff), Sika & BASF
28	Mosaic tiles/Chequered Tiles	Ultra Tiles, NITCO, Hyper, Mayur & Pavcon
29	Glazed Ceramic Tiles	Kajaria, NITCO, Orient Bell, RAK & AGL.
30	Glazed Vitrified Tiles (Antiskid / Matt / Polished)	Kajaria, NITCO, Orient Bell, RAK, Adicon & AGL.
31	Paver block & Kerb stone	Instone, Pavcon, Hyper, Mayur, KK, Power, Sharda & Navya
32	Cement Based wall putty	Asian Paints, Birla Wall Care, JK White.
33	Oil bound washable distemper / dry distemper	Asian Paints (Professional Acrylic Distemper), Nerolac: Beauty Acrylic Distemper, Berger: Bison Acrylic Distemper, Garware & Dulux ICI: Maxilite
34	1st quality acrylic distemper (washable/ ready mix / Low VOC)	ICI-Dulux, Asian Paints, Garware, Berger & Nerolac.
35	Acrylic emulsion paints	Asian Paints: (Professional Premium Interior Emulsion Paint), Garware, Nerolac: Beauty Gold, Berger: Rangoli Total Care & ICI Dulux: Super Cover
36	Plastic emulsion paint	Asian Paints: (Apolite Heavy Duty Premium Emulsion Paint), Garware, Nerolac: Impression, Berger: Easy Clean & ICI Dulux: 3 in 1
37	Premium acrylic emulsion paints (Interior)	Asian Paints : (Royale Luxury Emulsion), Garware, Nerolac : Impression, Berger : Silk & ICI Dulux : Velvet Touch
38	Textured exterior paint	Asian Paints, Nerolac, Garware, Berger Paints, Ultratech Paints & Luxture
39	Acrylic smooth exterior paint	Asian Paints: (Apex/Professional Premium Exterior Emulsion), Nerolac: XL, Berger: Weather Coat, Garware & ICI Dulux: Weather Shield,
40	Premium acrylic smooth exterior paint with silicon additive	Asian Paints: Apex Ultima, Nerolac: XL total, Garware, Berger: Weather Coat all Guard & ICI Dulux: Weather Shield Max



41	Synthetic Enamel Paint	Asian Paints: Apcolite Premium Gloss Enamel, Nerolac: Synthetic Hi gloss, Garware Berger: Luxol Hi gloss & ICI Dulux: Gloss Synthtic enamel.
42	Cement Primer	Nerolac, Berger (BP white), Garware, STP Ltd., Asian (Decoprime WT) & ICI (White primer).
43	Steel primer (Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Garware, Berger & ICI
44	Wood primer	Asian Paints (wood primer - White/Pink), Garware, Berger, ICI & Nerolac
45	Epoxy paint	Asian Paints, STP Ltd., Nerolac, Berger, ICI, Kansai & Akzo Nobel
46	Fire paint	Asian Paints, STP Ltd., Akzo Nobel, Wurth PROMAT & JOTUN
47	GI/MS Pipe	Tata, Jindal, Jindal (Hisar) & Prakash Surya
48	GI Fittings	Unik, AVR, HB & Zoloto
49	HDPE Pipes	Reliance, Jain Pipes, ORIPLAST & Supreme
50	DI Pipes & fittings	Electrosteel, Jindal, TATA DUCTURA & Kesoram
51	uPVC pipe and fittings	Astral, Supreme, Prince, M/s Skipper Ltd., Ashirwad & Prayag Polymers Pvt. Ltd., Hindware.
52	SW Pipes (BIS approved)	Anand, Parry & Perfect
53	Centrifugally Cast (Spun) Iron Pipes & Fittings /Hubless pipes & fittings	Hepco, NECO, BIC, SKF, Raj Pattern Makers & Founders Pvt. Ltd. or any other ISI marked make.
54	CI Manhole covers, frames & GI Gratings	Hepco, NECO, BIC, SKF or any other ISI marked make
55	SFRC Manhole covers & gratings	Hepco, NECO, KK, JAIN & PARGATI
56	CP brass fittings (Superior Range)	Jaquar, Groh, PLATO, Prima, Roka, Player & Kingston.
57	CP brass fittings (Normal Range)	ESSCO (by Jaquar), PLATO, Prima, Parryware, CERA, Kerovit (Kajaria), Johnson, Prayag Polymers Pvt. Ltd., Player & Kingston.
58	Sanitary ware, fittings & accessories	Kerovit (Kajaria), Prima, CERA, PLATO, Jaquar, Parryware, Hindware & Prayag Polymers Pvt. Ltd.
59	Mirror glass	Atul, Modi Guard, Gold Plus & Golden Fish
60	CPVC Pipe & fitting	Astral, Supreme, Prince, M/s Skipper Ltd., Ashirwad & Prayag Polymers Pvt. Ltd., Hindware.
61	Stainless steel sink	Silver Shine (Bluestar Sanitary Industries Pvt. Ltd.), Prima, PLATO, Neelkanth, Niralli, AMC, Jyna & Prayag Polymers Pvt. Ltd.
62	FRP doors shutters & frame	Jayna, Fiberways, Jain Doors Pvt. Ltd. & Selected Product Co.
63	Extruded polystyrene insulation board	Dowcorning, Supreme, Texas & Analco
64	Gypsum plaster	Ferrous Crete, Gyproc Saint Gobain, Ultra Tech & JK White
65	Floor hardener	Ironite, Perma, STP Ltd., Ferrok & Hardonate
66	Modular Expansion Joint	Herculus, Sanfield India Ltd & Vexcolt



67	Glass Wool	Dow Corning, UP Twiga & Isover
68	uPVC door/window/ventilator	Fenesta, Komerling, Rheau, Veka, Duroplast, MARG, Aluplast & Advika Profiles Pvt. Ltd. (Advika Fenster) (Fabrication and installation will be done by profile manufacturer or his authorized fabricator).
69	uPVC doors and window hardware	Roto, Dorset, DNV Accado & Kinlong
70	AAC block Adhesive	UltraTech, Perma, Ardex Endura, Home sure/Build well & Ferrous Crete, MYK Latcrete.
71	PVC Water Tank	Sintex, Patton & Vectus
72	AAC Block	TATA, Excel, MAX Blocks, UltraTech, HIL, BILTECH ACE & Gravit.
73	Modular Kitchen	Godrej, Evok by Hindware
74	Aluminum shuttering	Knest, S-form, Durand Forms (India) Pvt. Ltd. & Mivan
75	Dash fasteners /Anchors	Wurth, Hilti, Bosch & Fischer
76	MBBR reactor, Multi grade Filter & Activated Carbon Filter	Degremont, OSDPL, Thermax & ION Exchange
77	MBBR media	Cooldeck, MM Aqua, Eco Aqua & Ion Exehange
78	Solid PVC Door Frames & Shutters	Polyline, Sintex, Plasto Green, Duroplast & Rajshri Plastiwood
79	Aluminium Composite Panel	Alstrong, Aludecor & Timex
80	Toilet Cubical with HPL board & SS fittings of grade SS-316	Merino Industries Limited, Greenlam Industries Ltd.

All fitting shall have ISI marked on its body wherever applicable.

Note:-Superintending Engineer-Barasat, CPWD, Kolkata reserves the right to add or delete any materials and Brands in the list of approved materials/brands. Unless otherwise specified in the tender document, all the materials which are ISI marked shall be used in the work and if the ISI marked materials are not available, materials confirming to ISI shall be used, and for materials which are neither BIS marked nor confirm to BIS, the manufacturers specification shall be used with prior approval of Engineer-in-charge.



PART- D

(Schedule of Quantity)

Proforma for Quoting Rates

Central Public Works Department

AE(P)(E)

Addition: NIL

Correction: NIL

Overwriting: NIL

Deletion: NIL

EE (E)



NIT No.: 30/EE-E/BCED/ CPWD/2026-27	
Name of work: - Renovation of controlled environment plant growth facility at Biotechnology unit ICAR, CRIJAF, Barrackpore.	
Estimated Cost put to tender (₹)	₹ 48,48,704.00 (Electrical ₹ 26,26,295.00 + Civil ₹ 22,22,409.00)
Name of the Contractor	

Sl. No.	Name of component	Estimated Cost	Percentage above or below the estimated cost	% In Figures	Total Cost in ₹
1	Electrical work	₹ 26,26,294.60			
2	Civil work	₹ 22,22,408.50			
	Total Cost	₹ 48,48,703.00			

1. Only one of the options is to be filled. More than one option shall be rejected.
2. Rate filled in any form shall be considered only in % age.
3. Rate filled at any other place in the document shall not be considered.
4. No condition shall be accepted.